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Substance Use in Early and Middle Adolescence. The Role of Academic Efficacy and Parenting

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ABSTRACT

This study examines (i) the relationships between substance use and parenting style and between substance use and perceived academic self-efficacy in early and middle adolescence, (ii) the importance of these factors in predicting adolescent substance use, and (iii) the role of academic self-efficacy in the relationship between parenting styles and adolescent substance use. The sample comprised 762 adolescents (53% boys) aged 12 to 16 years ($M = 13.66$, $SD = 1.34$). The sample was selected using probabilistic cluster sampling according to type of school (secondary, public vs. semi-private) and school location in different areas of the city of Valencia (Spain). This approach accounted for different social strata of families. The results show that substance use and parents' neglect are greater in middle adolescence than in early adolescence. Support and family communication and perceived academic self-efficacy are lower. Substance use is positively related to parents' neglect, psychological control, and rejection. The relationships between neglect and psychological control and substance use are moderated by academic self-efficacy, and the relationship between psychological control and substance use is mediated by academic self-efficacy.

El consumo de sustancias psicoactivas en la adolescencia temprana y media. El papel de la eficacia académica y de la crianza

RESUMEN

Los objetivos de esta investigación son analizar la relación del consumo de sustancias con el estilo de crianza de los padres y la percepción de eficacia académica por parte de los adolescentes, estudiar la diferente contribución de estos factores a la predicción del consumo de sustancias en la adolescencia y observar la función de la autoeficacia académica en la relación entre el estilo de crianza y el consumo de sustancias en la adolescencia. Participaron 762 adolescentes (53% hombres), de edades comprendidas entre los 12 y los 16 años ($M = 13.66$, $DT = 1.34$). La muestra se seleccionó con criterios probabilísticos por conglomerados, atendiendo al tipo de centro (educación secundaria, público frente a privado/concertado) y ubicación en diferentes zonas de la ciudad de Valencia, para atender distintos estratos sociales familiares. Los resultados indican que en comparación con la adolescencia temprana, en la adolescencia media aumenta el consumo de sustancias y la negligencia de los padres, además de disminuir el apoyo y la comunicación familiar junto con la eficacia académica percibida. El consumo de sustancias está relacionado positivamente con la negligencia, el control psicológico y el rechazo por parte de los padres. La negligencia y el control psicológico actúan como variables moderadoras, pero solo el control psicológico actúa como variable mediadora entre la eficacia académica y el consumo de sustancias.

Palabras clave:

Consumo de sustancias

Estilos de crianza

Autoeficacia académica

Adolescencia temprana

Adolescencia media

In Spain, a large number of adolescents aged over 14 years have at some time consumed a psychoactive substance such as alcohol (79%), tobacco (38.4%), prescribed or non-prescribed sedatives (16%), cannabis (29%), cocaine (3.5%), ecstasy (0.9%), hallucinogens (1.2%), heroin (0.6%), ketamine, spice, or similar (4%). Three in ten students have reported drug use or polydrug use in the last month, with 40.3% consuming one substance, 16.2% consuming two substances, 12.3%

consuming three substances, and 2.6% consuming four or more substances (Observatorio Español de la Droga y las Toxicomanías, 2016). These figures highlight the need to analyze this phenomenon for two main reasons. First, substance use increases in adolescence (Negrieff & Trickett, 2012), particularly middle adolescence (Hartz et al., 2012). Second, this use can have a neurological impact during this stage of development (Koskinen et al., 2011). Furthermore, substance

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use is related to academic problems, aggression, and socialization problems (Read, Beattie, Chamberlain, & Merrill, 2008).

In recent years, research has linked substance use to parenting. For example, studies have shown that parents play a key role in the prevention of substance use (Calafat, García, Juan, Becoña, & Fernández-Hermida, 2014; Kuntsche & Kuntsche, 2016; Van Der Vorst, Engels, Meeus, & Deković, 2006; Wood et al., 2010). In addition, academic performance and feelings of academic self-efficacy can help prevent substance use (Sheikh & Bashir, 2004). Nevertheless, this topic is subject to major debate given current concerns over substance use and academic self-efficacy. In this study, we analyze the moderating role of academic self-efficacy in the relationship between parenting styles and substance use.

This study has the following aims: (i) to analyze the relationships between substance use and parenting style and between substance use and adolescents' perceived academic self-efficacy, (ii) to study the role of these factors in predicting adolescent substance use, and (iii) to observe the role of academic self-efficacy in the relationship between parenting styles and adolescent substance use. This stage of development has been defined as a period of transition between childhood and adulthood (Longmore, Manning, & Giordano, 2013). During this period, parents must adapt to their children's new independence needs (Piehler, 2011), although parents continue to play a fundamental role as a source of support and care in the lives of their adolescent children (Steinberg, 2001).

Parenting Styles and Substance Use

According to ecological systems theory, the family makes up the microsystem and a non-substitutable source of socialization. Within the family, the attitudes and behaviors of parents present models of actions that affect the lives of their children (Bronfenbrenner, 1986). The forms of parent-child relations offer a classification of parenting styles (authoritative, authoritarian, indulgent, and neglectful), following an orthogonal model whose dimensions are affect and control. The ability to provide a warm, supportive response to meet the needs of the child lies at one end of the first dimension. The control, demandingness, or rigidity with which parents approach parenting lies at the end of the other dimension (Baumrind, 1996; Darling & Steinberg, 1993; García & Gracia, 2009, 2014; Gracia, Fuentes, García, & Lila, 2012; Maccoby & Martin, 1983; Sorkhabi, 2012; Tur-Porcar, Mestre, & Llorca, 2015).

In this context, scholars have widely shown the positive influence of affect- and communication-based parenting – which fosters trust and two-way communication – on children's development (Crandall, Ghazarian, Day, & Riley, 2015; García & Gracia, 2009, 2014) and substance use prevention (Hinnant, Erath, Tu, & El-Sheikh, 2016; Hoffmann & Bahr, 2014; Jiménez, 2011; Mason, Russo, Chmelka, Herrenkohl, & Herrenkohl, 2017). Some researchers have shown that an indulgent parenting style (low imposition and high warmth) can have positive effects in horizontal-collectivist societies such as Southern European and Latin American societies, sometimes even exceeding the positive effects of a more authoritative parenting style (Fuentes, Alarcón, García, & Gracia, 2015; Fuentes, García, Gracia, & Lila, 2011; García & Gracia, 2009, 2014; García, López-Fernández, & Serra, 2018; Gracia et al., 2012). In contrast, other scholars have observed a lack of rules with respect to substance use and permissiveness toward substance use in indulgent parenting, which increases the risk of substance use (Van Der Vorst et al., 2006; Varvil-Weld, Crowley, Turrisi, Greenberg, & Mallett, 2014). Thus, scholars show that acceptance of alcoholic drink consumption in a family setting (at meals and with friends) increases use in late adolescence and young adulthood (Livingston, Testa, Hoffman, & Windle, 2010). In a longitudinal study, Van Der Vorst et al. (2006) showed that having

stricter rules about substance use put off consumption, although banning substance (alcohol) use did not predict use one year later.

Academic Self-efficacy, Academic performance, and Parenting Styles

Beliefs of self-efficacy play a key role in achieving good learning outcomes (Bandura, 2001), fostering goal attainment, and contributing to personal well-being (Côté-Lussier & Fitzpatrick, 2016). It has been suggested that adolescents with poor academic performance are at risk of early school dropout, resulting in low labor qualifications and substance use risk (Dishion, Kavanagh, Schneider, Nelson, & Kaufman, 2002). Similarly, there is empirical evidence of an association between substance use, perceived self-efficacy in terms of academic performance, and resulting academic problems (Fothergill et al., 2008; Navalón-Mira & Ruiz-Callado, 2017). Seemingly, low perceived academic performance increases negative emotions in substance users (Sheikh & Bashir, 2004). Therefore, school and the academic environment can provide a source of balance for adolescents. Individuals who feel well in the academic environment tend to develop greater confidence both in coping with learning situations and in the process of interacting with peers (Cohen, McCabe, Michelli, & Pickeral, 2009). Furthermore, there is empirical evidence that academic performance, beliefs of self-efficacy, and academic expectations are related to a warm family environment based on reciprocity (Crandall et al., 2015; García & Gracia, 2009, 2014; Kordi & Baharudin, 2010; Sánchez-Sosa, Villarreal-González, Ávila Guerrero, Vera Jiménez, & Musitu, 2014).

However, findings about the indulgent parenting style are inconclusive. Some researchers have found positive associations between an indulgent parenting style and academic performance (Calafat et al., 2014), whereas other researchers have found positive relationships between low academic performance and a permissive, neglectful, or psychological-control-based and authoritarian parenting style (Pinquart, 2016). We may therefore conclude that both authoritarian and neglectful parents encroach upon the principle of parent-child reciprocity, which may be interpreted as the failure by parents to either respond to the demands of their children or adopt the perspective of their children. This situation may have low acceptance by children (Sorkhabi, 2012). Because of this lack of clear conclusions, further research is needed to analyze the relationships between parenting and substance use. More specifically, there is a need for more in-depth research and analysis of other variables that may influence substance use, such as academic performance or perceived academic self-efficacy.

Based on this review of the literature, we formulate the following four hypotheses:

Hypothesis 1: A parenting style that fosters warmth and support (i.e., authoritative and indulgent style) is related to feelings of academic self-efficacy and low substance use. An authoritarian and neglectful parenting style is associated with high substance use and low academic self-efficacy.

Hypothesis 2: Parenting is related to adolescents' perceived academic self-efficacy. Given the results for Spanish populations (Calafat et al., 2014; Fuentes et al., 2015; Fuentes et al., 2011; García & Gracia, 2009, 2014; García et al., 2018; Gracia et al., 2012), we expect authoritative and indulgent parenting to be positively related to perceived academic self-efficacy.

Hypothesis 3: Perceived academic self-efficacy is associated with low substance use.

Hypothesis 4: Substance use is higher in middle adolescence because of the vulnerability characterizing this period of an individual's life (Hartz et al., 2012).

Method

Participants

Participants were 762 adolescents from the metropolitan area of Valencia (Spain). The sample was selected using probabilistic cluster sampling. This procedure ensured that there was a similar number of boys and girls in each of the development stages covered by the study (early and middle adolescence) and that these participants were enrolled in public and semi-private high schools. The distribution was as follows: boys (51%) and girls (49%) aged 12 to 16 years ($M = 13.66$, $SD = 1.34$). Of these participants, 49.4% were aged 12 or 13 years (early adolescence), and 50.6% were aged 14 to 16 years (middle adolescence). They attended six schools in Valencia and its metropolitan area and were enrolled in mandatory secondary education in public schools (48.2%) and semi-private schools (51.8%). In terms of family structure, 71.20% of students belonged to two-parent families, whereas 28.80% belonged to single-parent families. In these cases, parents were separated, the families had always been single-parent families, or one of the parents had died. In terms of their fathers' educational level, 40.6% had university studies, 31.8% had completed post-16 studies, 22.3% had completed primary studies, and 5.3% had not completed primary studies. In terms of their mothers' educational level, 41.1% had university studies, 35.6% had completed post-16 studies, 19.6% had completed primary studies, and 3.7% had not completed primary studies. In terms of social strata (Gracia, García, & Musitu, 1995; Hollingshead, 2011), the distribution was: 18.6% high, 24.3% middle-high, 25.4% middle, 26.9% middle-low, and 4.8% low.

Variables and Instruments

The study variables were obtained using the following questionnaires.

Parenting style questionnaire (Tur-Porcar et al., 2015). This questionnaire evaluates the parenting styles that define parent-child relations as perceived by children. It comprises 38 items scored on a three-point scale (*never*, *sometimes*, or *always*). The factors that were obtained are support and communication (e.g., "Always listens to my ideas and opinions"), psychological control (e.g., "Wants to control everything I do"), neglect (e.g., "Lets me go wherever I want without asking"), and rejection (e.g., "Forgets to give me the things I need") associated with the mother and the father. Cronbach's alpha indices of reliability for the father were as follows: support and communication, $\alpha = .83$; psychological control, $\alpha = .71$; rejection, $\alpha = .62$; and neglect, $\alpha = .61$. Cronbach's alpha indices of reliability for the mother were as follows: support and communication, $\alpha = .85$; psychological control, $\alpha = .73$; rejection, $\alpha = .71$; and neglect, $\alpha = .65$.

Substance use. This questionnaire records the frequency with which adolescents have consumed any of the following substances in the last month: alcohol, marijuana, cocaine, inhalants, ecstasy, amphetamines, hallucinogens, and sedatives. Tobacco was not considered in this study. Cronbach's alpha was .84. An example item was "In the last month, how many times have you drunk alcohol (beer, wine, whisky, or vodka)?" According to participants' responses, 48% had drunk alcohol (2.5% did so on a daily basis), 12% had used marijuana (2.1% almost daily), and 3.2% had consumed cocaine, ecstasy, or inhalants. Of this last group, eight students had taken these substances more than 20 times, and two students had done so daily (cocaine, ecstasy, or inhalants).

Perceived academic self-efficacy. Using a scale ranging from 1 to 10, students rated their perceptions of 1) academic performance, 2) motivation and interest in academic activities, 3) suitable pace of work, and 4) considering oneself a good student. Cronbach's alpha was .81. Goodness-of-fit indices were: $\chi^2 = 60.414/16$, $p < .001$, CFI = .973, SRMR = .063.

Procedure

The sample was selected using the following criteria: schools that (i) provide mandatory secondary education to adolescents of both genders, (ii) are public or semi-private, (iii) are located in different areas of Valencia (downtown and outskirts), and (iv) agreed to participate in the study. We followed the international ethical guidelines for this type of study regarding informed consent by parents or legal guardians, consent by adolescents, voluntary participation, and data confidentiality. The evaluation was performed in groups during school hours. Data collection sessions lasted 40 to 45 minutes with breaks. The students received oral instructions on how to complete the questionnaires as well as any support they needed to resolve any issues. They were accompanied by two professionals at all times. The questionnaires were checked at the end to ensure that no items had been left unanswered.

Data Analysis

Using SPSS 24.0 statistical software, we performed an analysis of variance to check for the difference between the two distributions by age. Next, we conducted Pearson correlation analysis and hierarchical regression of perceived academic self-efficacy and parenting styles on substance use, which was the variable we sought to explain. The hierarchical regression model revealed the most important factors of substance use and the moderating role of academic self-efficacy. The standardized variables were converted into z scores to avoid problems of multicollinearity.

The values for the variance inflation factor (VIF) were less than 10 and were thus acceptable (Kleinbaum, Kupper, & Muller, 1988). The results indicate that there were no problems of collinearity. Durbin-Watson statistics was used to check that the assumption of independence of errors was met.

Following the recommendations by Aiken and West (1991) for hierarchical regression analysis, we introduced the variables in the following order: first, predictor variables (i.e., academic self-efficacy and parenting style), then, each of the variables corresponding to the parenting styles multiplied by the moderating variable (academic self-efficacy). In this case, a significant regression coefficient in the explained variance implies that there is moderation.

Results

Descriptive Analysis

The analysis of differences of means between the two subsamples using the Student's *t* test highlights significant differences in substance use between early and middle adolescence. Older adolescents tend to have greater substance use: 12-13 years, $M = 1.32$, $SD = 0.49$; 14-16 years, $M = 1.76$, $SD = 0.88$; $t(751) = -8.36$, $p < .001$, Cohen's $d = -0.61$. Parents' neglect is also higher: 12-13 years, $M = 1.50$, $SD = 0.29$; 14-16 years, $M = 1.65$, $SD = 0.36$; $t(751) = -6.20$, $p < .001$, Cohen's $d = -0.45$. In contrast, older adolescents report lower perceived academic self-efficacy: 12-13 years, $M = 7.63$, $SD = 1.52$; 14-16 years, $M = 6.73$, $SD = 1.83$; $t(751) = 8.56$, $p < .001$, Cohen's $d = 0.53$; also parents' support and communication: 12-13 years, $M = 2.34$, $SD = 0.35$; 14-16 years, $M = 2.20$, $SD = 0.39$; $t(751) = 4.87$, $p < .001$, Cohen's $d = 0.37$. There are no differences for parents' psychological control or rejection.

In summary, the comparison of early and middle adolescence shows that substance use and parents' neglect are higher in middle adolescence. In contrast, parents' support and communication and students' perceived academic efficacy are lower (Figure 1).

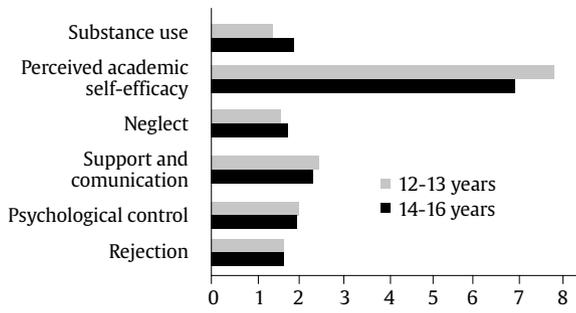


Figure 1. Differences in the Means of the Analyzed Variables Comparing Early Adolescence (12–13 Years) and Middle Adolescence (14–16 Years).

Correlation Analysis

The correlation analysis shows that substance use has a significant negative relationship with perceived academic self-efficacy, $r = -.350, p < .001$, parental support, $r = -.188, p < .001$, and age, $r = -.292, p < .001$, which indicates that the risk of substance use by older adolescents is higher. In contrast, substance use has a positive relationship with parents’ neglect, $r = .257, p < .001$, psychological control, $r = .124, p < .001$, and rejection, $r = .129, p < .001$. The correlations between age and the analyzed factors show the same trend. The correlations with parents’ neglect are positive, and the correlations with perceived academic self-efficacy and parents’ support and communication are negative. These results reflect the same idea: older adolescents have lower perceived academic self-efficacy and feel greater neglect and less support from their parents (Table 1).

Hierarchical Regression Analysis

First, we conducted a regression analysis of academic self-efficacy on substance use to observe the strength of the prediction. The results show that parenting explains 9.1% of the variance, $R^2 = .091, F(4, 748) = 29.029, p = .001$, which indicates that it is significant and that the variation in the model is not due to chance. We then included perceived academic self-efficacy, observing that the variance thus increases to 16.3%, $R^2 = .163, F(5, 747) = 29.029, p = .001$.

We also performed a three-step hierarchical regression analysis for each moderator to observe the extent to which academic self-efficacy moderates the relationship. Following Aiken and West’s (1991) procedure, we consider there to be a moderating effect when the interaction between the predictor variable and the moderator is significant. As Table 2 shows, moderation is significant in two cases: the interaction between academic self-efficacy and neglect and the interaction between academic self-efficacy and psychological control (Table 2). In both cases, considering the interaction between the predictor variable and the moderator is associated with an increase in the explained variance of substance use, $\Delta F = 4.703$ and $\Delta F = 3.900, p < .05$.

In general, the results indicate that academic self-efficacy moderates the relationship between parenting and substance use for the factors of neglect and psychological control. Given this finding, we studied whether academic self-efficacy also mediates this relationship. We considered three regression equations for each case to test this mediation. The first equation encompassed the independent variable and the mediating variable. The second covered the independent variable and the dependent variable. The third comprised the mediating variable and the dependent variable. The fourth included all three variables. Mediation occurs if the following conditions hold: (i) the independent variable has a significant relationship with the mediating variable; (ii) the independent variable has a significant relationship with the dependent variable; (iii) the mediating variable has a significant relationship with the dependent variable; and (iv) the independent variable does not have a significant relationship with the dependent variable when it is included in the regression equation together with the mediating variable. The results show that these mediation conditions hold only for psychological control. The β values in Figure 2 indicate the predictive power of each variable with respect to the adjacent variable (Quiles et al., 2006), with an overall R^2 value of .123.

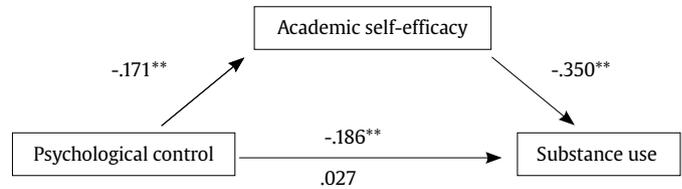


Figure 2. Illustration of the Mediating Variable, the Predictor Variable, and the Criterion Variable (Substance Use).

** $p < .01$.

In this mediation model, psychological control is significant at the .05 significance level as a predictor of substance use, $\beta = .086, t(751) = 2.369, p < .05$. The relationship of this predictor variable is not significant when academic self-efficacy is included, $\beta = .027, t(750) = 0.779, p = .436$, and the relationship is significant only for academic self-efficacy, $\beta = -.345, t(750) = -9.954, p < .001$. This result shows the mediating role of academic self-efficacy in the relationship between parents’ psychological control and substance use.

The results show that the three conditions for mediation hold. Thus, psychological control predicts substance use and academic self-efficacy (both negatively), and academic self-efficacy predicts substance use (also negatively); however, when academic self-efficacy and psychological control are both included in the regression equation, the effect of psychological control on substance use is no longer present, and only the effect of academic self-efficacy remains (Baron & Kenny, 1986).

Our conclusion is therefore that academic self-efficacy moderates the relationships between neglect and substance use and between psychological control and substance use. Furthermore, academic

Table 1. Analysis of Correlations between the Analyzed Variables in Early and Middle Adolescence (12–16 Years)

	1	2	3	4	5	6	M	DT
1. Substance use	-						1.550	0.752
2. Perceived academic self-efficacy	-.350**	-					7.181	1.503
3. Neglect (F & M)	.257**	-.197**	-				1.583	0.344
4. Support and communication (F & M)	-.188**	.319**	-.130**	-			2.274	0.379
5. Psychological control (F & M)	.124**	-.171**	-.053	-.135**	-		1.856	0.326
6. Rejection (F & M)	.129**	-.221**	.251**	-.260**	.288**		1.525	0.401
7. Age (early and middle adolescence)	-.292**	-.298**	.221**	-.175**	-.059	.027	13.660	1.340

Note. F & M = father and mother.

* $p < .05$, ** $p < .01$.

Table 2. Three-step Hierarchical Regression Analysis for Each Moderator

Step	Variables	β	t	p	R^2	ΔR^2	F_{Model}	ΔF
1	Academic self-efficacy (EF)	-.350**	-10.241	.000	.123	.123	104.883**	-
2	Neglect	.196**	5.635	.000	.159	.037	71.150**	23.954**
3	EF \times neglect	-.419*	-2.169	.030	.165	.005	49.235**	4.703*
1	Academic self-efficacy (EF)	-.350**	-10.241	.000	.123	.123	104.883**	-
2	Support and communication	-.053	-1.472	.142	.125	.003	53.605**	2.165 (ns)
3	EF \times support and communication	-.330	-1.226	.224	.127	.002	36.262**	1.504 (ns)
1	Academic self-efficacy (EF)	-.350**	-10.241	.000	.123	.123	104.883**	-
2	Psychological control	.345*	2.995	.037	.123	.001	52.717**	0.607 (ns)
3	EF \times psychological control	-.461*	-1.975	.040	.128	.005	36.581**	3.900*
1	Academic self-efficacy (EF)	-.350**	-10.241	.000	.123	.123	104.883**	-
2	Rejection	.320*	1.547	.050	.125	.003	53.735**	2.392*
3	EF \times rejection	-.306	-1.544	.123	.125	.000	36.684**	0.003 (ns)

Note. EF = perceived academic self-efficacy.

* $p < .05$, ** $p < .01$.

self-efficacy mediates the relationship between psychological control and substance use.

Discussion and Conclusions

This study has three aims: (i) to analyze the relationships between substance use and parenting style and between substance use and adolescents' perceived academic self-efficacy; (ii) to study the varying importance of these factors in the prediction of adolescent substance use; and (iii) to observe the moderating and mediating role of academic self-efficacy in the relationship between parenting style and substance use during adolescence. The analysis yields several conclusions in relation to the objectives and the hypotheses tested in this study.

First, the results indicate that substance use is significantly related to perceived academic self-efficacy and parenting styles. The relationships with neglect, psychological control, and rejection are positive, and the relationships with perceived academic self-efficacy and parental support are negative (Hypothesis 1).

Children who live in an authoritarian and neglectful environment may develop a lack of responsibility and a lack of consistency in agreements and behaviors. Consensus and the sharing of household chores helps children mature in terms of responsibility (Crandall et al., 2015; García & Gracia, 2014; Hoffmann & Bahr, 2014). Like Hinnant et al. (2016) and Hoffmann and Bahr (2014), we observe that neglectful or authoritarian parenting and rigid or controlling parenting are associated with a higher risk of substance use. Rigid, cold, and conflictive parent-child relationships or relationships with few rules and high levels of rejection may be associated with high levels of substance use (Jiménez, 2011). Our results support the view that an authoritarian and neglectful parenting style has a negative effect on substance use (Van Der Vorst et al., 2006; Varvil-Weld et al., 2014). Our results also indicate that a warm family environment, which encourages support and communication between family members (i.e., authoritative and indulgent), is more likely to be associated with a low risk of substance use (Hinnant et al., 2016). Therefore, adolescents that live in a warm family environment with a commitment to parenting tend to be more prepared to cope with interactions with their immediate social environment and are less likely to consume substances (Mason et al., 2017). However, we may not conclude that this situation also occurs only with an indulgent parenting style, as other scholars have found (Calafat et al., 2014; Fuentes et al., 2015; García & Gracia, 2009, 2014; García et al., 2018; Gracia et al., 2012).

Second, in the same sense, we observe negative relationships between an authoritarian or neglectful parenting style and perceived academic self-efficacy (Hypothesis 2). These results contrast with

Calafat et al.'s (2014) findings but support those of Pinquart (2014), who found a negative relationship between an authoritarian parenting style and academic performance. Similarly, these results support other conclusions from previous research that has shown that a warm parenting style based on support, communication, and standards of coexistence encourages academic success (Kordi & Baharudin, 2010; Sánchez-Sosa et al., 2014).

Third, in relation to Hypothesis 3, adolescents' perceived academic self-efficacy is observed in our analyses to be negatively associated with substance use. Furthermore, academic self-efficacy moderates the relationship between parenting styles and substance use, although this moderation only holds for neglect and psychological control. Support and communication and rejection are not significant in the regression equations. Academic self-efficacy also mediates the relationship between psychological control and substance use (with a negative sign).

Thus, parents' neglect acts positively and significantly in the prediction of substance use in the moderation equation. A similar situation is observed for psychological control and rejection, which also has a positive effect. However, when academic self-efficacy is included, moderation is observed only for neglect and psychological control. When these variables are joined with academic self-efficacy, the moderating role is reduced to neglect and psychological control. These results support the idea that perceived academic self-efficacy may be considered a protector against substance use in homes where the parenting style is permissive and indulgent, based on psychological control, or rejection, curbing the risk of substance use. We also observe that academic self-efficacy acts as a mediator in the case of psychological control. Thus, the negative predictive effects of psychological control on substance use may be smaller when combined with perceived academic self-efficacy. Therefore, with a suitable degree of caution, these results may support research that attributes an increase in substance use to neglect, particularly because of a lack of rules with respect to substance use (Varvil-Weld et al., 2014). Regarding family support and communication, the results are not significant, although initially it may have been expected that academic self-efficacy would enhance the negative relationship between parental support and substance use, consistent with previous studies (Hoffmann & Bahr, 2014; Sheikh & Bashir, 2004).

Fourth, Hypothesis 4 aimed at testing whether substance use is higher in middle adolescence than in early adolescence. We observe significantly greater substance use during middle adolescence. This finding supports those reported by Hartz et al. (2012) and highlights the risks faced by adolescents in this stage of life. Starting to use substances from an early age can have a major cognitive impact on adolescents as well as be a powerful predictor during the process of substance dependence in adulthood (Hartz et al., 2012; Koskinen et al., 2011).

Finally, it is worth noting that when substance use in middle adolescence is greater, perceived academic self-efficacy and the sense of parental support and communication are significantly lower. Similarly, the perception of neglect and rejection is greater. In other words, adolescents feel less support and communication and greater neglect. Adolescents need to increase their autonomy; however, an increase in neglect does not have to be accompanied by less parental support and communication. Parents must respond to this need—by being more permissive—while ensuring support and smooth two-way communication with their children given that they continue to provide a fundamental source of care in the lives of their adolescent children (Steinberg, 2001). Autonomy, together with the need to grant this autonomy gradually, does not mean renouncing responsibilities as parents. A warm family environment, coupled with disciplinary standards, can help meet the demands of adolescents and prepare them to cope with situations of risks such as substance use (Mason et al., 2017).

These findings can be helpful for the design of programs aimed at the all-round education of adolescents. These programs must consider educating families and adolescents. This education for families can provide tools for active and effective communication that helps families foster the autonomy of their children based on consistently applied disciplinary standards while conveying support and encouraging intrafamily communication.

Despite the strength of the variables and the results presented in this study, it is worth mentioning its limitations. First, the cross-sectional nature of the study meant that causal inferences could not be made. Instead, the results are discussed in terms of trends. Second, the data collection using self-report instruments completed by the adolescents may have caused bias linked to the moment at which the data were gathered, although special care was taken to ensure that the adolescents understood the instructions and had breaks to avoid the possible effects of tiredness. Nevertheless, previous research has shown that data from adolescents are quite reliable, perhaps even more so than data from families (Gaylord, Kitzmann, & Coleman, 2003). Another possible limitation relates to the instruments. The evaluation instrument for parenting styles had been validated for a Spanish population. The instrument for perceived academic self-efficacy was validated for the study and had acceptable goodness-of-fit indices, as shown in the Instruments section.

Conflict of Interest

The authors of this article declare no conflict of interest.

References

- Aiken, L., & West, S. (1991). *Multiple regression: Testing and interpreting interactions*. London-New Delhi: Sage Publications, Inc. Retrieved from <https://search.proquest.com/docview/618050774?accountid=14777>
- Bandura, A. (2001). Social cognitive theory: An agentic perspective. *Annual Review of Psychology*, 52, 1-26. <https://doi.org/10.1146/annurev.psych.52.1.1>
- Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic and statistical considerations. *Journal of Personality and Social Psychology*, 51, 1173-1182. <https://doi.org/10.1037/0022-3514.51.6.1173>
- Baumrind, D. (1996). The discipline controversy revisited. *Journal of Applied Family & Child Studies*, 45, 405-414. <https://doi.org/10.2307/585170>
- Bronfenbrenner, U. (1986). Ecology of the family as a context for Human Development: Research Perspectives. *Developmental Psychology*, 22, 723-742. <https://doi.org/10.1037/0012-1649.22.6.723>
- Calafat, A., García, F., Juan, M., Becoña, E., & Fernández-Hermida, J. R. (2014). Which parenting style is more protective against adolescent substance use? Evidence with in the European context. *Drug and Alcohol Dependence*, 138, 185-192. <https://doi.org/10.1016/j.drugalcdep.2014.02.705>
- Cohen, J., McCabe, L., Michelli, N. M., & Pickeral, T. (2009). School climate: Research, policy, practice, and teacher education. *Teachers College Record*, 111, 180-213.
- Côté-Lussier, C., & Fitzpatrick, C. (2016). Feelings of safety at school, socioemotional functioning, and classroom engagement. *Journal of Adolescent Health*, 58, 543-550. <https://doi.org/10.1016/j.jadohealth.2016.01.003>
- Crandall, A., Ghazarian, S. R., Day, R. D., & Riley, A. W. (2015). Maternal emotion regulation and adolescent behaviors: The mediating role of family functioning and parenting. *Journal of Youth and Adolescence*, 45, 2321-2335. <https://doi.org/10.1007/s10964-015-0400-3>
- Darling, N., & Steinberg, L. (1993). Parenting style as context: An integrative model. *Psychological Bulletin*, 113, 487-496. <https://doi.org/10.1037/0033-2909.113.3.487>
- Dishion, T. J., Kavanagh, K., Schneider, A., Nelson, S., & Kaufman, N. K. (2002). Preventing early adolescent substance use: A family-centered strategy for the public middle school. *Prevention Science*, 3, 191-201. <https://doi.org/10.1023/A:1019994500301>
- Fothergill, K. E., Ensminger, M. E., Green, K. M., Crum, R. M., Robertson, J., & Juon, H. S. (2008). The impact of early school behavior and educational achievement on adult drug use disorders: A prospective study. *Drug and Alcohol Dependence*, 92(1), 191-199. <https://doi.org/10.1016/j.drugalcdep.2007.08.001>
- Fuentes, M. C., Alarcón, A., García, F., & Gracia, E. (2015). Alcohol, tobacco, cannabis and other drugs in adolescence: Effects of family and neighborhood danger. *Anales de Psicología*, 31, 1000-1007. <https://doi.org/10.6018/analesps.31.3.183491>
- Fuentes, M. C., García, F., Gracia, E., & Lila, M. (2011). Self-concept and drug use in adolescence. *Adicciones*, 23, 237-248. <https://doi.org/10.20882/adicciones.148>
- García, F., & Gracia, E. (2009). Is always authoritative the optimum parenting style? Evidence from Spanish families. *Adolescence*, 44(173), 101-131. Retrieved from [http://refhub.elsevier.com/S0747-5632\(18\)30411-4/sref31](http://refhub.elsevier.com/S0747-5632(18)30411-4/sref31)
- García, F., & Gracia, E. (2014). The indulgent parenting style and developmental outcomes in South European and Latin American countries. In H. Selin (Ed.), *Parenting across cultures: Childrearing, motherhood and fatherhood in non-Western cultures (Science across cultures: History and practice)* (Vol. 7, pp. 419-433). Dordrecht, Netherlands: Springer. https://doi.org/10.1007/978-94-007-7503-9_31
- García, O. F., López-Fernández, O., & Serra, E. (2018). Raising Spanish children with an antisocial tendency: Do we know what the optimal parenting style is? *Journal of Interpersonal Violence*. First published online. <https://doi.org/10.1177/0886260518818426>
- Gaylord, N. K., Kitzmann, M., & Coleman, J. K. (2003). Parents' and children's perceptions of parental behavior: Associations with children's psychological adjustment in the classroom. *Parenting: Science and practice*, 3, 23-47. https://doi.org/10.1207/S15327922PAR0301_02
- Gracia, E., Fuentes, M. C., García, F., & Lila, M. (2012). Perceived neighborhood violence, parenting styles, and developmental outcomes among Spanish adolescents. *Journal of Community Psychology*, 40, 1004-1021. <https://doi.org/10.1002/jcop.21512>
- Gracia, E., García, F., & Musitu, G. (1995). Macrosocial determinants of social integration: Social class and area effect. *Journal of Community and Applied Social Psychology*, 5, 105-119. <https://doi.org/10.1002/casp.2450050204>
- Hartz, S. M., Short, S., Saccone, N. L., Culverhouse, R., Chen, L. S., Schwantes-An, T., ... Bierut, L. J. (2012). Increased genetic vulnerability to smoking at CHRNA5 in early-onset smokers. *Archives of General Psychiatry*, 69, 854-860. <https://doi.org/10.1001/archgenpsychiatry.2012.124>
- Hinnant, J. B., Erath, S. A., Tu, K. M., & El-Sheikh, M. (2016). Permissive parenting, deviant peer affiliations, and delinquent behavior in adolescence: The moderating role of sympathetic nervous system reactivity. *Journal of Abnormal Child Psychology*, 44, 1071-1081. <https://doi.org/10.1007/s10802-015-0114-8>
- Hoffmann, J. P., & Bahr, S. J. (2014). Parenting style, religiosity, peer alcohol use, and adolescent heavy drinking. *Journal of Studies on Alcohol and Drugs*, 75, 222-227. <https://doi.org/10.15288/jsad.2014.75.222>
- Hollingshead, A. B. (2011). Four factor index of social status. *Yale Journal of Sociology*, 8, 21-52. Retrieved from https://sociology.yale.edu/sites/default/files/files/yjs_fall_2011.pdf#page=21
- Jiménez, T. I. (2011). Self-esteem risk and protection: mediation between family climate and substance use in adolescents. *Psychosocial Intervention*, 20, 53-61. <https://doi.org/10.5093/in2011v20n1a5>
- Kleinbaum, D. G., Kupper, L. L., & Muller, K. E. (1988). *Muller applied regression analysis and other multivariable methods*. Boston, MA: PWS-KENT Publishing Company.
- Kordi, A., & Baharudin, R. (2010). Parenting attitude and style and its effect on children's school achievements. *International Journal of Psychological Studies*, 2, 217-222. <https://doi.org/10.5539/ijps.v2n2p217>
- Koskinen, S. M., Ahveninen, J., Kujala, T., Kaprio, J., O'Donnell, B. F., Osipova, D., ... Rose, R. J. (2011). A longitudinal twin study of effects of adolescent alcohol abuse on the neurophysiology of attention and orienting. *Alcoholism: Clinical and Experimental Research*, 35, 1339-1350. <https://doi.org/10.1111/j.1530-0277.2011.01470.x>
- Kuntsche, S., & Kuntsche, E. (2016). Parent-based interventions for preventing or reducing adolescent substance use: A systematic literature review. *Clinical Psychology Review*, 45, 89-101. <https://doi.org/10.1016/j.cpr.2016.02.004>
- Livingston, J. A., Testa, M., Hoffman, J. H., & Windle, M. (2010). Can parents prevent heavy episodic drinking by allowing teens to drink at

- home? *Addictive Behaviors*, 35, 1105-1112. <https://doi.org/10.1016/j.addbeh.2010.08.005>
- Longmore, M. A., Manning, W. D., & Giordano, P. C. (2013). Parent-child relationships in adolescence. In M. A. Fine & D. Fincham (Eds.), *Handbook of family theories: A content-based approach* (pp. 28-50). New York & London: Routledge. <https://doi.org/10.4324/9780203075180.ch3>
- Maccoby, E. E., & Martin, J. (1983). Socialization in the context of the family: Parent-child interaction. In P. H. Mussen & E. M. Hetherington (Vol. Ed.), *Handbook of child psychology: Vol. 4. Socialization, personality, and social development* (4th ed., pp. 1-101). New York, NY: Wiley.
- Mason, W. A., Russo, M. J., Chmelka, M. B., Herrenkohl, R. C., & Herrenkohl, T. I. (2017). Parent and peer pathways linking childhood experiences of abuse with marijuana use in adolescence and adulthood. *Addictive Behaviors*, 66, 70-75. <https://doi.org/10.1016/j.addbeh.2016.11.013>
- Navalón-Mira, A., & Ruiz-Callado, R. (2017). Substance use associated with academic performance. A research about secondary education students. *Health and Addictions*, 17(1), 45-52. <https://doi.org/10.21134/haaj.v17i1.278>
- Negriff, S., & Trickett, P. K. (2012). Peer substance use as a mediator between early pubertal timing and adolescent substance use: Longitudinal associations and moderating effect of maltreatment. *Drug and Alcohol Dependence*, 126, 95-101. <https://doi.org/10.1016/j.drugalcdep.2012.04.018>
- Observatorio Español de la Droga y las Toxicomanías. (2016). *Encuesta sobre drogas en España* [Survey drugs in Spain] (EADDES). Ministerio de Sanidad, Servicios Sociales e Igualdad, Gobierno de España. Retrieved from http://www.pnsd.msssi.gob.es/profesionales/sistemasInformacion/informesEstadisticas/pdf/2016_INFORME_OEDT.pdf
- Piehler, T. F. (2011). Peer Influence. In B. B. Brown & M. J. Prinstein (Eds.), *Encyclopedia of adolescence* (Vol. 2, pp. 249-259). Oxford, UK: Elsevier.
- Pinquart, M. (2016). Associations of parenting styles and dimensions with academic achievement in children and adolescents: A meta-analysis. *Educational Psychology Review*, 28, 475-493. <https://doi.org/10.1007/s10648-015-9338-y>
- Quiles del Castillo, M. N., Rodríguez, A., Navas, M., Rodríguez, R., Betancor, V., & Coello, E. (2006). Moderating and mediating variables in the relationship perception of intergroup differences-anxiety. *Psicothema*, 18, 105-111. Retrieved from <https://www.redalyc.org/html/727/72718116/>
- Read, J. P., Beattie, M., Chamberlain, R., & Merrill, J. E. (2008). Beyond the "binge" threshold: Heavy drinking patterns and their association with alcohol involvement indices in college students. *Addictive Behaviors*, 33, 225-234. <https://doi.org/10.1016/j.addbeh.2007.09.001>
- Sánchez-Sosa, J. C., Villarreal-González, M. E., Ávila Guerrero, M. E., Vera Jiménez, A., & Musitu, G. (2014). Contexts of socialization and illegal drug use among adolescent students. *Psychosocial Intervention*, 23, 69-78. <https://doi.org/10.5093/in2014a7>
- Sheikh, S. G., & Bashir, T. Z. (2004). High-risk relapse situations and self-efficacy: Comparison between alcoholics and heroin addicts. *Addictive Behaviors*, 29, 753-758. <https://doi.org/10.1016/j.addbeh.2004.02.003>
- Sorkhabi, N. (2012). Parent socialization effects in different cultures: Significance of directive parenting. *Psychological Reports*, 110, 854-878. <https://doi.org/10.2466/10.02.17.21.PR0.110.3.854-878>
- Steinberg, L. (2001). We know some things: Adolescent-parent relationships in retrospect and prospect. *Journal of Research on Adolescence*, 11, 1-19. <https://doi.org/10.1111/1532-7795.00001>
- Tur-Porcar, A., Mestre, V., & Llorca, A. (2015). Parenting: Psychometric analysis of two studies in Spanish population. *Anuario de Psicología*, 45, 347-359. Retrieved from <http://www.redalyc.org/html/970/97044008007/>
- Van Der Vorst, H., Engels, R. C., Meeus, W., & Deković, M. (2006). The impact of alcohol-specific rules, parental norms about early drinking and parental alcohol use on adolescents' drinking behavior. *Journal of Child Psychology and Psychiatry*, 47, 1299-1306. <https://doi.org/10.1111/j.1469-7610.2006.01680.x>
- Varvil-Weld, L., Crowley, D. M., Turrissi, R., Greenberg, M. T., & Mallett, K. A. (2014). Hurting, helping, or neutral? The effects of parental permissiveness toward adolescent drinking on college student alcohol use and problems. *Prevention Science*, 15, 716-724. <https://doi.org/10.1007/s11121-013-0430-6>
- Wood, M. D., Fairlie, A. M., Fernandez, A. C., Borsari, B., Capone, C., Laforge, R., & Carmona-Barros, R. (2010). Brief motivational and parent interventions for college students: A randomized factorial study. *Journal of Consulting and Clinical Psychology*, 78, 349-361. <https://doi.org/10.1037/a0019166>