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Parents and peer attachment and their relationship with emotional problems in adolescence: is stress mediating?

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Abstract

Adolescence is a vital stage susceptible to the development of stress and emotional problems that reduce well-being. The aim of this work was to study the relationship between attachment to mother, father, and peers, considering the mediating role of stress, and controlling the influence of gender and age. We also studied the relationship between stress and emotional problems with scholar and familiar variables. 700 Spanish students (54.1% girls) between 12 and 15 years participated (M = 13.59; SD = 1.07). Academic performance, family structure, parents and peer attachment (IPPA), emotional problems (SDQ) and stress (PSS-4) were assessed. Data were collected cross-sectional and analysed using SPSS 24.0 and PROCESS (model 4). Descriptive analyses, t-tests, bivariate correlations, and three mediation models were performed. Results suggest that girls suffer more stress (t = 4.51; p = .000) and more emotional problems (t = 7.31; p = .000) than boys. Age correlates positively with stress (r = .12; p = .000). Lastly, stress is a mediating variable between attachment (to both parents and peers) and emotional problems. The importance of addressing stress and emotional symptoms management in adolescence is discussed, particularly in adolescents with poorer quality relationships with their parents and peers.

Keywords: attachment; stress; emotional problems; adolescence; mediation.

Resumen

Apego a padres e iguales y problemas emocionales en adolescentes: ¿es el estrés un mediador?. La adolescencia es una etapa vital susceptible de desarrollar estrés y problemas emocionales que reducen el bienestar. El objetivo de este trabajo fue estudiar la relación entre el apego a la madre, al padre y a los iguales, considerando el papel mediador del estrés, y controlando la influencia del género y la edad. También se estudió la relación entre el estrés y los problemas emocionales con variables escolares y familiares. Participaron 700 estudiantes españoles (54,1% chicas) entre 12 y 15 años (M = 13,59; DT = 1.07). Se evaluaron el rendimiento académico, la estructura familiar, el apego a los padres y a los compañeros (IPPA), los problemas emocionales (SDQ) y el estrés (PSS-4). Los datos se recogieron de forma transversal y se analizaron con SPSS 24.0 y PROCESS (modelo 4). Se realizaron análisis descriptivos, pruebas t, correlaciones bivariadas y tres modelos de mediación. Los resultados sugieren que las chicas sufren más estrés (t = 4.51; p = .000) y más problemas emocionales (t = 7.31; p = .000) que los chicos. La edad de los adolescentes correlaciona positivamente con el estrés (r = .12; p = .000). Por último, el estrés es una variable mediadora entre el apego (tanto a los padres como a los compañeros) y los problemas emocionales. Se discute la importancia de abordar el manejo del estrés y de los síntomas emocionales en la adolescencia, particularmente en los adolescentes con relaciones de peor calidad con sus padres y compañeros.

Palabras clave: apego; estrés; problemas emocionales; adolescencia; mediación.

Introduction

Adolescence is a stage particularly sensitive to the appearance of symptoms of emotional discomfort and instability, given the need to face new challenges and vital changes (physical, psychological and social) that generate stress (Smith et al., 2018). Therefore, there is a need to study the variables that contribute to the development of stress and emotional problems, as a way to find different paths to promote mental health and well-being of adolescents (Pedersen et al., 2019). This is associated with healthier school environments, and consequently, a higher quality of life for the entire population (Nobiling & Lyde, 2015). The present study considers both sociodemographic, familiar, scholar and relational variables as protective or risk factors against stress and emotional problems in adolescence.

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Parents and peer attachment in adolescence

Among the relational factors associated with adolescent emotional well-being, attachment relationships stand out (Dawson et al., 2014; Pedersen et al., 2019). Attachment is the capacity that leads people to build and maintain emotional bonds with other human beings throughout their life development (Lacasa et al., 2015). These early affective experiences give rise to beliefs or cognitive schemes about oneself and others, the so-called "internal working models" (IWM) (Bretherton, 1999). Internal mental models remain relatively stable throughout the life cycle, organizing and guiding affect, cognition, and behavior in interpersonal relationships (Venta et al., 2017).

Bowlby's attachment theory (1988) expose that children form a secure attachment when they had in their primary caregivers a space for protection and assistance in times of threat or harm, as well as a stable base to support themselves and explore the world. Children with secure attachment develop an IWM of trust in their environment, with a good appreciation of themselves and others (Manning et al., 2017). In contrast, children develop an insecure attachment when they had negative experiences with their caregivers of rejection, inconsistent behavior or attitudes, or lack of attention (Allen et al., 2017). Insecure attachment is characterized by a negative mental model of self and distrust of others (Kivlighan et al., 2017).

The search for security and protection are the main functions of attachment. While these are provided by primary caregivers in childhood, later in adolescence other attachment figures are added, such as friendships (Allen et al., 2017). During adolescence, peer relationships gradually become more important, with friends becoming the main source of intimacy and social-emotional support (Sánchez-Queija & Oliva-Delgado, 2015). However, even if the role of peers becomes central, attachment to parents does not lose importance in adolescence (Blomgren et al., 2016; Jones et al., 2017). Hence the need for research that studies attachment to parents and peers at the same time (Talia et al., 2019).

Attachment and emotional problems

Emotional problems are understood as subclinical symptoms of sadness, anxiety, fear, apathy, worry, or aggression (Rosenberg et al., 2016). It is common for emotional problems to be associated with psychosomatic problems, these are health difficulties (such as headaches, stomachaches, muscle aches, etc.) with no detectable medical cause (Iturrioz et al., 2017). There is a high prevalence of emotional problems among adolescents, between 11.6% and 34.6% of Spanish adolescent population presents emotional symptoms (Fonseca-Pedrero et al., 2011). These problems impact on adolescents' development, resulting in academic difficulties, interpersonal conflicts, risk behaviors and physical health problems (Goh & Wilkinson, 2017; Gorrese, 2015; Rosenberg et al., 2016).

Secure attachment is a protective factor in the development of psychopathological symptoms in later stages, such as depression, mood disorders and antisocial behavior (Cameron et al., 2017; Camps-Pons et al., 2014). Adolescents with secure attachment to parents and peers more easily achieve emotional autonomy and feel lower levels of anxiety (Barona, 2016; Valikhani et al., 2018).

The role of stress

Stress occurs because of the adolescents' assessment of their environment, when they value it as threatening by overflowing their personal resources and endangering their well-being (Lazarus and Folkman, 1984). Regarding its emotional consequences, chronic stress in adolescence leads to isolation, insecurity, and apathy (Lätsch, 2017).

What is the relationship of stress to attachment and emotional problems? First, adolescents with secure attachment to parents and peers have less stress, because of having better coping strategies that focus on the problem and positive emotions to manage stressful circumstances (Blomgren et al., 2016). Second, secure attachment to parents and peers is associated with less emotional symptoms of anxiety and depression (Cameron et al., 2017; Lacasa et al., 2015). Finally, a low level of stress is a protective factor for suffering emotional distress, along with other physical, mental, and relational health symptoms (Viñas-Poch et al., 2015). In summary, all the necessary conditions are present so that stress can be functioning as a mediator between attachment and the development of emotional problems in adolescence (Schoeps et al., 2019; Smith et al., 2018).

Present study

Stress has been studied as a mediator between personality variables and emotional problems in adolescence (Pereira-Morales et al., 2019). The mediating role of parents' stress between attachment style and emotional problems in childhood has also been demonstrated (Tharner et al., 2012). However, no literature has been found that demonstrates whether adolescents' stress level is one of the mechanisms that explain the relationship between insecure attachment and the development of emotional problems in adolescence (Valikhani et al., 2018).

The present work also considers other variables that influence the mediation of stress between attachment and emotional problems, such as age and gender. According to previous literature, more age and female gender are factors that increase the adolescents' probability of suffering stress and emotional symptoms (Goh & Wilkinson, 2017; Gorrese & Ruggieri, 2012). But at the same time, female adolescents have higher quality peer attachment than their male peers, showing confidence in their friendships and deep communication with them (Jones et al., 2017), so this may be working as a protective factor. In addition to the sociodemographic variables such age and gender, in the present work the relationship of stress and emotional problems with familiar (Masarik & Conger, 2017) and scholar variables (Iturrioz et al., 2017). Finally, this study provides specific information on both attachment to parents (mother and father) and to the peer group, since the results could be different for each attachment figure (Allen et al., 2017).

In sum, the aim of the present work was to study the relationship between attachment to mother, father, and peers, considering the mediating role of stress, and controlling the influence of gender and age. First hypothesis raised is exploratory, and aims to study whether levels of stress and emotional problems are affected by socio-demographic variables (age), scholar variables (academic performance, practice of physical exercise during out-of-school hours) and familiar variables (living with both parents or only one, the number of siblings in the family). Second hypothesis indicates that girls will have more quality of peer attachment, as well as higher levels of stress and emotional problems than boys. Third hypothesis states that stress and emotional problems will be negatively correlated with attachment to mother, father, and peers. Fourth hypothesis states that stress will function as a mediating variable between attachment (mother, father, and peers) and emotional problems.

Methods

Participants

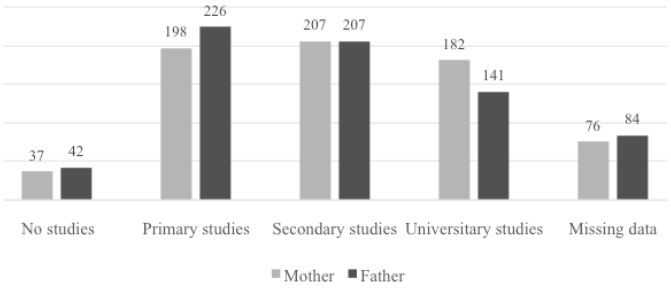
Participants were 700 Spanish early adolescents (Almonte et al., 1985) between 12 and 15 years (54.1% girls; M_{total}=13.59 years; SD=

1.07; M_{girls}=13.63 years; SD= 1.06; M_{boys}=13.54 years; SD= 1.08). Participants were students from nine secondary schools in the Valencian Community (Spain), six of them were private and three public schools. 184 students were in 1st year, 224 in 2nd year, 175 in 3rd year and 117 in 4th year of compulsory secondary education.

Regarding students' academic results, 476 (68%) passed all subjects last academic year. 446 (65.3%) adolescents practice extracurricular sport activities (at least 1 hour per week). 116 (16.7%) adolescents are only children, 442 (63.7%) are two siblings, 108 (15.6%) are three siblings, 17 (2.4%) are four siblings, 7 (1%) are five siblings and 4 (0.6%) are six siblings.

With respect to parents, 553 (79%) participants live with both parent at home. Of these 147 (21%) adolescents who do not live with both parents at home, 122 have divorced parents, 6 have a deceased father, 4 have a deceased mother, and 15 have a father who is absent for work. In Figure 1, it can be observed both parents' educational level.

Figure 1. Frequencies of adolescents' mothers and fathers educational level



Instruments

Sociodemographic variables. Age, gender, academic results, extracurricular sport practice (at least 1 hour per week), cohabitation with both parents or not, number of siblings.

Parents and Peer Attachment. Parent and peer attachment were assessed with the Parent and Peer Attachment Inventory (IPPA; Armsden & Greenberg, 1987; Spanish adaptation and validation by Gallarin & Alonso-Arbiol, 2013). This instrument, based on Bowlby's attachment theory (1988), evaluates adolescents' perceptions of their relationships with their mother, their father, and their friends, in affective and cognitive dimension. It can be used in adolescents aged 12 years and older. The instrument is composed of 75 items in total, 25 items in each of the forms: mother attachment, father attachment and peer attachment. Each item is scored on a five-points Likert scale (1: Almost never or never; 5: Almost always or always). The instrument has three dimensions for evaluate good attachment quality: (1) Trust (perception of mutual trust and respect for each other's needs and desires, e.g. "My mother/father/friends accept me as I am"), (2) Communication (perceived quality of involvement, responsiveness, and verbal communication regarding adolescent's emotional states, e.g. "My mother/father/friends can tell when I'm upset about something") and (3) Alienation (the feeling of social isolation, anger and detachment from attachment figure, but with the recognition of the need to be closer to it, e.g. "I feel alone or apart when I am with my mother/father/friends"). The degree of attachment quality was calculated by adding trust and communication and subtracting alienation. All three scales obtained a very high reliability in the original study (α_{mother} = .87; α_{father} = .89; α_{peers} = .92) and in the present study (α_{mother} = .90; α_{father} = .92; α_{peers} = .89).

Stress. Stress was assessed using the Perceived Stress Scale (PSS-4; Cohen et al., 1983; Spanish adaptation and validation by a Herrero & Meneses, 2006). This instrument evaluates the degree of stress the person has experienced in the last month. Particularly, it asks about situations perceived as unpredictable and out of control (e.g. "I have felt that I was unable to control the most important things in my life"). It consists of 4 items scored on a four-points Likert scale (0: Never; 4: Always). It can be used in adolescents aged 11 years and older. It can be used from the age of 11. Psychometric properties are good in the original study (α = .78) and acceptable in the present study (α = .67).

Emotional problems. Emotional problems were assessed by the instrument Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997; Spanish adaptation and validation by Ortuno-Sierra et al., 2015). This questionnaire can be administered between 4 and 16 years. It is composed by 25 items with a five-points Likert Scale (1: Completely disagree; 5: Completely agree), and it asks about last six months. Although the questionnaire has five subscales, in the present work only the results of the subscale Emotional Problems were considered. Emotional Problems refers to the presence of somatic symptoms ("I usually have a lot of headaches, stomachaches, or nausea"), lack of self-confidence ("I get nervous about new situations, I easily lose self-confidence"), worries ("I often feel worried"), fears ("I have many fears, I scare easily") and sadness ("I often feel sad, discouraged or in tears"). Psychometric properties are acceptable in the original study (α = .71) and acceptable in the present study (α = .70).

Procedure

Firstly, the evaluation booklet for adolescents was prepared and approved by the Valencian Regional Ministry of Education. Furthermore, the study received permission from the ethics committee of the University of Valencia (H1385330676977), ensuring that the fundamental principles set out in the Helsinki Declaration (2014) and the Council of Europe Convention on Human Rights were respected. We used a convenience sample, the choice of the educational centers was based on previous contact with the research group, considering both public and private schools. A list of the schools to be contacted was drawn up and they were invited to participate in the study, all of them accepted to collaborate.

Participation in the study was voluntary and anonymous. Before data collection, parents of participating students were informed about the purpose of the investigation and gave their written consent. Students from 1st to 3th grade of secondary education were invited to participate, the exclusion criteria was no parental consent. The study has a cross-sectional design, and the data were collected in groups during school hours in the classrooms, during the year 2017. The data were then collected in person at the schools by means of questionnaires. Each evaluation lasted approximately 50 minutes, in which each student answered the battery of questionnaires individually and autonomously, with the supervision of a trained psychologist. Finally, data were statistically analysed.

Data analysis

For statistical analysis we used SPSS version 24.0 and PROCESS (Hayes, 2013), a tool that integrates functions for mediation and moderation analysis. Descriptive statistics were performed to explore variables, *t*-test for analyse gender and other differences and bivariate correlations for study relations between variables. Three mediation models produced with PROCESS (model number 4) were tested.

The dependent variable was emotional problems, mediating variable was stress, and independent variable was attachment (mother attachment in model 1, father attachment in model 2 and peer attachment in model 3). The variables gender and age were controlled in the three models. The bootstrapping for the indirect effects was determined to be 10.000, and the confidence level for the confidence intervals was 95%. The estimation for the confidence intervals was performed using the Ordinary Least Squares (OLS) and Maximum Likelihood (ML) method. The total effects and direct effects were also calculated.

Gender and other variables that influence stress and emotional problems

As it is observed in Table 1, girls presented more stress (M = 8.67; DT = 2.37) and emotional problems (M = 3.77; DT = 2.47) than boys (M = 7.90; DT = 2.05 for stress; M = 2.52; DT = 1.95 for emotional problems). The effect sizes found for these differences are d = .35 and d =.56, respectively. In addition, the results indicate that the group that did not pass all the subjects suffers significantly more stress than the group that did (t = -0.27; p < .05). Adolescents who practice a sport in after-school hours is significatively more stressed than adolescents who do not (t = -2.07; p < .05). There are no significant differences in stress or emotional problems between the group of adolescents who live with both parents and those who live with only one. Stress and emotional problems do not correlate with the number of siblings.

Relations between variables

In the correlational analyses (Table 2), we observed that the quality of attachment to mother, father and peers are significatively and negatively related to stress and emotional problems. Stress seems to be strongly correlated to parent attachment (r = --.46; p = .001 for mother; r = -.45; p = .001 for father) than peer attachment (r = -.33; p = .001). This does not seem to be repeated in the case of emotional problems, where the correlations are similar (r = -.28; p = .001 for mother; r = -.33; p = .001 for father; r = -.30; p = .001 for peers). Stress and emotional symptoms correlate strongly and positively (r = .54; p = .001). Age is significatively and negatively correlated with father (r = -.23; p = .001) and mother attachment (r = -.16; p = .001), and positively correlated with stress (r = .12; p < .001).

Table 2. Pearson correlations between variables

	MA	FA	PA	EP	S	AGE
MA	—					
FA	.67**	—				
PA	.32**	.32**	—			
EP	-.28**	-.33**	-.30**	—		
S	-.46**	-.45**	-.33**	.54**	—	
AGE	-.16**	-.23**	-.01	.07	.12**	—

*Note. ** p < .01 (bilateral); MA: Mother attachment; FA: Father attachment; PA: Peer attachment; EP: Emotional Problems; S: Stress*

Mediation analysis

Mediation analyses indicate that stress functions as a mediating variable between attachment (to mother, father, and peers) and emotional problems. In Figure 2, 3 and 4 we can take a closer look at the unstandardized coefficients in these mediation models.

In the first model (Figure 2), the mediation of stress between mother attachment and emotional problems was tested, where both the total effect (β = -.05; SE = .01; t = -8.29; p = .000; LLCI = -.06; ULCI = -.03) as well as the direct effect (β = -.01; SE = .01; t = -2.26; p = .0242; LLCI = -.02; ULCI = -.01) and the indirect effect (β = -.03; BootSE = .00; BootLLLCI = -.04; BootULCI = -.03).

In the second model (Figure 3), the mediation of stress between father attachment and emotional problems was tested, where both the

Table 1. Descriptive analysis and gender differences

	Descriptive analysis						Gender differences				
	Rank	Min	Max	Total *M (SD)*	Asymmetry	Kurtosis	Girls *M (DT)*	Boys *M (DT)*	*t*	*Sig*	Cohen's *d*
Mother attachment	83	6	89	62.65 (15.12)	-.66	.01	62.73 (15.62)	62.55 (14.53)	.15	.881	0.01
Father attachment	88	1	89	57.58 (18.25)	-.79	.26	56.49 (18.78)	58.87 (17.55)	-1.72	.086	-0.33
Peer attachment	76	6	82	55.37 (13.18)	-.75	.48	57.01 (13.59)	53.43 (12.45)	3.60	.000	0.26
Stress	12	4	16	8.32 (2.26)	.34	-.01	8.67 (2.37)	7.90 (2.05)	4.51	.000	0.35
Emotional Problems	10	0	10	3.20 (2.33)	.67	-.15	3.77 (2.47)	2.52 (1.95)	7.31	.000	0.56

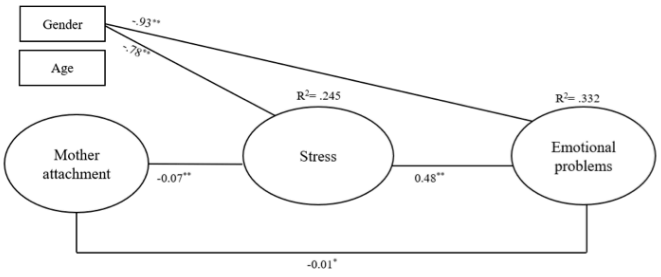
Note. M = Mean; SD = Standard deviation.

Table 3. Path coefficients and confidence intervals of mediational analyses.

Independent Variable	Mediating variable	Dependent variable	Total effect			Direct effect			Indirect Effect		
			Effect	*t*	95% *CI*	Effect	*t*	95% *CI*	Effect	*Boot LLCI*	Boot *ULCI*
Mother Attachment	Stress	Emotional Problems	-0.05**	-8.29	-0.06 to -0.03	-.01*	-2.26	-0.02 to -.00	-.03	-.04	-.03
Father Attachment	Stress	Emotional Problems	-0.04**	-8.84	-0.05 to -0.03	-.01**	-3.28	-0.02 to -0.01	-0.03	-0.03	-0.02
Peer Attachment	Stress	Emotional Problems	-0.06**	-9.86	-0.07 to -0.05	-0.03**	-5.59	-0.04 to -0.02	.03	-.03	-.02

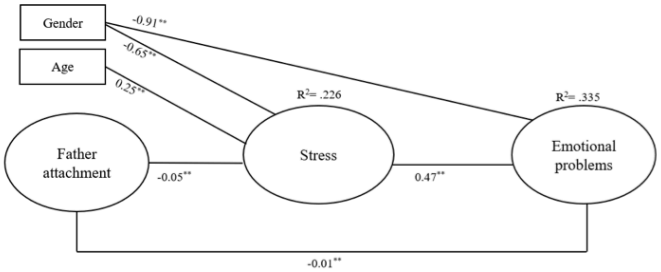
*Note. CI = Confidence interval. LLCI = Lower limit confidence interval. ULCI = Upper limit confidence interval. ** p < .01*

Figure 2. Mediation model with mother attachment



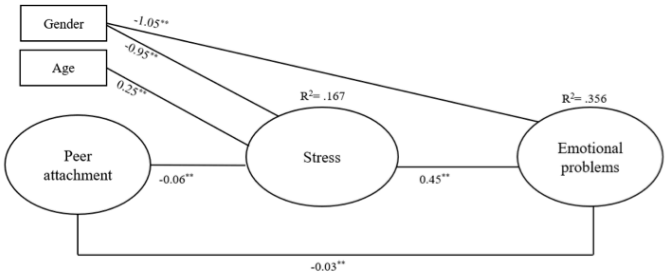
** p < .05; ** p < .01. Note: unstandardized coefficients are presented.*

Figure 3. Mediation model with father attachment



** p < .05; ** p < .01. Note: unstandardized coefficients are presented.*

Figure 4. Mediation model with peer attachment



** p < .05; ** p < .01. Note: unstandardized coefficients are presented.*

total effect (β = -.05; *SE* = .01; *t* = -8.29; *p* = .000; LLCI = -.06; ULCI = -.03) as well as the direct effect (β = -.01; *SE* = .01; *t* = -2.26; *p* = .0242; LLCI = -.02; ULCI = -.01) and the indirect effect (β = -.03; BootSE = .00; BootLLLCI = -.04; BootULCI = -.03).

In the third model (Figure 4), the mediation of stress between peer attachment and emotional problems was tested, where both the total effect (β = -.04; *SE* = .00; *t* = -8.84; *p* = .000; LLCI = -.05; ULCI = -.03) as well as the direct effect (β = -.01; *SE* = .00; *t* = -3.28; *p* = .001; LLCI = -.02; ULCI = -.01) and the indirect effect (β = -.03; BootSE = .00; BootLLLCI = -.03; BootULCI = -.02).

Being a girl impacts with higher levels of stress and emotional problems in all three mediation models. Age also affects presenting higher levels of stress in the mediations referring to father and peer attachment, but not in mother attachment.

Mother attachment seems to explain more variance of stress than father and peer attachment. Mother attachment, stress, and gender explain 33.2% (R^2 = .332) of emotional problems' variance (Figure 2). Father attachment, stress, gender, and age explain 33.5% (R^2 = .335) of emotional problems' variance (Figure 3). Peer attachment, stress, gender, and age explain 35.6% (R^2 = .356) of emotional problems' variance (Figure 4).

Discussion

The present study has considered the importance of stress as a mediating factor between parental and peer attachment and the emotional problems of Spanish adolescents. In addition, the influence of sociodemographic variables such as age and gender, as well as other family and school variables have been controlled. From the present work, we deduce the need to intervene in the stress levels of those adolescents who have developed an insecure attachment to their parents or to their peers, as a way to prevent the appearance of emotional problems (Pedersen et al., 2019).

Regarding the first hypothesis, results suggest that emotional problems and stress are affected by the sociodemographic and school variables studied, but not by the family variables considered in the present study. In the line of the literature (Gorrese & Ruggieri, 2012), older adolescents also suffer greater stress. Regarding the school variables, adolescents with difficulties in academic performance suffer more stress, which could also be related with more academic demands as age increases (Iturrioz et al., 2017).

Likewise, those who do sports activities outside school hours are also more stressed than those who do not practice. This may be due to the fact that those adolescents who previously presented higher levels of stress are the ones who are more likely to be targeted for sports, with the intention of reducing it and channeling it into healthy habits (Holt et al., 2005). This could also be related to an increased body awareness of adolescents involved in sports, who may be more able to identify stress more easily.

Familiar variables as number of siblings or cohabitation with both parents or just only one, are not relevant factors in relation with stress and emotional problems. From this result it could be deduced that it is not the characteristics of the family structure that affect the levels of stress, but the quality of the relationships with the members of the family (Allen et al., 2017).

Second hypothesis is confirmed by our results. Girls have more quality of peer attachment, as well as higher levels of stress and emotional problems than boys. This difference could be explained by a differential gender socialization that occurs from early childhood (Gorrese, 2015). These results suggest the importance of paying special attention to the emotional problems and stress of female adolescents. However, male adolescents should not be neglected either, as they may feel less permissive than girls in expressing their emotional problems (Goh & Wilkinson, 2017). It is important to keep in mind that the effect sizes found in these differences are small, so further research is needed to confirm these findings.

Third hypothesis is also confirmed by our results. Quality of attachment to mother, father, and peers is negatively related to stress and emotional problems. The strongest associations are between stress and attachment to mother and father. Adolescents who do not trust their parents, have poor communication with them, and feel isolated and detached, are also adolescents who suffer the most stress. These findings are in line with the literature, confirming that although in adolescence the main attachment figure changes to peers, security in attachment to parents remains a factor of notable importance (Blomgren et al., 2016; Jones et al., 2017).

Lastly, our fourth hypothesis is also confirmed by our results. Adolescents' stress level is mediating the relationship between parents and peer attachment and emotional problems. This means that an insecure attachment to either the father, mother or peer group is a risk factor for generating stress in adolescence, and as a result of such stress, developing subclinical symptoms of sadness, anxiety, fear, apa-

thy, worry, or aggression (Rosenberg et al., 2016).

Gender influences this mentioned mediation. In the case of girls, a poor quality of attachment to their parents and friends generates more stress than for boys, and in turn, greater emotional problems. This result could be related to what was discussed in the second hypothesis, since girls present significantly higher levels of stress and emotional problems than boys (Gorrese & Ruggieri, 2012).

Regarding to age, older adolescents are more affected by stress than younger adolescents if they have a poor quality of attachment to their father or their peers, but not to their mother. Insecure attachment to the mother implies stress, which in turn implies emotional problems, regardless of the age of the adolescents. These results could be because mother attachment's average score is higher than father' and peers' score. This could be related with the fact that some adolescents indicate that their fathers are absent for work reasons. Furthermore, we could not forget that differential gender socialization also places a greater burden on mothers for most of their child rearing, which could generate a stronger attachment to mothers than to fathers (Pedersen, 2019).

Our work is not free of limitations, such as the cross-sectional nature of the data, which does not allow for affirm causal relationships between variables. In future research, it would be advisable to study the variables in different moments, to analyse whether attachment quality affects adolescents' stress and emotional problems in the future (Pereira-Morales et al., 2019). Another limitation of our study is the use of self-report questionnaires (Gallarin & Alonso-Arbiol, 2013). Therefore, in future research in this line we propose the study of stress not only through the subjective perception of the participants, but also through objective measures such as cortisol in saliva or hair (Cameron et al., 2017).

The present findings are relevant to the literature and highlight the need to prevent and intervene in adolescents' stress levels of adolescents to prevent the emergence of emotional problems. One possible path for action is to invest in the design and implementation of stress reduction programmes in educative contexts during Compulsory Secondary Education, teaching of relaxation techniques and training in coping strategies (Schoeps et al., 2019). It should be necessary to pay special attention to the most vulnerable group, girls aged 14-15 years (Cameron et al., 2017). Likewise, it would be particularly important to intervene in those adolescents who have a relationship of low confidence, poor communication, and high distance from their attachment figures, both parents and peers equally. Adolescents are the society of the future, so researchers and psychologists should invest resources in promoting their mental health and well-being (Smith et al., 2018).

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Conflict of interest

The authors declare that there is no conflict of interest.

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