

Personality, Parenting and Deviance among Spanish Adolescents

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Resumen: El objetivo de este trabajo es analizar las características de personalidad y los estilos de interacción entre padres e hijos que se relacionan con diferentes manifestaciones de conducta desviada en la adolescencia, como abuso de drogas y alcohol, vandalismo y robo. Así mismo, se analiza el papel moderador de los estilos de crianza de los progenitores en la relación entre personalidad y conducta antisocial. La muestra esta compuesta por 652 adolescentes, 282 chicos y 370 chicas, con una media de edad de 16.93 años (d.t.=1). Los resultados indican que, respecto a la personalidad, son las variables extraversión, amabilidad y conciencia las que se vinculan a las manifestaciones de conducta externalizada. Respecto a las prácticas de crianza, los estilos de interacción positivos se relacionan de forma negativa con la conducta antisocial mientras que el conflicto lo hace de forma positiva. Además, la percepción de conflicto modera el efecto de los constructos de personalidad del Big Five sobre la conducta desviada.

Palabras clave: Conducta antisocial; drogas; alcohol; personalidad; Big Five; interacción familiar.

Abstract: The goal of this work is to analyze the personality characteristics and interactions between parents and children that are related to diverse manifestations of deviant behavior in adolescence, such as alcohol and drug abuse, vandalism, and theft. We also analyzed parenting as a moderator in the relationship between personality and antisocial behavior. The sample is made up of 652 adolescents, 282 boys and 370 girls, mean 16.93 years ($SD = 1$). The results indicate that extraversion, agreeableness, and conscientiousness are associated with different measures of deviance. As expected, positive parenting processes (closeness, communication) are negatively associated with deviance, while conflict is positively associated. In addition, perceived conflict moderated the effects by Big Five personality constructs on measures of deviance.

Keywords: Antisocial behavior; drugs; alcohol; personality; Big Five; family interaction.

Introduction

In Spain, as in other European countries (Enzmann et al., 2010; Junger-Tas, 1994), the number of minors who are involved in delinquent acts is relatively high. When considering the official statistical data in Spain, statistics indicate that in the past ten years, the number of convicted offenders has increased, rising from 4,992 minors in 1999, of whom 506 were female, to 17,572 in 2009, of whom 2,790 were female (Instituto Nacional de Estadística [National Institute of Statistics]; INE- 2011).

This increase, along with public outcry that some cases have caused, justify the concern raised by the scientific community and the implementation of diverse research projects aimed at finding solutions to this social problem.

Two of the variables that have traditionally been related to manifestations of antisocial and deviant behaviors during adolescence have been, on the one hand, parenting practices (e.g., Torrente & Vazsonyi, 2008, 2009; Vazsonyi, Trejos-Castillo, & Huang, 2006), and on the other, personality characteristics (e.g., Cohen, 1996; Ge & Conger, 1999; Lahey & Waldman, 2007; Nigg, 2006; Rutter, 1987; Tackett, 2006; Walton & Roberts, 2004). Few studies have attempted to establish the links between the two (e.g., López-Romero, Romero, & Gómez-Fraguela, 2012; Manders, Scholte, Janssens, & De Bruyn, 2006; Prinzie et al., 2003; Prinzie, van der Sluis,

de Haan, & Dekovic, 2010). In the current study, we analyzed the influence of both parenting variables and the Big Five personality constructs on deviant behaviors during adolescence and also tested potential interactions between them in their influence on these behaviors.

Parenting and Deviance

The importance of effective parenting in accounting for variability in adolescent deviance has been well established in a number of studies (e.g., Cernkovich & Giordano, 1987; Haasapalo & Tremblay, 1994; Kerr & Stattin, 2000, 2004; Palmer & Hollin, 1996; Sampson & Laub, 1994; Torrente & Vazsonyi, 2008, 2009). Some of the key parenting processes that are relevant for the understanding for deviance and adjustment more generally include parental closeness, support, communication, and conflict. First, parental closeness encompasses parenting behaviors that permit the child to know that he/she is accepted by his parents (Rollins & Thomas, 1979). Parents who support their children are also accepted by them; supportive parents are perceived to be close and affectively intimate, which generally provides the interpersonal ingredients for a strong and positive parent-child attachment (Arbona & Power, 2003). Second, communication is one of the most important components of the authoritative parenting style (Baumrind, 1966; Maccoby & Martin, 1983). Communication is indicative of a number of interpersonal qualities between parents and their children, all important for positive adjustment in youth. Lastly conflict, in contrast, implies that the family does not use constructive strategies of conflict resolutions (Schaeffer & Borduin, 1999).

Each of these three parenting processes has been found to be associated with measures of adolescent deviance. A

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number of previous investigations have found negative associations between perceived closeness, support, or communication and deviance (e.g., Baumrind, 1978, 1991; Lamborn, Mounts, Steinberg, & Dornbusch, 1991; Maccoby & Martin, 1983; Torrente & Vazsonyi, 2008, 2009; Vazsonyi, Hibbert, & Snider, 2003; Vazsonyi et al., 2006). Other studies have also established the important positive effect of perceived conflict with parents on externalizing behavior problems (e.g., Rodríguez & Torrente, 2003; Torrente, 2002, 2005).

Personality and Deviance

There are various models of personality, which serve as the basis for the study of the influence of personality on maladaptive behaviors. Perhaps the most prominent one is the Big Five model, which is based on a higher-order structure of five empirically derived factors: extraversion, neuroticism, conscientiousness, agreeableness, and openness (Caspi, Roberts, & Shiner, 2005; John, 1990; John, Naumann, & Soto, 2008; McCrae & Costa, 2008). According to Caspi et al. (2005) the components of the Big Five can be described in the following manner: extraversion, or positive emotionality, implies expressiveness, energy, and a positive mood (Fleeson, Malanos, & Achille, 2002). Neuroticism, or negative emotionality, is related to anxiety, stress, guilt, insecurity, or frustration. Conscientiousness refers to cognitive control and also behavioral control: Individuals who score high on this dimension of the Big Five are usually persistent, neat, attentive, responsible, and good planners. Agreeableness includes traits that facilitate positive social interactions (Graciano & Eisenberg, 1997): High scores signify friendly, polite, cooperative, and generous traits. Lastly, openness can refer to openness to knowledge—which implies intelligence—and openness to experience, closely related to artistic sensitivity, creativity, and imagination.

How are these traits related to deviant or antisocial behaviors? When analyzing the influence of these personality characteristics on drug and alcohol abuse, we find that these behaviors are related to neuroticism (Skinner & Allen, 1982; Walton & Roberts, 2004), to impulsivity (Labouvie & McGee, 1986), which in turn implies low conscientiousness (Flory, Lyman, Milich, Leukefeld, & Clayton, 2002; Martin & Sher, 1994; Walton & Roberts, 2004), to low extraversion (Trull & Sher, 1994) and low agreeableness (Flory et al., 2002; Martin & Sher, 1994; Walton & Roberts, 2004), as well as to high openness (Flory et al., 2002; Martin & Sher, 1994).

Studies have also shown that neuroticism is positively associated with deviance and delinquency, among both men and women, whereas conscientiousness has a negative relation. Therefore, this type of behavior is more likely to emerge in people who are stressed and anxious and who have difficulties controlling their impulses (Elkins, Iacono, Doyle, & McGue, 1997; Krueger, Hicks, & McGue, 2001; Krueger et al., 1994; Sobral, Romero, Luengo, & Marzoa, 2000). Low scores in conscientiousness are more consistently related to diverse manifestations of problem behaviors

during adolescence (Ge & Conger, 1999; John, Caspi, Robins, Moffitt, & Stouthamer-Loeber, 1994; Shiner, Masten, & Tellegen, 2002; Wiebe, 2004). Other studies have provided evidence that extraversion is positively related to antisocial or deviant behaviors (John et al., 1994; Prinzie et al., 2010). Finally, low scores on agreeableness have been found to be associated with externalizing behaviors (John et al., 1994; Prinzie et al., 2003).

Parenting Practices, Personality, and Deviance

As mentioned, few studies have analyzed the relations between perceived parenting behaviors, adolescents' personality, and deviance. There are two potential competing models to testing the links among these constructs, namely one which considers personality a predisposition to maladjustment, as mediated by perceived parenting processes (Manders et al., 2006; Prinzie et al., 2010). Based on this model, we would expect that youth who score low on agreeableness and whose parents are authoritarian (low warmth or closeness, high discipline) are at greater risk for deviant behaviors. On the other hand, youth with high conscientiousness scores who have authoritative parents are at low risk for deviance (Prinzie et al., 2010). Relevant to this last point, Manders et al. (2006) concluded that the quality of parent-child relations mediates the association between personality characteristics (agreeableness, emotional stability, and conscientiousness) and externalizing behaviors.

The second model considers how parenting practices and personality characteristics might interact to affect maladaptive behaviors or deviance among youth. From this perspective, parenting processes are considered an external factor which impacts the link between personality and externalizing behaviors (Manders et al., 2006) or vice versa, that is, the adolescent's personality affects the relation between parenting practices and deviance (Prinzie et al., 2003). Based on this viewpoint, both dysfunctional parenting practices and an adolescent's personality—specifically, agreeableness, conscientiousness, and extraversion—are directly related to youthful deviance. When considering the interactions between the two, youth who score low in conscientiousness and agreeableness and who are exposed to negative parenting behaviors (i.e., coercive or authoritarian) score high on measures of externalizing behaviors or deviance (Prinzie et al., 2003). De Clercq, Van Leeuwen, De Fruyt, Van Hiel, and Merielde (2008) found significant interactions between low agreeableness, emotional stability, and negative paternal control. Manders et al. (2006) found that adolescents with low scores on emotional stability and conscientiousness and who had poor relations with their parents were at greater risk for externalized behaviors.

The goals of the current study include examining both Big Five personality characteristics and perceived parenting behaviors, and how these are associated with different measures of deviant behaviors, including alcohol and drug use, vandalism, and theft. In addition, to the initial point, we

were also interested in understanding the extent to which perceived parenting processes conditioned the relations between the Big Five personality constructs and deviance.

Method

Procedure

The data were collected as part of the International Study of Adolescent Development and Problem Behaviors (ISAD), a cross-national investigation which includes eleven countries to date. The purpose of ISAD is to examine adolescent development using large samples from different countries (Vazsonyi & Pickering, 2000; Vazsonyi, Pickering, Belliston, Hessing, & Junger, 2002; Vazsonyi, Pickering, Junger, & Hessing, 2001; Vazsonyi et al., 2010). Specifically, the current Spanish sample was collected from youth attending a high school in a city in the southeastern region of the country. A standard collection data protocol was used for the study, and was approved by the Institutional Review Board. A self-report instrument was used for data collection, which included instructions on how to complete the survey, a description of the project, and assurances of anonymity. The instructions were read aloud to the participants before

the surveys were administered. The surveys were then administered in the classroom by the project staff, which had been trained in the details of the instruction. This was done to maintain a standardized protocol across all study locations. Much attention was given to the development of the survey instrument, particularly by developing new or employing existing behavioral measures that could be used cross-culturally without losing nuances or changing meanings.

The survey was translated from English to Spanish and back-translated by a bilingual translator. The survey was examined by additional translators. When the translation was difficult or ambiguous, consensus was used to produce the final translation.

Participants

Participants in this study included a total of 653 mid-adolescents. The mean age for the total sample was 16.93 ($SD = 1$). The sample included 282 males (43.3%) and 370 females (56.7%); one participant (0.2%) did not indicate sex. Descriptive information of the participants is presented in Table 1.

Table 1. Descriptive Statistics of Demographic Variables

Age	Mean Age (SD)	16.93 (1.004)
Sex	Males	282 (43.3%)
	Females	370 (56.7%)
Family structure	Biological parents	546 (83.6%)
	Biological mother only	44 (6.7%)
	Biological father only	1 (.2%)
	Biological mother and step-father	18 (2.8%)
	Biological father and step-mother	4 (.6%)
	Biological parents and significant others	22 (3.4%)
	Other	18 (2.8%)
Father's educational level	Elementary or junior high school	94 (15.2%)
	Finished high school	164 (26.5%)
	Finished some college or technical school	182 (29.4%)
	Has a college degree or a university degree	180 (29.1%)
Mother's educational level	Elementary or junior high school	74 (11.6%)
	Finished high school	225 (35.3%)
	Finished some college or technical school	171 (26.8%)
	Has a college degree or a university degree	168 (26.3%)

Measures

All participants responded to questions on demographic information such as age, sex, family structure, and father's and mother's education, as well as family processes and measures of personality and externalizing behavior.

Age. Adolescents were asked to specify the month and year in which they were born. The 15th day of each month was used to calculate participants' ages.

Sex. Participants were asked to indicate their sex on a single item: "What is your sex?" Responses were given as 1 = *male* and 2 = *female*.

Family structure. Adolescents' family situation was assessed with a single item: "Which of the following home situations best applies to you?" One of the following 7 responses was selected: 1 = *biological parents*, 2 = *biological mother only*, 3 = *biological father only*, 4 = *biological mother and step-father*, 5 = *biological father and step-mother*, 6 = *biological parents and significant other*, and 7 = *other*. Based on the small number of non-traditional family forms, we coded family structure into a dichotomous variable 1 = *two biological parents* and 2 = *others*.

SES. A measure of social class was also included; participants indicated the educational levels of both the father and mother; response categories included: (a) *finished elemen-*

tary or junior high school, (b) finished high school, (c) finished some college or technical school, (d) has a college degree, and (e) has a graduate degree.

Parenting Processes. Perceived parenting behaviors were assessed with the Adolescent Family Processes (AFP) measure (Vazsonyi et al., 2003). Fourteen items assessed three subscales, for the mother and the father, namely Closeness (6 items, e.g., “My mother/father often asks about what I am doing in school”), Communication (5 items, e.g., “How often do you talk to your mother/father about major personal decisions”) and Conflict (3 items, e.g., “How often do you get angry at your mother/father”). The subscales were rated on a 5-point Likert-type response scale: Responses for the Closeness scale ranged from 1 (*strongly disagree*) to 5 (*strongly agree*), and for the Communication and Conflict subscales, responses ranged 1 (*never*) to 5 (*very often*). As the correlations between perceived maternal and paternal parenting behaviors were fairly substantial and significant ($r = .31$ to $.49$, $p < .001$), a decision was made to average the two scores and form single closeness, communication, and conflict scores. Reliability estimates ranged from $\alpha = 0.80$ - 0.84 .

Deviance or Externalizing behaviors. Four subscales from the Normative Deviance Scale (NDS; Vazsonyi, Pickering, Junger, & Hessing, 2001) were used, namely Alcohol Use (7 items, e.g., “Did you ever consume hard liquor (e.g. tequila, whiskey, vodka, or gin) before you were 18?”), Drug Use (9 items, e.g., “Have you ever used “hard” drugs, such as crack, cocaine, or heroin?”), Vandalism (8 items; e.g., “Have you ever smashed bottles on the street, school grounds, or other areas?”), and Theft (7 items; e.g., “Have you ever stolen, taken, or tried to take something worth more than \$100 [e.g., a leather jacket, a car stereo, a bike, money, etc.]”). Responses to each item were given on a 5-point Likert-type scale ranging from 1 (*never*) to 5 (*more than six times*). The reliability estimates for the subscales ranged from $\alpha = 0.77$ - 0.86 .

Personality. The Big Five personality traits were measured using the Big Five Inventory (BFI) developed by John (1990). The BFI is a 44-item instrument that measures the Big Five personality traits, rated on a 5-point Likert-scale, ranging from A (*strongly disagree*) to E (*strongly agree*). There are 8 items that measure Extraversion (e.g., “I see myself as someone who is talkative”), 9 that assess Agreeableness (e.g., “I see myself as someone who is helpful and unselfish with others”), 9 items measure Conscientiousness (e.g., “I see myself as someone who does a thorough job”), 8 items assess Neuroticism (e.g., “I see myself as someone who is depressed, blue”), and 10 items assess Openness (e.g., “I see myself as someone who is original, comes up with new ideas”). Reliability estimates ranged from $\alpha = 0.68$ - 0.81 .

Statistical Analyses

Before conducting multivariate analyses, partial correlations were computed between parenting, Big Five personality

traits, and deviance measures, where controls included age, sex, family structure, and SES. To test the moderating role of perceived parenting processes on the association between Big Five personality traits and deviance, a series of hierarchical regression analyses (Baron & Kenny, 1986; Cohen, Cohen, West, & Aiken, 2003) were completed for each dependent measure (alcohol use, drug use, vandalism, and theft). Model tests included a number of control variables, followed by entry of main effects, and finally, the interaction terms. As outlined by Aiken and West (1991), all the predictors were standardized. Multicollinearity among the predictors was assessed with the variance inflation factor (VIF) statistic; values from 1.008 to 1.756 are within the acceptable range (Stevens, 2002).

Results

Correlational Analyses

As seen in Table 2, when considering the personality variables under study, extraversion correlated positively and significantly with each of the deviance subscales; agreeableness and conscientiousness also correlated significantly with each of them, but in this case, negatively. Neuroticism was only positively associated with theft, and openness did not correlate significantly with any of them. Regarding parenting processes, closeness, and communication were negatively associated with alcohol, drugs, vandalism, and theft, whereas conflict was positively associated with each. When analyzing the relation between parenting processes and personality, closeness and communication were positively associated with extraversion, agreeableness, conscientiousness, and openness, whereas their correlation with neuroticism was negative. Conflict correlated positively with neuroticism and negatively with agreeableness and conscientiousness.

Hierarchical Regressions

To be conservative, a total of three hierarchical regression models were tested for each dependent measure, separately testing main and interaction effects of each of three personality constructs (Models 1 to 3)—extraversion, agreeableness, and conscientiousness— each of which was significantly associated with the dependent measures, with the exception of theft which also added analyses focusing on neuroticism (Model 4).

Age and sex were significant across models, except in the one for alcohol use, where sex was not; in addition, age was also not significant for vandalism. Moreover, it is interesting to note that the family structure was significant in all the models of drug use, and in two of the models, the paternal educational level was also significant. The total amount of variance explained by the control variables varied from 3.8% in the case of alcohol use to 13% in the case of vandalism.

Table 2. Partial Correlations between Big Five Personality Traits, Parenting Processes, and Deviance.

	1	2	3	4	5	6	7	8	9	10	11
1. Closeness											
2. Communication	.57										
3. Conflict	-.32	-.19									
4. Extraversion	.11**	.19	.08								
5. Agreeableness	.25	.24	-.20	.20							
6. Conscientiousness	.18	.19	-.18	.18	.13**						
7. Neuroticism	-.13**	-.12**	.30	-.14**	-.24	-.10*					
8. Openness	.10*	.16	.02	.35	.29	.11**	-.11*				
9. Alcohol Use	-.09*	-.12**	.19	.22	-.13**	-.11*	.03	.05			
10. Drug Use	-.20	-.17	.22	.18	-.14**	-.16	.07	.02	.72		
11. Vandalism	-.20	-.13**	.29	.15	-.24	-.16	.05	.01	.49	.59	
12. Theft	-.22	-.16	.24	.10*	-.25	-.17	.09*	-.01	.44	.53	.68

Note. Numbers in italics are not statistically significant. Partial correlations include age, sex, family structure and SES as control variables. All correlations are statistically significant at $p < .001$ unless marked * $p < .01$ and ** $p < .05$.

Focusing on the main effects by parenting processes and each personality construct, we found that conflict was consistently associated with alcohol use (see Table 3). No significant moderation effects were found by parenting on Big Five personality constructs. More specifically, in Model 1, extraversion, conflict, and communication were significant; this model explained the most variance ($\Delta R^2 = .090$, $p <$

.001). In Model 2 ($\Delta R^2 = .048$, $p < .001$), only agreeableness and conflict were significant in predicting alcohol use. Lastly, Model 3 ($\Delta R^2 = .045$, $p < .001$) indicated that conscientiousness was not significant, only conflict. The total amount of variance explained in alcohol use ranged from 8.4% and 13.2%, depending on the personality construct tested.

Table 3. Hierarchical Regression Analyses Predicting Alcohol Use.

Model 1				Model 2				Model 3			
	β	R^2	ΔR^2		B	R^2	ΔR^2		β	R^2	ΔR^2
Step 1		.038	.038**	Step 1		.038	.038**	Step 1		.038	.038**
Age	.148***			Age	.144**			Age	.133**		
Sex	-.094*			Sex	-.082			Sex	-.084*		
Father's academic level	.047			Father's academic level	-.060			Father's academic level	-.054		
Mother's academic level	.079			Mother's academic level	-.062			Mother's academic level	-.063		
Family structure	.052			Family structure	.052			Family structure	.055		
Step 2		.128	.090***	Step 2		.086	.048***	Step 2		.083	.045***
Extraversion	.232***			Agreeableness	-.087*			Conscientiousness	-.067		
Closeness	.017			Closeness	.027			Closeness	.026		
Communication	-.143**			Communication	-.084			Communication	-.087		
Conflict	.153***			Conflict	.165***			Conflict	.168***		
Step 3		.132	.004	Step 3		.089	.004	Step 3		.084	.002
Ext*clos	.074			Agree*clos	.004			Cons*clos	.040		
Ext*com	-.021			Agree*com	.054			Cons*com	-.018		
Ext*conf	.033			Agree*conf	.033			Cons*conf	-.013		

*** $p < .001$; ** $p < .01$; * $p < .05$; Ext=Extraversion; Clos= Closeness; Com= Communication; Conf= conflict

Consistent with analyses on alcohol use, no moderator effects by parenting processes on the relationship between personality measures and drug use were found (Table 4); however, significant main effects were found. In Model 1, all three parenting measures were significant ($\Delta R^2 = .100$, $p < .001$); on the other hand, in Model 2 ($\Delta R^2 = .069$, $p < .001$), only conflict reached significance and agreeableness was unrelated. In Model 3, conscientiousness was significant, along with conflict ($\Delta R^2 = .074$, $p < .001$). The total of variance explained across models varied from 18.2% to 20.8%.

Table 5 includes findings for explaining vandalism. Once again, conflict was consistently predictive of vandalism

across all three models; in addition, closeness was also significant in Models 1 and 3. Each personality construct was significant in predicting vandalism, namely extraversion (Model 1), agreeableness (Model 2) and conscientiousness (Model 3). In Models 1 and 2, we also found interaction effects, namely a significant Extraversion x Communication interaction in Model 1 and an Agreeableness x Closeness interaction was significant in Model 2. The total amount of variance explained across models ranged from 22.8% to 25.3%.

Table 4. Hierarchical Regression Analyses Predicting Drug Use.

Model 1			Model 2			Model 3				
	B	R ²	ΔR ²		B	R ²	ΔR ²	β	R ²	ΔR ²
Step 1		.107	.107***	Step 1		.107	.107***	Step 1		.107
Age	.233***			Age	.230***			Age	.217***	
Sex	-.126**			Sex	-.113**			Sex	-.104**	
Father's academic level	.089			Father's academic level	.105*			Father's academic level	.092*	
Mother's academic level	.047			Mother's academic level	.031			Mother's academic level	.032	
Family structure	.125**			Family structure	.127**			Family structure	.128***	
Step 2		.207	.100***	Step 2		.176	.069***	Step 2		.181
Extraversion	.192***			Agreeableness	-.060			Conscientiousness	-.110**	
Closeness	-.103*			Closeness	-.084			Closeness	-.092	
Communication	-.114*			Communication	-.077			Communication	-.067	
Conflict	.148***			Conflict	.160***			Conflict	.149***	
Step 3		.208	.001	Step 3		.182	.005	Step 3		.186
Ext*clos	.030			Agree *clos	.052			Cons*clos	.016	
Ext*com	-.039			Agree *com	.033			Cons*com	-.017	
Ext*conf	-.008			Agree *conf	.044			Cons*conf	.072	

****p* < .001; ***p* < .01; **p* < .05; Ext=Extraversión; Clos= Closeness; Com= Communication; Conf= conflict

Table 5. Hierarchical Regression Analyses Predicting Vandalism.

Model 1			Model 2			Model 3				
	B	R ²	ΔR ²		B	R ²	ΔR ²	β	R ²	ΔR ²
Step 1		.130	.130***	Step 1		.130	.130***	Step 1		.130
Age	.070			Age	.066			Age	.051	
Sex	-.386***			Sex	-.361***			Sex	-.365***	
Father's academic level	.034			Father's academic level	.059			Father's academic level	.038	
Mother's academic level	-.013			Mother's academic level	-.039			Mother's academic level	-.030	
Family structure	.074			Family structure	.074			Family structure	.077*	
Step 2		.235	.105***	Step 2		.237	.107***	Step 2		.223
Extraversion	.150***			Agreeableness	-.140***			Conscientiousness	-.108**	
Closeness	-.106*			Closeness	-.069			Closeness	-.101*	
Communication	-.048			Communication	-.016			Communication	-.008	
Conflict	.222***			Conflict	.218***			Conflict	.219***	
Step 3		.241	.006	Step 3		.253	.016**	Step 3		.228
Ext*clos	.041			Agree *clos	.136**			Cons*clos	.021	
Ext*com	-.090*			Agree *com	-.002			Cons*com	-.003	
Ext*conf	-.009			Agree *conf	.049			Cons*conf	-.063	

****p* < .001; ***p* < .01; **p* < .05; Ext=Extraversión; Clos= Closeness; Com= Communication; Conf= conflict

Lastly, for theft (see Table 6), where four models were tested, including the effects by neuroticism (Model 4), we found both main and moderator effects, except in Model 1, where only main effects were found ($\Delta R^2 = .089, p < .001$) by extraversion, but also by closeness and conflict. In Model 2, both main effects ($\Delta R^2 = .104, p < .001$) — agreeableness and conflict—as well as interaction effects ($\Delta R^2 = .031, p < .001$), namely Agreeableness x Closeness and Agreeableness x Conflict interactions were significant. In Model 3, we again found main effects ($\Delta R^2 = .086, p < .001$) of conscientiousness, closeness, and conflict, and a small interaction effect of Conscientiousness x Conflict. Lastly, in Model 4, we found both main effects ($\Delta R^2 = .077, p < .001$) of the variables closeness and conflict, and moderator effects ($\Delta R^2 = .016, p < .001$) by the Neuroticism x Conflict interaction. The total

amount of variance explained by the models ranged from 17.6% to 21.8 % (see Table 6).

Interaction Effects

We transformed the standardized independent variables into low and high scores of the parenting measures, consistent with recommendations by Cohen and Cohen (1983), using scores one standard deviation above and below the mean (Ato & Vallejo, 2011). After transforming the variables, we performed new linear regression analyses for each level of the moderator variable. Lastly, we also developed figures following criteria outlined by Aiken and West (1991). Figure 1 plots the moderation findings for vandalism, while Figure 2 includes the ones for theft.

Table 6. Hierarchical Regression Analyses Predicting Theft.

Model 1			Model 2			Model 3			Model 4		
	B	R ² ΔR ²		β	R ² ΔR ²		β	R ² ΔR ²		β	R ² ΔR ²
Step 1		.083 .083***	Step 1		.083 .083***	Step 1		.083 .083***	Step 1		.083 .083***
Age	.149***		Age	.142***		Age	.130**		Age	.137**	
Sex	-.245***		Sex	-.219***		Sex	-.224***		Sex	-.240***	
Father's academic level	-.016		Father's academic level	.013		Father's academic level	-.014		Father's academic level	-.019	
Mother's academic level	.018		Mother's academic level	-.010		Mother's academic level	.002		Mother's academic level	.021	
Family structure	.071		Family structure	.072		Family structure	.073		Family structure	.072	
Step 2		.172 .089***	Step 2		.187 .104***	Step 2		.170 .086***	Step 2		.160 .077***
Extraversion	.115**		Agreeableness	-.148***		Conscientiousness	-.122**		Neuroticism	.024	
Closeness	-.132**		Closeness	-.086		Closeness	-.133**		Closeness	-.139**	
Communication	-.071		Communication	-.046		Communication	-.032		Communication	-.054	
Conflict	.173***		Conflict	.161***		Conflict	.161***		Conflict	.178***	
Step 3		.177 .004	Step 3		.218 .031***	Step 3		.179 .009	Step 3		.176 .016*
Ext*clos	.050		Agree*clos	.210***		Cons*clos	.003		Neur*clos	.075	
Ext*com	-.080		Agree*com	-.056		Cons*com	.020		Neuro*com	-.002	
Ext*conf	.003		Agree*conf	.083*		Cons*conf	-.089*		Neuro*conf	-.081†	

*** $p < .001$; ** $p < .01$; * $p < .05$; † $p = 0.051$
 Ext=Extraversión; Clos= Closeness; Com= Communication; Conf= conflict

Figure 1 plots the findings from the Extraversion x Communication interaction effect. We found a significant positive effect by communication on the relationship between extraversion and vandalism under the condition of low communication ($\beta = .219, p < .05$; Panel 1, Figure 1). The analysis focusing on the Agreeableness x Closeness in-

teraction showed that under conditions of low closeness, the relationship between agreeableness on vandalism was statistically significant and negative ($\beta = -.283, p < .01$; Panel 2, Figure 1).

The Agreeableness x Closeness interaction term on theft provided evidence that under the condition of low closeness

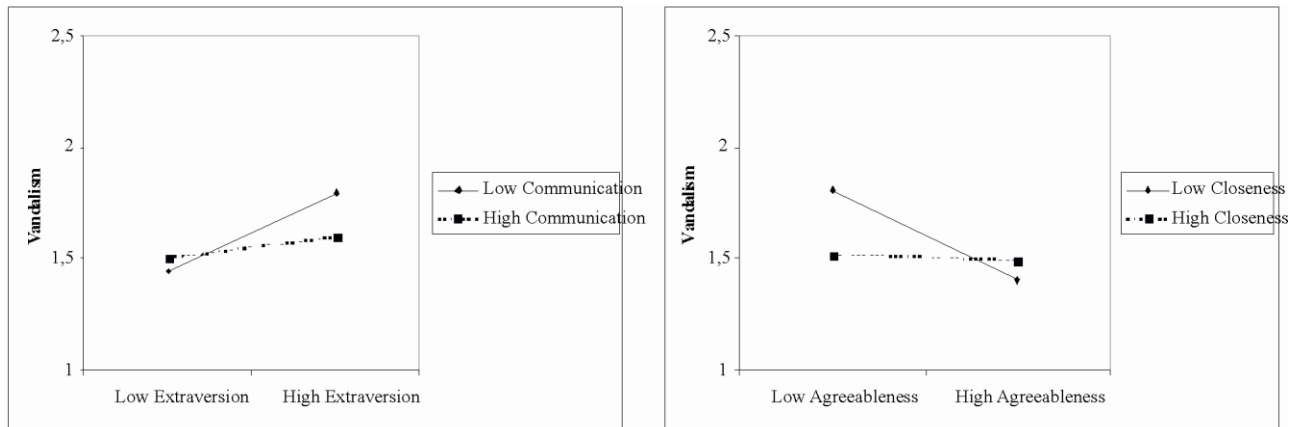


Figure 1. Personality predicting vandalism at different levels of parenting.

($\beta = -.293, p < .01$), the relationship between agreeableness and theft was significant and negative (see Panel 1, Figure 2). Similarly, we found a significantly negative relationship between agreeableness and theft under the condition of low conflict, when testing the Agreeableness x Conflict interaction term ($\beta = -.404, p < .001$; see Panel 2, Figure 2).

The analysis of the Conscientiousness x Conflict interaction term provided evidence that under the condition of

high conflict, a significantly negative relationship was found between conscientiousness and theft ($\beta = -.221, p < .05$; see Panel 3, Figure 2). Lastly, when testing the Neuroticism x Conflict interaction term, we found a significant negative moderation effect by conflict on the relationship between neuroticism and theft, namely under the condition of high perceived conflict ($\beta = -.276, p < .01$). Panel 4 of Figure 2 displays this finding.

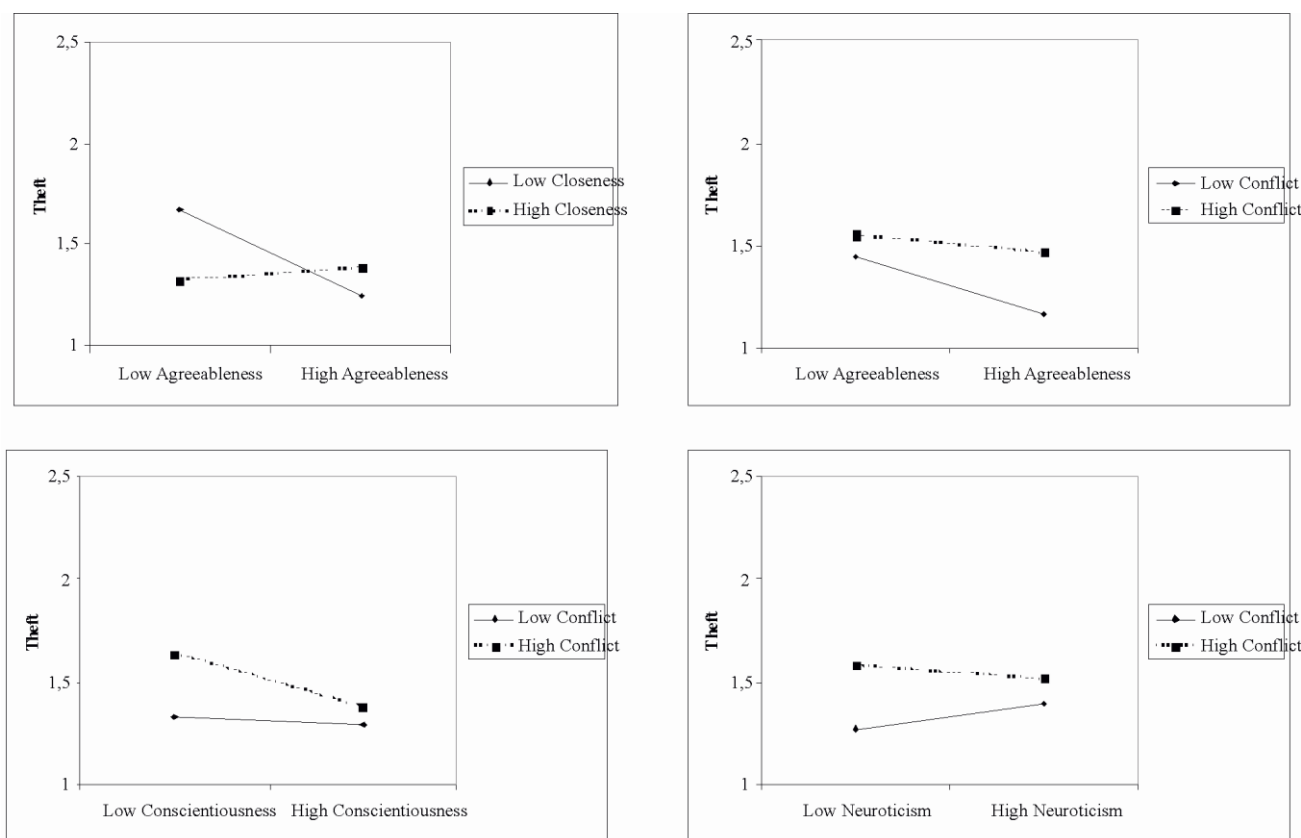


Figure 2. Personality predicting theft at different levels of parenting.

Discussion

The goal of this work was to test the influence of adolescent Big Five personality constructs and of perceived parenting practices on the development of deviance, but also of if and to what extent parenting practices conditioned the personality-deviance relationship.

Regarding the association between the variables analyzed, as expected, the results indicate that adolescent Big Five personality constructs—extraversion, agreeableness, and conscientiousness—are significantly associated with deviance during adolescence. Whereas extraversion is positively associated, that is, the higher the extraversion score, the higher the self-reported deviance scores, agreeableness and conscientiousness are negatively associated, such that higher scores decrease the likelihood of deviance. Neuroticism is only positively associated with theft, but not to any other deviance measure. Lastly, no associations were found between openness and deviance among youth.

When considering the main effects of these variables, we found a similar pattern across different measures of deviance. Across model tests, extraversion emerges as a significant and positive predictor. Agreeableness does not predict drug use, but it does predict alcohol use, vandalism, and theft—always negatively. Conscientiousness does not seem

to be an important predictor of alcohol use, but it does predict drug use, vandalism, and theft, and, like with agreeableness, its relation is negative.

These results are consistent with previous work (e.g., Ge & Conger, 1999; John et al., 1994; Krueger et al., 1994; Krueger et al., 2001; Prinzie et al., 2003; Prinzie et al., 2010; Shiner et al., 2002; Wiebe, 2004). Thus, deviance is more characteristic of youth who are impulsive and have difficulties controlling their behaviors, manifested in low conscientiousness scores (Flory et al., 2002; Labouvie & McGee, 1986; Martin & Sher, 1994; Walton & Roberts, 2004). Moreover, these youngsters seem to have problems in their interpersonal relations: They are not very generous or cooperative, based on low agreeableness scores (Flory et al., 2002; Martin & Sher, 1994; Walton & Roberts, 2004), further compounded perhaps by high extraversion scores (John et al., 1994; Prinzie et al., 2010). All of this could indicate that they are impulsive, expressive, and energetic people, not subject to much planning. They have difficulties in their social interactions and are not very kind or generous. With regard to neuroticism, which was found to be related to this kind of behavior in a number of previous studies (e.g., Elkins et al., 1997; Krueger et al., 2001; Krueger et al., 1994; Skinner & Allen, 1982; Walton & Roberts, 2004), it appears to only have a weak association with theft in this sample;

thus, we cannot conclude that it is important in understanding deviant behaviors during adolescence.

Findings about parenting processes were largely consistent with expectations. Positive interactions with parents, based on high perceived closeness and communication, were negatively associated with deviance measures, whereas perceived conflict with parents was positively associated.

When analyzing the main effects of parenting processes on measures of deviance, perceived parental conflict consistently and positively predicts these behaviors across all models, which is consistent with previous research (e.g., Torrente, 2002; 2005; Vazsonyi et al., 2006). Despite the fact that the effects by perceived closeness and communication do not follow such a clear pattern, in the cases where the variables are significant, they are always negative. That is, positive parenting processes are, in principle, sufficient to reduce the likelihood of different measures of deviance (Baumrind, 1991; Maccoby & Martin, 1983; Torrente & Vazsonyi, 2008, 2009; Vazsonyi et al., 2003).

Before turning to a discussion of moderation effects by parenting on the personality construct-deviance links, we would like to point out some interesting findings related to background variables, namely age and sex. With the exception of models predicting vandalism, age is consistently associated with measures of deviance; that is, the probability of being involved in this kind of behavior increases as the adolescent develops or "grows up" (Torrente & Vazsonyi, 2008, 2009). With regard to sex, with the exception of alcohol use, being a female adolescent simply decreases the likelihood of deviance in comparison to male youth (Torrente, 2002).

Turning to moderation effects by parenting measures, we would like to note the following. First, no significant interaction effects between Big Five personality constructs and parenting processes were found in the prediction of alcohol or drug use. In contrast, significant moderation effects were found in models predicting vandalism and theft. More specifically, with regard to vandalism, both closeness and communication moderates the effects by Big Five personality constructs on measures of deviance. Specifically, a lack of communication appears to potentiate the link between extraversion and vandalism. Also, a missing affectively positive relationship with parents further exacerbates this same relationship; this is consistent with previous work, which has shown that individuals who experience negative family interaction patterns more generally (missing communication or missing affective attachment) and who present a personality characterized by low agreeableness have elevated rates of deviant or externalizing behaviors (Prinz et al., 2003).

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The effects of perceived conflict with parents on the relations between Big Five personality constructs and deviance deserves special mention. Perceived conflict, which has the most consistent direct effect on deviance, is also the variable that most frequently moderates the relation between Big Five personality constructs and theft among youth, although the direction of the effect was not consistent. When analyzing the interaction between conscientiousness and conflict, we found results that are consistent with previous work (Prinz et al., 2003; Manders et al., 2006). High levels of conflict conditions the conscientiousness-deviance relationship; that is, individuals who present an impulsive behavior pattern with attentional problems and who perceive high levels of conflict, which might be related to rule setting, are more likely to develop maladaptive behaviors (Prinz et al., 2003).

Interaction effects between conflict and both agreeableness and neuroticism are more difficult to interpret. Regarding the former, findings indicate that low conflict affects the relation between Big Five personality and deviance which seems inconsistent with previous studies. Lastly, with regard to the interaction between neuroticism and conflict, we also find that our results appear slightly different from previous work (Manders et al., 2006). In our study, high conflict conditioned the link between neuroticism and theft, although this effect was quite small, but also inconsistent with expectations.

This work contains a number of inherent limitations. Firstly, the work only used self-reports on perceived parenting, Big Five personality constructs, and measures of deviance. Clearly, considering additional informants would add to our understanding on the relations among the main study constructs. Secondly, we decided to use averages as rated for both the mother and the father in the Adolescent Family Processes measure. Previous research (e.g., Torrente & Vazsonyi, 2008) has underscored the necessity of considering potentially differential effects by parents. Thirdly, the variance explained when analyzing the main effects and those by interaction effects is modest. Fourth, this work is not longitudinal, so we cannot analyze the processes involved in the development of personality or in the establishment of certain parenting practices versus other practices over time, nor can we imply causality. Lastly, the sample consists only of secondary school students, thus excluding any youth who dropped out of school already, youth who in fact might be a greater risk for deviance (Torrente & Vazsonyi, 2008, 2009).

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