Article

Emotional States and Suicidal Ideation among Adolescents

Angel Belzunegui-Eraso *, Anna Sánchez Aragón, Inma Pastor-Gosálbez, Francesc Valls-Fonayet, Verónica Díaz-Moreno, Jorge De Andrés-Sánchez

Posted Date: 26 February 2024

doi: 10.20944/preprints202402.1483.v1

Keywords: Adolescents; Suicidal ideation; Emotional distress; Self-esteem; Gender.

 doi:10.20944/preprints202402.1483.v1

Article

Emotional States and Suicidal Ideation among Adolescents

Angel Belzunegui-Eraso [1,*], Anna Sánchez Aragón [1], Inma Pastor-Gosálbez [1], Francesc Valls-Fonayet [1], Verónica Díaz-Moreno [2] and Jorge De Andrés-Sánchez [1]

[1] Rovira i Virgili University, 43002 Tarragona, Spain, annamaria.sanchez@urv.cat (A.S.A), inma.pastor@urv.cat (I.P.-G.), francesc.valls@urv.cat (F.V.-F.), jorge.deandres@urv.cat (J.D.A.-S.)
[2] National University of Distance Education, 28015 Madrid, Spain, vdiaz@poli.uned.es
* Correspondence: angel.belzunegui@urv.cat

Abstract Background: Mental health has a special relevance in adolescence. Therefore, this study aimed to analyze the possible association between emotional distress and suicidal ideation among adolescents.Methods: The article presents the results of a survey of secondary school students (N=1419) in the city of Tarragona, Spain. The aim of the analysis was to verify the existence of an association between suicidal ideation and risk factors such as emotional distress and low self-esteem. All the data were also analysed to determine the existence of statistically significant differences between girls and boys. Bivariate analyses were performed with chi-square, point-biserial coefficient and non-parametric tests for independent groups. Logistic regression analysis was also performed to calculate the probability of suicidal ideation. Results: These analyses showed that both emotional distress and low self-esteem increase the likelihood of suicidal ideation among adolescents. This was more evident among boys with high levels of emotional distress. Conclusion: Schools should develop suicide ideation prevention programs for adolescents based on situations that cause emotional distress.

Keywords: adolescents; suicidal ideation; emotional distress; self-esteem; gender

1. Introduction

Suicide attempts are uncommon before puberty but become more frequent with the onset of adolescence. In Spain, the percentage of children aged between 4 and 8 who have suicidal thoughts is 2% but this triples after the children reach puberty when among those aged between 13 and 16 it is 6% [1]. In pre-adolescence, suicidal thoughts are more recurrent in boys than in girls, although this trend is inverted from the age of 13 onwards. According to parents, after that age 7% of girls compared to 5% of boys may consider the possibility of suicide [1]. It should be noted, however, that although girls have more suicidal thoughts or intentions than boys, it is mainly boys who commit the act of suicide. Globally, it is estimated that men carry out more suicides than women (in developed countries the ratio is 2.6:1 [2]. However, the ratio of suicide attempts is 1:3 in favour of women [3], who also tend to present a greater level of suicidal ideation [4].

In Spain children and adolescents die mainly from external causes – particularly, accidents, suicides and self-inflicted injuries – and to a lesser extent from cancer or diseases of the nervous system [5]. According to staff of the *Teléfono de la Esperanza* (Telephone of Hope) suicide hotline who specialise in issues related to minors, COVID-19 led to a significant increase in requests for help from adolescents and young people[1], especially females. In the first year of the health crisis, the *Código Riesgo Suicidio* (CRS, or Code of Suicide Risk) programme in Catalonia recorded a 195% increase in

[1]In 2020 roughly 3,000 calls were received from minors. This was 38% more than had been received in the previous year.

 doi:10.20944/preprints202402.1483.v1

suicide attempts among girls aged between 12 and 18, compared to a 10% increase in suicide attempts among boys of the same age. In Catalonia 8.7% of secondary school students are estimated to frequently have thoughts of suicide (wanting to disappear or to fall asleep and never wake up), while 5.8% have a desire to self-harm [6].

Documented as risk factors for youth suicide and self-harm are personal characteristics such as impulsivity and low frustration tolerance. When these factors are added to exposure to psychosocial stressors, the vulnerability of minors to suicidal behaviour increases [7]. The appearance of recurrent thoughts of death or suicidal ideas in adolescence has also been related to hopelessness, or a negative view of the future [8], low self-esteem [9–13], and lower levels of life satisfaction [14], though their appearance also depends on sociodemographic characteristics such as sex, age and sexual orientation [15,16]. Other predisposing factors related to suicide in adolescents are depressive symptomatology [14], the clinical manifestation of sleep disorders such as insomnia or hypersomnia [17], the harmful consumption of alcohol and other psychoactive substances [16,18,19] and a personal or family history of attempted suicide [20,21]. Adolescents who have experienced stressful life events such as the serious illness of a loved one [7], sexual abuse [22,23] or bullying [24–27] are also more exposed to the risk of suicide.

Current explanatory models of suicidal behaviour in childhood and adolescence are multidimensional and include various risk or vulnerability factors that, together with protective factors such as the perception of a well-functioning family [28], interact as one moves through the various stages of life. Suicide is a complex public health problem since both individual and environmental factors are involved [3]. It should be noted that, although none of the causes we have identified so far is a necessary and sufficient condition for exhibiting suicidal behaviour, several studies suggest that exposure to two or more risk factors increases the likelihood of suicide [29].

In this article we aim to identify predictors of suicidal ideation in adolescence. Data on suicidal ideation were collected through a direct question posed to adolescents: "How often have you thought about suicide in the last week?" To achieve our objective, first we review the main contributions in the scientific literature on suicidal behaviour as a complex, multi-causal phenomenon. We then explain our methodology, analyse and examine our results, and discuss the limitations of the study. Finally, we present our conclusions.

2. Risk Factors for Suicidal Ideation in Adolescents

Numerous studies have confirmed the relationship between emotional distress and suicidal behaviour in adolescents [7,14,30]. In particular, a considerable body of research points to mood disorders and depression as the main factors associated with attempted suicide [31–35], which is considered either a symptom and a consequence of these emotional disturbances. Psychiatric disorders (such as major depressive disorder, bipolar disorder and post-traumatic stress disorder) have been observed to increase the vulnerability of young people to suicide [36], as have individual circumstances such as previous suicide attempts and sexual abuse [7,22,23,37,38]. Some authors [39] have demonstrated that suicide among young people and adolescents is associated with recent adverse life events, especially in the week leading up to the suicide attempt. For example, stress caused by interpersonal conflict (such as an argument with parents, a breakup, a quarrel with significant others, or financial problems) was found to precede attempted suicide in a sample of young Israelis [40].

Psychosomatic symptoms – i.e. physical ailments with no apparent organic cause but which have a profound effect on the health and well-being of individuals – are common in adolescence. Studies indicate that at least a third of children present these symptoms on a weekly basis [41]. Young people frequently complain about recurring headaches and abdominal discomfort as well as backache, fatigue and gastrointestinal ailments [42,43]. Other common conditions in this population group include difficulty concentrating and problems sleeping accompanied by feelings of sadness and tension [44]. Research shows that psychosomatic symptoms are physical manifestations of emotional problems [44] and become particularly evident in mood and stress [45]. Studies generally indicate that such symptoms are usually more frequent in girls [46–49] and that in both sexes their

 doi:10.20944/preprints202402.1483.v1

prevalence increases with age [50]. This has largely been explained by pubertal hormonal changes, which are more dramatic in females [51]. The prevalence of somatization and depression and the likelihood of experiencing physical pain increases as puberty develops [52], especially in girls, who, as we have noted, tend to have stronger suicidal thoughts than boys [4].

Research [53] affords the family a decisive responsibility in the physical and social-emotional development of adolescents. According to Minuchin's structural theory [54], the family is a complex system comprising several interconnected members at different levels such that any change or alteration in one part of the system affects all its members (including adolescents) and their relationships [55]. This approach has shown that parenting behaviours and styles can influence or explain negative outcomes in a child's development, such as the presence of suicidal ideation [56]. It has been demonstrated, for example, that a lack of support and cohesion among family members fosters suicidal behaviour in adolescents [57–59], especially if there are conflicts with parents [13]. Some authors, [60], have also observed that adolescents whose communications with their families are negative – for example, charged with excessive criticism and unclear messages – have worse moods and lower self-esteem than those whose interactions with their parents are open, empathetic and based on dialogue. This is particularly important since self-esteem, i.e. a positive or negative attitude towards oneself [61], is associated with suicidal behaviour, especially in adolescence and youth [10,62]. In Mexico, it was observed that self-esteem is a predictor of suicide common to both sexes [11]. According to their study, the assessment individuals make and often maintain about themselves plays an important role in suicidal ideation, a finding that adds to others [63] regarding the predominant influence of self-esteem on suicidal or self-injurious behaviour.

The planning of one's own death and completed suicides are also more likely among victims of sexual abuse [22,30], though greater or lesser vulnerability to the development of suicidal behaviours also depends on factors such as the intensity and duration of the abuse, feelings of guilt towards oneself or another family member, shame, post-traumatic stress disorder after sexual assault, or the level of the victim's relationship to the aggressor [37,64]. Specifically, suicide attempts are found to be more serious when the forced sexual act includes vaginal or anal penetration [23]. Research shows that mental health is often compromised for victims of child and adolescent sexual abuse, who exhibit a higher presence of psychiatric symptoms and disorders [65].

3. Materials and Methods

3.1. Design

Our methodology comprised a descriptive-analytical cross-sectional design.

3.2. Sample

To carryout this study a self-administered questionnaire was sent to a sample of 1419 adolescents in the city of Tarragona (Catalonia) aged between 16 and 17. The study participants were students enrolled during the 2020-2021 school year and the sampling error was ±2.6%. The questionnaire was sent by email to students whose parents or legal guardians had previously provided their consent. The students' email addresses were provided by their schools and the data were collected in May 2021 when restrictions on both mobility and access to schools due to anti-pandemic measures were still in place.

The socio-demographic characteristics of the adolescents who took part in the study are shown in Table 1.

 doi:10.20944/preprints202402.1483.v1

Table 1. Characteristics of the study participants.

Adolescent boys	**44.9% (637)**
Adolescent girls	55.1% (782)
16 years old	46.4% (659)
17 years old	53.1% (754)
No answer	0.5% (6)
Current studies: Year 11 (UK); Grade 10 (USA)	55.0% (780)
Current studies: Year 12-13 (UK); Grade 11-12 (USA)	32.2% (456)
Current studies: First year of vocational training	9.7% (137)
Current studies: Second year of vocational training	3.2 (46)
Living with their parents	73.2% (1039)
Living with a grandparent and their mother or father	2.1% (30)
Living with their mother (single-parent family)	13.0% (184)
Living with their father (single-parent family)	1.9% (27)
Living with their grandparents without their mother or father	0.8% (11)
Living with their mother or father and their new partner	7.4% (105)
Other cohabitation situations	1.6% (23)
Born in Spain	89.4% (1268)
Not born in Spain	10.2% (145)
No answer	0.4% (6)

3.3. Variables Used

Our analyses incorporated the following variables.

The sex of the adolescents, measured as a dichotomous variable, to check for differences between adolescents: 1 = boy and 2 = girl.

Suicidal ideation was collected by means of a direct question, "Have you thought about suicide in the last week?", with four response categories (1 = Never or almost never; 2 = Occasionally; 3 = Sometimes; 4 = Often). For logistic regression analysis, suicidal ideation was dichotomised as 1 = Yes (with suicidal ideation) for those who responded with "Sometimes" or "Often" and 0=No (without suicidal ideation) for the rest.

Emotional distress (ED) was measured using a 13-item scale each with four response categories (1 = Never or almost never; 2 = Occasionally; 3 = Sometimes; 4 = Often). All of these items begin with a similar entry: "How often have you thought or felt the following …?". Each item then continues with one of the following situations: 1) I have felt anxious; 2) I have felt a sudden fear for no apparent reason; 3) I have felt tense; 4) I have had no interest in doing anything; 5) I have had little appetite; 6) I have felt lonely; 7) I have cried easily or felt like crying; 8) I have had trouble sleeping; 9) I have felt sad; 10) I haven't felt excited about doing things; 11) I have felt slow or had little energy; 12) The future has seemed hopeless to me; 13) I have thought about suicide. The maximum ED score is 52 and the minimum score is 13. The higher the score, the greater the emotional distress. For our analysis we constructed the following dichotomous variable for ED: 1 = With emotional discomfort and 0 = Without emotional discomfort. We considered a student to be suffering from emotional distress if they scored over 39 in this area (this cut-off point is equivalent to having responded to each of the 13 items in the scale with at least the response "Sometimes").

In our study, the ED scale provided a Cronbach's α =0.91. Item-total correlation coefficients ranged from 0.41 to 0.78. Deleting any item did not improve the consistency of the scale measured with Cronbach's α. Since the intraclass correlation coefficient (ICC) was 0.431 ($p<0.001$), we concluded that there was acceptable agreement in the application of the scale.

To measure the adolescents' self-esteem, we used the Self-Esteem Index (Rosenberg, 1965), which comprises 10 items that refer to overall feelings of self-esteem and self-perception. Five of the items are positively worded: "I feel that I'm a person of worth, at least on an equal plane with others";

 doi:10.20944/preprints202402.1483.v1

"I feel that I have a number of good qualities"; "I am able to do things as well as most other people"; "I take a positive attitude toward myself"; and "On the whole, I am satisfied with myself". The five other items are negatively worded: "All in all, I am inclined to feel that I am a failure"; "I feel I do not have much to be proud of"; "I wish I could have more respect for myself"; "At times I think I am no good at all"; and "I certainly feel useless at times". The positively worded items were categorized as: 1 = I strongly disagree; 2 = I disagree; 3 = I agree; and 4 = I strongly agree. The categories for the negatively worded items were reversed. The maximum score on the Self-Esteem Index is 40 and the minimum score is 10. The higher the score, the higher the self-esteem.

Psychometric tests of the scale developed by Rosenberg (1965) reflected a reproducibility coefficient of 0.92, which indicates excellent internal consistency. Test-retest reliability over a two-week period revealed correlations of 0.85 and 0.88. In our case, Cronbach's α was 0.87 and the ICC was 0.40 ($p<0.001$).

3.4. Hypotheses

Hypothesis H_1: emotional distress in adolescents increases their likelihood of presenting suicidal ideation.

Hypothesis H_2: low self-esteem in adolescents increases their likelihood of presenting suicidal ideation.

Hypothesis H_3: there are significant differences between boys and girls in the likelihood of presenting suicidal ideation.

3.5. Analysis

First, we performed a descriptive analysis of the variables to determine their distribution in our sample. This description included the analysis of the psychometric properties of the scales.

The sex variable was then cross-tabulated for each item of the emotional distress and self-esteem scales as well as for the variable we aimed to predict, i.e. suicidal ideation. These cross-tabulations were presented along with their respective comparison tests to determine whether significant differences exist between boys and girls. Non-parametric tests were conducted for independent groups (sex, suicidal ideation) after verifying non-compliance with the assumptions of normality and homoscedasticity in the ED variables, Self-Esteem Index and the variable that resulted from the calculation of the probability of suicidal ideation.

Finally, to calculate the probabilities of suicidal ideation among adolescents, we set up a binary logistic regression model to observe the potential predictive power of the variables considered independent and/or predictive (sex, self-esteem, ED) on the dependent variable (suicidal ideation), which was classified as dichotomous.

Effect size was measured in all cases where a statistically significant association was detected. For the 2x2 tables, Cohen's d was used, while for non-parametric comparisons point biserial correlation and Eta squared (η^2) were used.

All tests and comparisons were performed with a 95% confidence level.

Analyses were conducted using SPSS-IBM 22.0 and Jamovi software.

 doi:10.20944/preprints202402.1483.v1

4. Results

Our results showed that in the week before responding to the questionnaire, 5.1% of adolescents thought about suicide often, 8.2% thought about it sometimes, 12.4% did so only occasionally, while 74.3% of respondents almost never did. The sum of the first two categories is 13.3% of the sample (N = 189). In the bivariate comparison, the differences by sex were statistically significant (χ^2=7.00; p=0.008): suicidal thoughts were slightly more frequent in girls (15.5%) than in boys (10.7%). However, the effect size measured with Cramer's V coefficient was low (0.10), which suggests that caution should be taken with this conclusion.

4.1. Emotional Distress and Suicidal Ideation

In comparison with boys, girls reported suffering stronger symptoms associated with a negative emotional state in the week preceding administration of the questionnaire. For example, 68.7% of adolescent girls reported suffering moments of anxiety (compared to 37% of adolescent boys) and 57% reported having had trouble falling asleep (compared to 34.1% of adolescent boys). In comparison with adolescent boys, they also felt sadder (67% of girls vs 34.5% of boys), more disinterested (68% vs 54.5%) and less excited about doing things (65.7% vs. 45.4%). Adolescent girls also more frequently reported poor appetite (54.5%), feeling lonely (51.9%), crying easily (71.1%) and sudden fear (39.5%). All these comparisons were statistically significant.

Table 2. Percentages of adolescent boys and girls who reported experiencing situations of emotional stress sometimes or often in the preceding week.

Emotional distress	**Boys**	**Girls**	**Chi-squared**	***p***	**Cohen's *d***
I felt anxious	37.0% (236)	68.7% (537)	141.54	<0.001	0.665***
I felt sudden fear for no apparent reason	19.5% (124)	39.5% (309)	66.54	<0.001	0.444**
I felt tense	37.4% (238)	59.2% (463)	67.02	<0.001	0.445**
I had no interest in doing things	54.5% (347)	68.0% (532)	27.37	<0.001	0.281 **
I had little appetite	27.6% (176)	54.5% (426)	103.58	<0.001	0.561***
I felt lonely	36.1% (230)	51.9% (406)	35.48	<0.001	0.320**
I cried easily or wanted to cry	23.2% (148)	71.1% (556)	321.74	<0.001	1.083***
I had trouble sleeping	34.1% (217)	57.0% (446)	74.40	<0.001	0.471**
I felt sad.	34.5% (220)	67.0% (524)	148.40	<0.001	0.684***
I wasn't excited about doing things	45.4% (289)	65.7% (514)	59.24	<0.001	0.418**
I was slow or had low energy	38.6% (246)	62.1% (486)	77.82	<0.001	0.482**
The future seemed hopeless to me	30.8% (196)	50.0% (391)	53.53	<0.001	0.396**
I thought about suicide	10.7% (68)	15.5% (121)	7.00	0.008	0,141*

For 2x2 tables we used Cohen's *d* to measure effect size * Limited effect. ** Medium effect. *** Strong effect.

Scores on the ED scale yielded mean values of 26.7 (SD=8.01) for boys compared to 33.9 (SD=9.31) for girls. If we assume different variances between the two groups (F=13.2; p<0.001) and violation of the assumption of normality for the ED distribution through the Shapiro-Wilk test (W=0.986; p<0.001), the Mann-Whitney U comparison is statistically significant (p<0.001). The effect size calculated with Eta squared (η^2) was 0.148, which indicates that the sex-based effect on the emotional distress of adolescents is considerable.

ED also emerged as a factor associated with suicidal ideation, with a point-biserial coefficient (r_{bp}) of 0.481. For adolescent boys, this coefficient was 0.520 while for adolescent girls it was 0.505. It was found that 53.2% of adolescent boys who identified with emotional distress had thought about suicide. Although adolescent girls showed higher rates of emotional distress than adolescent boys, they also showed a lower prevalence of suicidal ideation since a third of girls with emotional distress (33.8%) confessed to having thoughts of suicide (Table 3).

 doi:10.20944/preprints202402.1483.v1

Table 3. Suicidal ideation among adolescents with and without emotional distress (N=189).

	Without ED % (N)	With ED % (N)	Chi-squared	*p*	Cohen's *d* *
Girls	5.8 (30)	33.8 (91)	105.64	<0.001	0.790 (strong effect)
Boys	7.3 (43)	53.2 (25)	96.2	<0.001	0.843 (strong effect)

* For 2x2 tables we used Cohen's *d* to measure effect size.

4.2. Self-Esteem and Suicidal Ideation

Adolescent boys presented a higher average than adolescent girls on the general self-esteem scale (29.5 vs 26.7, respectively). Assuming different variances between groups (F=8.32; p=0.004) and a non-normal distribution (W=0.992; p<0.001), we conducted a rank comparison analysis for independent groups (boys and girls) on the self-esteem scale, with a statistically significant Mann-Whitney U comparison (p<0.001). The effect size measured with Eta squared (η^2) was 0.052, which indicates an intermediate effect.

The Self-Esteem Index, with a point-biserial coefficient (r_{bp}) of 0.351 (p<0.001), also emerged as a factor associated with suicidal ideation. For boys this coefficient was 0.336 (p<0.001), while for girls it was 0.369 (p<0.001).

Moreover, in the sample as a whole a statistically significant correlation was found between ED and the Self-Esteem Index (Rho_s= -0.610; p<0.001): i.e., higher scores on the self-esteem scale correlated with lower levels of emotional distress, and vice versa.

Table 4. Responses of adolescents boys and girls to the items on the Self-Esteem Scale, in percentages and by sex.

Self-Esteem Index	Boys	Girls	Chi-squared	*p*	Cohen's *d*
I feel that I'm a person of worth, at least on an equal plane with others	83.5% (532)	83.0% (649)	0.069	0.793	-
I feel that I have a number of good qualities	86.2% (549)	74.9% (586)	27.75	<0.001	0.283*
I am able to do things as well as most other people	78.2% (498)	53.8% (421)	91.16	<0.001	0.524***
I take a positive attitude towards myself	24.5% (156)	37.2% (291)	26.33	<0.001	0.275*
On the whole, I am satisfied with myself	30.9% (197)	41.2% (322)	15.90	<0.001	0.213*
All in all, I am inclined to feel that I am a failure.	15.2% 97	25.1% (196)	20.73	<0.001	0.244*
I feel I do not have much to be proud of	26.4% (168)	37.9% (296)	21.02	<0.001	0.245*
I wish I could have more respect for myself	34.9% (222)	18.5% (145)	48.70	<0.001	0.377**
I certainly feel useless at times	56.2% (358)	33.8% (264)	71.81	<0.001	0.462**
At times I think I am no good at all	57% (363).	41.9% (328)	31,79	<0.001	0.303**

* Small effect. ** Intermediate effect. *** Strong effect.

4.3. Prediction of Suicidal Ideation

To predict suicidal ideation, we conducted binomial logistic regression analysis with suicidal ideation (No = 0; Yes = 1) as the variable to predict.

The independent variables were: (i) sex (1 = male; 2 = female, with the latter as a reference category in the analysis); (ii) emotional distress (the sum of the scores of the 13 items); and (iii) self-esteem (the sum of the scores of the 10 items). Both of the latter variables were introduced into the model as covariates

We also conducted binomial logistic regression to determine the effects of self-esteem, emotional distress and sex on the likelihood of suicidal ideation.]The linearity of the continuous variables in relation to the logit of the dependent variable was evaluated using the procedure developed by [66]. A Bonferroni correction was applied. Discriminatory capacity was evaluated using the ROC curve.

 doi:10.20944/preprints202402.1483.v1

The area under the curve was 0.834 (95%: CI: 0.805 to 0.862), which is an excellent level of discrimination [67]. Based on this evaluation, we found that all continuous independent variables were linearly related to the logit of the dependent variable. The logistic regression model was statistically significant (χ^2= 261.454; p<0.001). The model explained 30.9% (Nagelkerke R^2) of the variance in suicidal ideation and correctly classified 88.1% of the cases. Sensitivity was 23.3%, specificity was 98.0%, positive predictive value was 64.7%, and negative predictive value was 91.1%. Adolescent boys were 2.395 times more likely to have suicidal ideation than women (H_3). Increased emotional distress was associated with a greater likelihood of presenting suicidal ideation (H_1). Self-esteem presented a statistically significant but negative association (H_2), which means that higher levels of self-esteem were related to lower suicidal ideation.

The coefficients of the model for predicting suicidal ideation are shown in Table 5.

Table 5. Coefficients of binomial logistic regression.

	B	ET	Wald	df	p	Exp (B)	lower 95% CI	upper 95% CI
Constant	-6.579	0.893	54.34	1	< 0.001	0.001	-	-
Sex (1)	0.874	0.208	17.68	1	<0.001	2.395	1.594	3.599
ED	0.156	0.015	107.61	1	< 0.001	1.169	1.135	1,204
Self-esteem	-0.043	0.018	5.882	1	0.015	0.957	0.924	0.992

Note. The estimators represent the log odds of "SUICIDE = 1" vs "SUICIDE = 0".

5. Discussion

In our analysis of the association between sex and suicidal ideation we found that adolescent boys are more likely to have suicidal thoughts than adolescent girls. This finding is consistent with the pioneering study of Irish adolescents [68], who concluded that gender roles can have negative consequences for the health of males, specifically when it comes to suicidal ideation. The notion that role conflict may be associated with suicidal ideation is consistent with a meta-analysis of studies conducted with men [69].

In a generic way and after a review of the literature, psychosocial stress is highlighted as a contributing factor to suicidal ideation in line with our analysis in which we selected items related to emotional distress and self-esteem [70].

The results of the present study demonstrate that emotional distress is a risk factor for the development of suicidal ideation. This finding is consistent with previous studies [31–35] that demonstrate that mood disorders are present in most suicide attempts and that depression is one of the factors strongly associated with suicidal behaviour. The results of our study are consistent with those of other researchers [41]. They also indicate that psychosomatic symptoms are common in adolescence and more frequent in girls although, as other studies have persistently shown over the years [44,46–50], they are not exclusive to them. The data we have obtained in this study show that apathy and disinterest are symptoms that appear in both sexes.

Bivariate analyses conducted in the studies [10,62] revealed an association between low self-esteem and the risk of suicidal ideation in adolescence. This association is also proven by our data, though the association was less intense than that between emotional distress and suicidal ideation. Just as our study has shown that low self-esteem and stressful life events are related to suicidal ideation, Manani and Sharma [71] also reported a negative correlation between self-esteem and suicidal ideation in a sample of 120 secondary school students aged 16 to 18 (their regression analysis indicated that low self-esteem leads to higher levels of suicidal ideation).

Although it was not an explicit objective of our study, we should mention that another risk factor associated with suicidal ideation we have identified is sexual abuse, a finding that coincides with previous research [22,30]. Recent studies have shown that the likelihood of suicide is higher among adolescents who have suffered sexual abuse and assault [22], especially when the forced sexual act

 doi:10.20944/preprints202402.1483.v1

involved vaginal or anal penetration [23]. Research generally suggests that the significantly higher levels of stress and depression in victims of abusive behaviours are associated with a greater prevalence of suicidal ideation or behaviour [72,73].

6. Limitations

This study is subject to certain limitations, as we point out below. Since the questionnaire had to be administered online on account of the restrictions regarding access to schools due to COVID-19, the decision to complete it was left in the hands of the students themselves. This may have caused a self-selection bias that was beyond our control. Also, since the sample group was restricted to adolescents who were enrolled in school at the time of the survey, the results cannot be generalised to include those who had dropped out. The strong points of the study, on the other hand, are its sample size and low sampling error.

The aim of our analysis was to observe the hypothesis of suicidal ideation in relation to the emotional states of adolescents by using two scales that have already been validated in the literature. However, suicidal ideation is known to be a multidimensional phenomenon in which various explanatory factors concur that have not been accounted for in this study.

It is also important to note that the use of self-report questionnaires based on a Likert or polytomous scale may constitute a limitation in itself since the subjects can apply their own meanings and interpretations. Although this technique enabled us to explore several factors that predict suicidal ideation, it prevented the emergence of developing categories that could provide novel information and motivate a cyclical and recurrent research process.

7. Conclusions

The results of this study provide empirical evidence on several factors associated with suicidal ideation. When sex is linked with suicidal ideation without controlling for any other variable, adolescent girls are found to have a higher prevalence of suicidal thoughts than adolescent boys. However, when emotional distress (known for its fundamental role in the development of such thoughts) is introduced as a control variable, it is adolescent boys who present a higher percentage of suicidal ideation.

Identifying which factors promote greater vulnerability to the development of suicidal behaviours has become a predominant line of research in recent years. These risk factors may be biological, psychological, cultural and social [3]. However, none of the factors identified thus far is a necessary and sufficient condition for exhibiting suicidal behaviour. The various risk factors, which include sex, emotional state and self-esteem, are interrelated – i.e., they modify and influence each other – such that no single factor can adequately predict the presence of suicidal ideation. However, it is important to identify these key factors in order to aid the formulation of preventive interventions and health promotion strategies that will drive the creation of public policies.

Our analysis successfully verified the three hypotheses we formulated earlier, which indicates that being male and having emotional distress are risk factors that explain suicidal ideation. Indeed, the higher the score on the emotional distress scale, the greater the likelihood of presenting suicidal ideation. With regard to H_2, the null hypothesis was rejected, with the conclusion that a relationship exists between low self-esteem and a greater likelihood of presenting suicidal ideation. However, regression analysis showed that, in the context of this research study, sex is a better predictor of suicidal ideation than emotional state or self-esteem.

Finally, it is necessary to highlight the importance of educational centers and public health specialists in the prevention of suicidal ideation. Health programs in educational centers should incorporate adolescents' mental health. Educators should know how to detect emotional distress and be able to act in situations of emotional distress. This requires specific training of these professionals. Additionally, teachers and health professionals must collaborate to develop programs that focus on the detection of emotional risk causes. Thus, educational centers can become agents of public health.

Author Contributions: Conceptualization, A.S.-A.; I.P.-G.; V.D.-M. and A.B.-E.; Methodology, A.B.-E. and F.V.-F.; Software, A.B.-E.; F.V.-F.; Validation, J.D.-A.-S; Formal Analysis, A.B.-E.; F.V.-F. and J.D.-A.-S; Investigation, A.B.-E.; A.S.-A. and I.P.-G.; Resources, A.B.-E.; Data Curation, A.S.-A.; Writing – Original Draft Preparation, A.B.-E. and A.S.-A.; Writing – Review & Editing, I.P.-G. and V.D.-M.; Supervision, A.B.-E.; Funding Acquisition, A.B.-E.

Funding: The research that underpins this article was funded by the 2019 National Plan for Research, Development and Innovation of the Spanish Ministry of Science and Innovation. The title of the research project is: "The prevention of drug use and gambling in adolescents: the information paradox. The case of Tarragona." Code: PID2019-104310RB-C21.

Institutional Review Board Statement: The study was conducted with the authorisation and support of Tarragona City Council through its Addiction Prevention Committee and of the Department of Education of the autonomous government of Catalonia; the adolescents participated in the questionnaire voluntarily once they had received permission from their school's administration and legal guardians. This study was conducted in accordance with the provisions of the Declaration of Helsinki and was approved by the Research Ethics Committee of Universitat Rovira i Virgili (CEIPSA-2021-PDR-39).

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study. Written informed consent for publication has been waived due to this is not a case study or including individual patients.

Conflicts of Interest: The authors declare no conflict of interest.

References

1. Aumaitre, A.; Costas, E.; Sánchez, M.; Taberner, P.; Vall, J.Crecer saludable(mente). Un análisis sobre la salud mental y el suicidio en la infancia y la adolescencia. *Save the Children (Spain)* **2021**. Available at: https://www.savethechildren.es/sites/default/files/2021-12/Informe_Crecer_saludablemente_DIC_2021.pdf
2. WHO (World Health Organization). *World Health Statistics 2019: monitoring health for the SDGs, sustainable development goals*. Publications of the WHO, Geneva: Switzerland, **2019**. Available at: https://iris.who.int/bitstream/handle/10665/324835/9789241565707-eng.pdf?sequence=9
3. WHO (World Health Organization). *World Health Statistics 2014*. Publications of the WHO, Geneva: Switzerland, **2014**. Available at: https://www.who.int/docs/default-source/gho-documents/world-health-statistic-reports/world-health-statistics-2014.pdf
4. Gabilondo, A.; Alonso, J.; Pinto-Meza, A.; Vilagut, G.; Fernández-Torné, A.; Serrano-Blanco, A.; Almansa, J.; Codony M.; Haro-Abad, J. M. Prevalencia y factores de riesgo de las ideas, planes e intentos de suicidio en la población general española. *Medicina clínica* **2007**, *129*(13): 494–500. https://doi.org/10.1157/13111370
5. Instituto Nacional de Estadística (INE). Defunciones según la causa de muerte. Publications of INE, Madrid: Spain, **2022**. https://www.ine.es/jaxiT3/Tabla.htm?t=7947
6. AGC (Autonomous Government of Catalonia). *Guia per a l'abordatge de la conducta suïcida i de les autolesions no suïcides en el centre educatiu*. Departament d'Educació, Generalitat de Catalunya, Barcelona: Spain, **2022**. Available at: https://documents.espai.educacio.gencat.cat/PC/Protocols/2022-Guia-Abordatge-Conducta-Suicida-Autolesions-Suicides-Centres.pdf
7. Madge, N.; Hawton, K.; McMahon, E. M.; Corcoran, P.; De Leo, D.; Jan de Wilde, E.; Fekete, S.; Van Heeringen, K., Ystgaard, M.; Arensman, E. Psychological characteristics, stressful life events and deliberate self-harm: Findings from the child & adolescent self-harm in Europe (CASE) study. *European Child and Adolescent Psychiatry* **2011**, *20*(10): 499–508. https://doi.org/10.1007/s00787-011-0210-4
8. Wolfe, K. L.; Nakonezny, P. A.; Owen, V. J.; Rial, K. V.; Moorehead, A. P.; Kennard, B. D.; Emslie, G. J. Hopelessness as a Predictor of Suicide Ideation in Depressed Male and Female Adolescent Youth. *Suicide and Life-Threatening Behavior* **2019**, *49*(1): 253–263. https://doi.org/10.1111/sltb.12428
9. Soto-Sanz, V.; Piqueras, J. A.; Rodríguez-Marín, J.; Pérez-Vázquez, M. T.; Rodríguez-Jiménez, T.; Castellví, P.; Miranda-Mendizábal, A,; Parés-Badell, O.; Almenara, J.; Blasco, M. J.; Cebrià, A. Self-esteem and suicidal behaviour in youth: A meta-analysis of longitudinal studies. *Psicothema* **2019**, *31*(3): 246–254. https://doi.org/10.7334/psicothema2018.339
10. O'Connor, M.; Dooley, B.; Fitzgerald, A. Constructing the Suicide Risk Index (SRI): Does it work in predicting suicidal behaviour in young adults mediated by proximal factors? *Archives of Suicide Research* **2015**, *19*(1), 1–16. https://doi.org/10.1080/13811118.2014.915775
11. Sarmiento-Silva, C.; Aguilar-Villalobo, J. Predictores familiares y personales de la ideación suicida en adolescents. *Psicología y Salud* **2011**, *21*(1), 25–30. https://doi.org/10.25009/pys.v21i1.583

12. Martin, G.; Richardson, A, S.; Bergen, H. A.; Roeger, L.; Allison, S. Perceived academic performance, self-esteem and locus de control as indicators of need for assessment of adolescent suicide risk: Implications for teachers. *Journal of Adolescence* **2005**, *28*(1), 75-85. https://doi.org/10.1016/j.adolescence.2004.04.005
13. González Forteza, C; Ramos Lina, L; Caballero Gutiérrez, M. Á.; Wagner Echeagarray, F. A. Correlatos psicosociales de depresión, ideación e intento suicida en adolescentes mexicanos. *Psicothema* **2003**, *15*(4), 524–532
14. Fonseca-Pedrero, E.; Inchausti, F.; Pérez-Gutiérrez, L.; Aritio Solana, R.; Ortuño-Sierra, J.; Sánchez-García, M. Á.; Lucas-Molina, B.; Domínguez, C.; Foncea, D.; Espinosa, V., Gorría, A.; Urbiola-Merina, E.; Fernández, M.; Merina Díaz, C.; Gutiérrez, C.; Aures, M.; Campos, M. S.; Domínguez-Garrido, E.; Pérez de Albéniz Iturriaga, A. Ideación suicida en una muestra representativa de adolescentes españoles. *Revista de Psiquiatría and Salud Mental* **2018**, *11*(2): 76–85. https://doi.org/10.1016/j.rpsm.2017.07.004
15. Guz, S.; Kattari, S. K.; Atteberry-Ash, B.; Klemmer, C. L.; Call, J.; Kattari, L. Depression and suicide risk at the cross-section of sexual orientation and gender identity for youth. *Journal of Adolescent Health* **2021**, *68*(2): 317–323. https://doi.org/10.1016/j.jadohealth.2020.06.008.
16. Sellers, C. M.; Diaz-Valdes Iriarte, A.; Wyman Battalen, A.; McManama, K. H. Alcohol and marijuana use as daily predictors of suicide ideation and attempts among adolescents prior to psychiatric hospitalization. *Children and Youth Services Review* **2019**, *273*, 672–677. https://doi.org/10.1016/j.psychres.2019.02.006
17. Goldstein, T. R.; Bridge, J. A.; Brent, D. A. Sleep disturbance preceding completed suicide in adolescents. *Journal of Consulting and Clinical Psychology* **2008**, *76*(1): 84–91. https://doi.org/10.1037/0022-006X.76.1.84
18. Miranda-Mendizabal, A.; Castellví, P.; Parés-Badell, O.; Alayo, I.; Almenara, J.; Alonso I.; Blasco, M. J.; Cebrià, A.; Gabilondo, A.; Gili, M.; Lagares, C.; Piqueras, J. A.; Rodríguez-Jiménez, T.; Rodríguez-Marín, J.; Roca, M.; Soto-Sanz, V.; Vilagut, G.; Alonso, J. Gender differences in suicidal behavior in adolescents and young adults: systematic review and meta-analysis of longitudinal studies. *International Journal of Public Health* **2019**, *64*(2):265–283. https://doi.org/10.1007/s00038-018-1196-1
19. Wong, Shane. S.; Zhou, Bo; Goebert, Deborah and Hishinuma, Earl S. (2013). "The risk of suicide across patterns of drug use: a nationally representative study of high school students in the United States from 1999 to 2009". *Social Psychiatry and Psychiatric Epidemiology, 48*: 1611–1620. https://doi.org/10.1007/s00127-013-0721-z
20. Chae, Wonjeong; Park, Eun-Cheol and Jang, Sung-In. (2020). "Suicidal ideation from parents to their children: An association between parent's suicidal ideation and their children's suicidal ideation in South Korea". *Comprehensive Psychiatry, 101*: 152181. https://doi.org/10.1016/j.comppsych.2020.152181
21. King, Cheryl A.; Grupp-Phelan, Jacqueline; Brent, David; Dean, J. Michael; Webb, Michael; Bridge, Jeffrey A.; Spirito, Anthony; Chernick, Lauren S.; Mahabee-Gittens, E. Melinda; Mistry, Rakesh D.; Rea, Margaret; Keller, Alison; Rogers, Alexander; Shenoi, Rohit; Cwik, Mary; Busby, Danielle R. and Casper, T. Charles (2019). "Pediatric Emergency Care Applied Research Network. Predicting 3-month risk for adolescent suicide attempts among pediatric emergency department patients". *The Journal of Child Psychology and Psychiatry, 60*(10): 1055–1064. https://doi.org/10.1111/jcpp.13087
22. Soylu, Nusret; Tanır, Yaşar; Alpaslan, Ahmet, Karayagmurlu, Ali; Kaya, Ilyas and Aslan, Mehmet (2022). "Investigation of Suicide Probability in Sexually Abused Adolescents and the Associated Factors". *Children and Youth Services Review, 137:* 106435. https://doi.org/10.1016/j.childyouth.2022.106435
23. Altun, Hatice (2018). "Assessment of depression level, suicidal thoughts, and suicide attempts in childhood sexual abuse". *Psychiatry and Behavioral Sciences, 8*(3): 111–117. https://doi.org/10.5455/jmood.20171106073834
24. Fonseca-Pedrero, Eduardo; Al-Halabí, Susana; Pérez-Albéniz, Alicia and Debbané, Martin (2022). "Risk and Protective Factors in Adolescent Suicidal Behaviour: A Network Analysis". *International Journal of Environmental Research and Public Health, 19*(3): 1784. https://doi.org/10.3390/ijerph19031784
25. Baiden, Philip; Tadeo, Savarra K. (2020). "Investigating the association between bullying victimization and suicidal ideation among adolescents: evidence from the 2017 Youth Risk Behavior Survey". *Child Abuse & Neglect, 102.* https://doi.org/10.1016/j.chiabu.2020.104417
26. Iranzo, Begoña; Buelga, Sofía; Cava, María-Jesús and Ortega-Barón, Jessica (2019). "Cyberbullying, psychosocial adjustment, and suicidal ideation in adolescence". *Psychosocial Intervention, 28*(2): 75-81. https://doi.org/10.5093/pi2019a5
27. John, Ann; Glendenning, Alexander C.; Marchant, Amanda; Montgomery, Paul; Stewart, Anne; Wood, Sophie; Lloyd, Keith and Hawton, Keith. (2018). "Self-harm, suicidal behaviours, and cyberbullying in children and young people: systematic review". *Journal of Medical Internet Research, 20*(4): e129. https://doi.org/10.2196/jmir.9044

28. Beauroy-Eustach, Ophely D.; Mishara, Brian. L. (2021). "Systematic review of risk and protective factors for suicidal and self-harm behaviors among children and adolescents involved with cyberbullying". *Preventive Medicine, 152:* 106684. https://doi.org/10.1016/j.ypmed.2021.106684
29. Li, Xianyun; Phillips, Michael, R.; Zhang, Yanping; Xu, Dong and Yang, Gonghuan (2008). "Risk factors for suicide in China's youth: a case-control study". *Psychological Medicine, 38*(3): 397–406. https://doi.org/10.1017/S0033291707001407
30. Kumar, Pradeep; Srivastava, Shobhit; Mishra, Prem S. and Sinha, Debashree (2021). "Suicidal Ideation Among Adolescents—The Role of Sexual Abuse, Depression, and Impulsive Behavior". *Frontiers in Psychiatry,* 12. https://doi.org/10.3389/fpsyt.2021.726039
31. Orri, Massimiliano; Galera, Cedric; Turecki, Gustavo; Forte, Alberto; Renaud, Johanne; Boivin, Michel; Tremblay, Richard E.; Côté Sylvana, M. and Geoffroy, Marie-Claude (2018). "Association of Childhood Irritability and Depressive/Anxious Mood Profiles With Adolescent Suicidal Ideation and Attempts". *JAMA Psychiatry, 75*(5): 465–473. https://doi.org/10.1001/jamapsychiatry.2018.0174
32. Brezo, Jelena; Barker, Edward D.; Paris, Joel; Hébert, Martin; Vitaro, Frank; Tremblay, Richard E. and Turecki, Gustavo. (2008). "Childhood trajectories of anxiousness and disruptiveness as predictors of suicide attempts". *Archives of Pediatrics & Adolescent Medicine, 162*(11): 1015–1021. https://doi.org/10.1001/archpedi.162.11.1015
33. Renaud, Johanne; Berlim, Marcelo T.; McGirr, Alexander; Tousignant, Michel and Turecki, Gustavo (2008). "Current psychiatric morbidity, aggression/impulsivity, and personality dimensions in child and adolescent suicide: A case-control study". *Journal of Affective Disorders,* 105(1–3): 221–228. https://doi.org/10.1016/j.jad.2007.05.013
34. Kandel, Denise B.; Raveis, Victoria H. and Davies, Mark (1991). "Suicidal ideation in adolescence: Depression, substance use, and other risk factors". *Journal of Youth and Adolescence, 20*, 289–309. https://doi.org/10.1007/BF01537613
35. Hoberman, Harry M.; Garfinkel, Barry D. (1988). "Completed suicide in children and adolescents". *Journal of the American Academy of Child and Adolescent Psychiatry, 27*(6), 689–695. https://doi.org/10.1097/00004583-198811000-00004
36. Hauser, Marta; Galling, Britta and Correll, Cristoph, U. (2013). "Suicidal ideation and suicide attempts in children and adolescents with bipolar disorder: a systematic review of prevalence and incidence rates, correlates, and targeted interventions". *Bipolar disorders, 15*(5): 507–523. https://doi.org/10.1111/bdi.12094
37. Alix, Stéphanie; Cossette, Louise; Hébert, Martine; Cyr, Mireille and Frappier, Jean-Yves (2017). "Posttraumatic stress disorder and suicidal ideation among sexually abused adolescent girls: the mediating role of shame". *Journal of Child Sexual Abuse, 26:* 158–174. https://doi.org/10.1080/10538712.2017.1280577
38. Martin, Graham; Bergen, Helen A., Richardson, Angela. S., Roeger, Leigh. and Allison, Stephen (2004). "Sexual abuse and suicidality: Gender differences in a large community sample of adolescents". *Child Abuse and Neglect, 28*(5)*:* 491–503. https://doi.org/10.1016/j.chiabu.2003.08.006
39. Cooper, Jayne; Appleby, Louis and Amos, Tim (2002). "Life events preceding suicide by young people". *Social Psychiatry and Psychiatric Epidemiology, 37*(6), 271–275. https://doi.org/10.1007/s001270200019
40. Hagedorn, Julie; Omar, Hatim (2002). "Retrospective analysis of youth evaluated for suicide attempt or suicidal ideation in an emergency room setting". *International Journal of Adolescent Medicine and Health, 14*(1): 55–60. https://doi.org/10.1515/IJAMH.2002.14.1.55
41. Petersen, Solveig; Brulin, Christine and Bergström, Erik (2006). "Recurrent pain symptoms in young schoolchildren are often multiple". *Pain, 121*(1-2): 145–150. https://doi.org/10.1016/j.pain.2005.12.017
42. Roth-Isigkeit, Angela; Thyen, Ute; Raspe, Heiner; Stöven, Hartmut and Schmucker, Peter (2004). "Reports of pain among German children and adolescents: An epidemiological study". *Acta Paediatrica, 93*(2), 258–263.
43. Petersen, Solveig; Bergström, Erik and Brulin, Christine (2003). "High prevalence of tiredness and pain in young schoolchildren". *Scandinavian Journal of Public Health, 31*(5): 367–374. https://doi.org/10.1080/14034940210165064
44. Fuentes-Chacón, Rosa M.; Simón-Saiz, M. José; Garrido-Abejar, Margarita; Serrano-Parra, M. Dolores; Larrañaga-Rubio, M. Elisa. and Yubero-Jiménez, Santiago (2018). "Síntomas psicosomáticos como expresión del deterioro de la calidad de vida relacionada con la salud en adolescentes". *Atención Primaria, 50*(8): 493–499. https://doi.org/10.1016/j.aprim.2017.06.009
45. Rieffe, Carolien; Villanueva, Lidón; Adrián, Juan E. and Górriz, Ana B. (2009). "Quejas somáticas, estados de ánimo y conciencia emocional en adolescentes". *Psicothema, 21*(3): 459–464. Available at: https://www.redalyc.org/pdf/727/72711821019.pdf

 doi:10.20944/preprints202402.1483.v1

46. Kelly, Colette. N.; Molcho, Michal; Doyle, Priscilla and Gabhainn, Saoirse N. (2010). "Psychosomatic symptoms among schoolchildren". *International Journal of Adolescent Medicine and Health, 22*(2), 229–235. https://doi.org/10.1515/IJAMH.2010.22.2.229
47. Palacio-Vieira, Jorge A.; Villalonga-Olives, Ester; Valderas, José M.; Espallargues, Mireia; Herdman, Michael; Berra, Silvina; Alonso, Jordi and Rajmil, Luis (2008). "Changes in health-relatedquality of life (HRQoL) in a population-based sample of children and adolescents after 3 years of follow-up". *Quality of Life Research, 17*: 1207–1215. https://doi.org/10.1007/s11136-008-9405-7
48. Beck, Joy E. (2008). "A developmental perspective on functional somatic symptoms". *Journal of Pediatric Psychology, 33*(5): 547–562. https://doi.org/10.1093/jpepsy/jsm113
49. Perquin, Christel W.; Hazebroek-Kampschreur, Alice; Hunfeld, Joke A. M.; Bohnen, Arthur. M.; van Suijlekom-Smit, Lissete. W. A.; Passchier, J. and Van der Wouden, Johannes C. (2000). "Pain in children and adolescents: a common experience". *Pain, 87*(1): 51–58. https://doi.org/10.1016/S0304-3959(00)00269-4
50. Friberg, Peter, Hagquist, Curt and Osika, Walter (2012). "Self-perceived psychosomatic health in Swedish children, adolescents and young adults: An internet-based survey over time". *BMJ Open*, 2:e000681. https://doi.org/10.1136/bmjopen-2011-000681
51. Susman, Elizabeth. J.; Dorn, Lorah D. and Schiefelbein, Virginia L. (2003). "Puberty, sexuality, and health". En Richard. M. Lerner, M. Ann Easterbrooks and Jayanthi Mistry (Eds.), *Handbook of psychology: Developmental psychology, 6:* 295–324. John Wiley & Sons, Inc.. https://doi.org/10.1002/0471264385.wei0612
52. LeResche, Linda; Mancl, Lloyd A.; Drangsholt, Mark T.; Saunders, Kathleen and Von Korff, Michael (2005). "Relationship of pain and symptoms to pubertal development in adolescents". *Pain, 118*(1-2): 201–209. https://doi.org/10.1016/j.pain.2005.08.011
53. Steinberg Laurence and Morris, Amanda S. (2001). "Adolescent development". *Annual Review of Psychology, 52*, 83–110. https://doi.org/10.1146/annurev.psych.52.1.83
54. Minuchin, Salvador. (1974). *Families & family therapy.* Harvard University Press.
55. Cox, Martha J. and Paley, Blair. (2003). "Understanding families as systems". *Current Directions in Psychological Science, 12*(5): 193–196. https://doi.org/10.1111/1467-8721.01259
56. Nieto-Casado, Francisco J.; Antolín-Suárez, Lucía, Rodríguez-Meirinhos, Ana and Oliva, Alfredo (2022). "Effect of parental competences on anxious-depressive symptoms and suicidal ideation in adolescents: Exploring the mediating role of mindfulness". *Children and Youth Services Review, 138*. 106526. https://doi.org/10.1016/j.childyouth.2022.106526
57. Pérez-Amezcua, Berenice; Rivera-Rivera, Leonor; Atienzo, Erika E.; Castro, Filipa D.; Leyva-López, Ahidee and Chávez-Ayala, Rubén (2010). "Prevalencia y factores asociados a la ideación e intento suicida en adolescentes de educación media superior de la República Mexicana". *Salud Pública de México, 52*(4). Available at: http://www.scielo.org.mx/scielo.php?script=sci_arttext&pid=S0036-36342010000400008&lng=es&tlng=es
58. Muñoz, Jerson; Pinto, Verónica M.; Callata, Héctor; Napa, Nilton D. and Perales, Alberto (2006). "Ideación suicida y cohesión familiar en estudiantes preuniversitarios entre 15 y 24 años, Lima 2005". *Revista Peruana de Medicina Experimental y Salud Publica, 23*(4), 239–246. Available at: http://www.scielo.org.pe/pdf/rins/v23n4/a02v23n4.pdf
59. Guilbert, Wilfredo; Del Cueto, Eloísa, R. (2003). "Factores psicosociales de riesgo de la conducta suicida"». *Revista Cubana de Medicina General Integral, 19*(5). Available at: http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S0864-21252003000500004&lng=es&nrm=iso
60. Jiménez, Teresa I.; Murgui, Sergio and Musitu, Gonzalo. (2007). "Comunicación familiar y ánimo depresivo en adolescentes españoles: el papel mediador de los recursos psicosociales". *Revista Mexicana de Psicología, 24*(2): 259-271. Available at: https://www.uv.es/lisis/terebel/5_jimenez.pdf
61. Rosenberg, Morris (1965). *Society and the Adolescent Self-Image*. Princeton University Press.
62. Roselló, Jeannette; Berríos-Hernández, Mayra N. (2004). "Ideación suicida, depresión, actitudes disfuncionales, eventos de vida estresantes y autoestima en una muestra de adolescentes puertorriqueños/as". *Interamerican Journal of Psychology, 38*(2), 295–302. Available at: https://www.redalyc.org/pdf/284/28438215.pdf
63. Oktan, Vesile (2017). "Self-Harm Behaviour in Adolescents: Body Image and Self-Esteem". *Journal of Psychologists and Counsellors in Schools, 27*(2), 177–189. https://doi.org/10.1017/jgc.2017.6
64. Soylu, Nusret and Alpaslan, Ahmet (2013). "Suicidal behavior and associated factors in sexually abused adolescents". *Children and Youth Services Review, 35*(2), 253–257. https://doi.org/10.1016/j.childyouth.2012.11.002
65. Peleikis, Dawn E.; Mykletun, Arnstein and Dahl, Alv. A. (2005). "Current mental health in women with childhood sexual abuse who had outpatient psychotherapy". *European Psychiatry, 20*(3), 260–267. https://doi.org/10.1016/j.eurpsy.2005.01.004

66. Box, George E. P. and Tidwell, Paul W. (1962). "Transformation of the Independent Variables". *Technometrics*, *4*(4), 531-550. https://doi.org/10.2307/1266288
67. Hosmer, David W.; Lemeshow, Stanley and Sturdivant, Rodney X. (2013). *Applied Logistic Regression.* Nueva Jersey (USA), John Wiley & Sons, Inc. https://doi.org/10.1002/9781118548387
68. O'Beaglaoich, Cormac; McCutcheon, Jessica; Conwaqy, Paul F.; Hanafin, Joan and Morrison, Todd G. (2020). "Adolescent Suicide Ideation, Depression and Self-Esteem: Relationships to a New Measure of Gender Role Conflict". *Front. Psychology 11.* 111. https://doi.org/10.3389/fpsyg.2020.00111
69. O'Neil, J. M. (2008). "Summarizing 25 years of research on men's gender role conflict using the gender role conflict scale: new research paradigms and clinical implications". *Couns. Psychol*. *36*, 358–445. https://doi.org/10.1177/001100000831 7057
70. Bielsen, Johan (2018). "Suicide and Youth: Risk Factors". *Front. Psychiatry, 30*(9), 540. https://doi.org/10.3389/fpsyt.2018.00540
71. Manani, Preeti and Sharma, Shraddha. (2013). "Self-Esteem and Suicidal Ideation: a Ccorrelational Study". *MIER Journal of Educational Studies Trends and Practices*, *3*(1), 75–83. https://doi.org/10.52634/mier/2013/v3/i1/1556
72. Miller, Adam B.; Eisenlohr-Moul, Tory; Giletta, Matteo; Hastings, Paul D.; Rudolph, Karen D.; Nock, Matthew K. and Prinstein, Mitchell J. (2017). "A within-person approach to risk for suicidal ideation and suicidal behavior: Examining the roles of depression, stress, and abuse exposure". *Journal of Consulting and Clinical Psychology, 85*(7): 712–722. https://doi.org/10.1037/ccp0000210
73. Avenevoli, Shelli; Swendsen, Joel; He, Jian-Ping, Burstein, Marcy and Merikangas, Kathleen R. (2015). "Major depression in the national comorbidity survey-adolescent supplement: Prevalence, correlates, and treatment". *Journal of the American Academy of Child and Adolescent Psychiatry, 54:* 37–44.e2. https://doi.org/10.1016/j.jaac.2014.10.010