



Lying frequency in adolescents and its relationship with the Dark Triad and the Big Five personality traits

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Título: Frecuencia de mentir en adolescentes y su relación con la Triada Oscura y los Cinco Grandes de la personalidad.

Resumen: No todas las personas mienten con la misma frecuencia. Diferentes investigaciones observan que las diferencias individuales podrían, en parte, explicar de esta conducta. En este trabajo se estudió la frecuencia de mentir y su relación con ciertos rasgos de personalidad en una muestra de adolescentes españoles. Un total de 207 adolescentes de la población general (52.7% chicas; $M_{edad} = 15.44$ años; $DT_{edad} = 1.77$) respondieron a los cuestionarios JS NEO-S y *Dirty Dozen* de la Triada Oscura, y a una pregunta directa sobre la frecuencia de mentir. No se observaron diferencias por sexo ni edad en la frecuencia de mentir. Los rasgos maquiavelismo (positivo) y responsabilidad (negativo) resultaron variables discriminantes de la conducta de mentir frente a no mentir. La relación entre personalidad y mentir en adolescentes podría tener implicaciones en la prevención de conductas antisociales.

Palabras clave: Adolescentes. Triada Oscura. Personalidad. Cinco Grandes. Mentiras. Engaño.

Abstract: Not everyone lies with the same frequency, individual differences might explain part of this behaviour. In this study, personality traits and their relationship with the frequency of lying were studied in a sample of Spanish adolescents. A total of 207 adolescents from the general population (52.7% girls; $Mean_{age} = 15.44$ years; $SD_{age} = 1.77$) responded to the JS NEO-S and *Dark Triad Dirty Dozen* questionnaires, and to a direct question about the frequency of lying. No differences were observed by sex or age in the frequency of lying. Machiavellianism (positive) and responsibility (negative) traits were found to be discriminating variables in the behaviour of lying versus not lying. The relationship between personality traits and lying in adolescents could have significant implications in the prevention of antisocial behaviour.

Keywords: Adolescents. Dark Triad. Personality. Big-5. Lying. Deception.

Introduction

Lying is a common behaviour in social interactions and part of the typical developmental trajectory of humans (Camacho, 2005; Evans & Lee, 2013; Halpert, 2000; Kashy & DePaulo, 1996; Talwar et al., 2007). However, the fact that lying is widespread does not necessarily mean it is frequent. In fact, prevalence studies indicate that, compared to honest communication, lying occurs less often (DePaulo et al., 1996; Serota & Levine, 2015; Serota et al., 2010). These studies suggest that while most people are honest most of the time, a small minority engages in frequent and habitual lying. A large body of literature explores the reasons behind these individual differences, pointing to contextual (Darling et al., 2006; Ennis et al., 2008; Hancock et al., 2004; Popliger et al., 2011; Zanette et al., 2020), cognitive (Foerster et al., 2017; Morgan & Lilienfeld, 2000; Sai et al., 2021), and personality-related variables (Hart et al., 2020; Malesky et al., 2021; McArthur et al., 2024; Phillips et al., 2011; Semrad et al., 2022; Thielmann et al., 2024).

Among the most studied individual variables related to deception, age emerges as a determining factor. Numerous studies have shown a negative association between age and lying frequency, suggesting that adolescents lie more often than adults (Buta et al., 2020; DePaulo et al., 1996; Glätzle-Rützler & Lergetporer, 2015; Górriz & Ibabe, 2021; Jensen et al., 2004; Levine et al., 2013; Serota et al., 2010; Serota & Levine, 2015). Although the capacity to lie appears in early

childhood, around the age of three (Knapp, 2008; Vasek, 1986), it is during adolescence that this behaviour reaches its peak frequency and sophistication. In this stage, lies take on more elaborate forms, such as the intentional omission of information (Evans & Lee, 2011; Górriz & Ibabe, 2021; Talwar & Lee, 2002, 2008). However, as individuals transition into early adulthood, the social acceptability of lying diminishes, and its use as a goal-oriented strategy becomes more restrained (DePaulo et al., 1996; Jensen et al., 2004).

These differences may be explained by various factors linked to social, emotional, and cognitive development. Adolescence constitutes a critical period characterized by emotional instability, difficulties in impulse control, and an active pursuit of autonomy (de la Barrera et al., 2019; Rice, 2000; Suris et al., 2004). These characteristics place adolescents in a state of vulnerability that fosters an increase in antisocial behaviours such as deception, manipulation, and other forms of psychological maladjustment (Compas et al., 2017; Proctor et al., 2009). The development of lying during this stage also has adaptive value, as it allows individuals to navigate complex social situations, avoid potential punishment, and gain peer acceptance (Feldman et al., 1999; Lowenstein, 1994; Sotillo & Rivière, 2001; Talwar & Crossman, 2011). On the other hand, the cognitive and emotional maturity acquired during adulthood appears to modulate both the frequency and the acceptability of lying (DePaulo et al., 1996; Serota et al., 2010; Vrij, 2008). As individuals develop greater inhibitory control, a deeper understanding of social norms, and a more consolidated moral sense, the use of deception as a strategy tends to decrease (Górriz & Ibabe, 2021; Gross & John, 2003; Jensen et al., 2004; Mertens et al., 2022; Talwar & Crossman, 2011). This developmental process not on-

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ly reduces the propensity to lie but also strengthens the capacity to discern when deception is or is not socially acceptable (Lee, 2013).

Alongside age, personality traits constitute another set of individual differences that may influence how frequently adolescents lie (Armas-Vargas, 2020; González & Besteiro, 2015; Kashy & DePaulo, 1996). Psychopathic tendencies have been associated with antisocial behaviours, including a greater frequency of lying (Halevy et al., 2014). Among the Big Five personality traits, Extraversion has shown a positive association with the frequency of lying (Conrads et al., 2013; Weiss & Feldman, 2006). Research has found that more extraverted individuals, who are concerned with their social image, report a higher frequency of lying (Briggs et al., 1980; Eshet et al., 2014; Phillips et al., 2011; Semrad et al., 2022; Weiss & Feldman, 2006). Neuroticism has also been positively linked with deceptive behaviour (Conrads et al., 2013; Michikyan et al., 2014). In contrast, Agreeableness has been negatively associated with lying through its relationship with the Dark Triad (Gillath et al., 2010; Paulhus, 2014; Stanton et al., 2016), although it has also been positively linked with prosocial lying in children (Demedardi et al., 2021). Conscientiousness, on its part, has been positively correlated with honesty in adult populations (Gillath et al., 2010).

In a similar vein, the Dark Triad traits, Machiavellianism, Narcissism, and Psychopathy, have been associated with perceived ability to deceive, various motivations for lying, and low levels of honesty in general populations (Jonason et al., 2014; Kashy & DePaulo, 1996; Maneiro et al., 2019; Wissing & Reinhard, 2019; Zvi et al., 2025). These traits have been shown to negatively predict social skills and positively predict lying behaviour, with social skills acting as a key mediator in this relationship (Anwar & Zubair, 2021). In this line, a Machiavellian component of amorality has been identified as associated with daily lying in adults, reinforcing the idea that certain personality traits predispose individuals to use deception as a strategy to achieve their goals (Grant et al., 2019).

Although lying may have adaptive value in certain developmental stages, it becomes problematic when lies are frequent and serve antisocial purposes (Gervais et al., 2000; Spidel et al., 2011; Stouthamer-Loeber, 1986; Talwar & Crossman, 2011). Numerous studies have linked lying behaviour in children and adolescents with the emergence of antisocial behaviours and difficulties in social adjustment, highlighting that deception may be a predictive factor for future problems in adulthood (Farrington et al., 2009; Gervais et al., 2000; Górriz & Ibabe, 2021; Kuftak, 2015; Stewart & DeBlois, 1985; Stouthamer-Loeber, 1986; Warr, 2007). Adolescents who frequently lie to their parents tend to present more behavioural and emotional problems, such as low self-esteem, stress, and depression (Engels et al., 2006; Gervais et al., 2000; Stouthamer-Loeber, 1986). These findings underscore the importance of studying the frequency of lying and analysing its relationship with individual differences, such as personality traits, that may influence its occurrence and persistence.

Although the literature on deception is extensive, several important gaps remain. First, much of the empirical research on lying frequency has been conducted with adult samples (DePaulo et al., 1996; Serota et al., 2010; Serota & Levine, 2015), whereas adolescent populations have received comparatively less systematic attention. Second, many studies have focused on attitudes toward lying or perceived acceptability of deception rather than on self-reported daily frequency (Buta et al., 2020; Jensen et al., 2004). Third, prior research has frequently examined specific types of lies (e.g., prosocial vs. antisocial lies; Talwar & Crossman, 2011; Zannette et al., 2020) without directly assessing habitual lying in everyday life. Finally, although both the Big Five and the Dark Triad have independently been linked to dishonest behaviour (Hart et al., 2020; Jonason et al., 2014; Maneiro et al., 2019; Zvi et al., 2025), few studies have simultaneously integrated normative and maladaptive personality traits to examine their joint contribution to lying frequency during adolescence. Addressing these gaps may provide a more comprehensive understanding of individual differences in deceptive behaviour at a critical developmental stage.

Considering these limitations, the main objective of the present study is to analyse the relationship between personality traits, including both the Big Five and the Dark Triad, and the frequency of lying among a sample of Spanish adolescents. In addition, the role of sex and age will be evaluated, and the variables with the highest discriminative capacity related to this behaviour will be identified.

Method

Participants

The sample consisted of 207 adolescents from the general population in the province of Santa Cruz de Tenerife, Spain (52.7% female). The participants' ages ranged from 13 to 19 years, with a mean age of 15.44 years ($SD = 1.77$).

In terms of educational level, 32.40% of the participants were enrolled in the second year of compulsory secondary education, 47.30% in the first year of pre-university education, and 9.70% in the first year of undergraduate university studies. The remaining 10.60% were distributed across other levels, including third and fourth years of compulsory secondary education, the second year of pre-university education, vocational training programs, or were not enrolled in any educational program at the time of the study.

Instruments

Junior Spanish NEO Personality Inventory-Revised Short Version [JS NEO-S]. (Costa & McCrae, 1999; Ortet et al., 2012). This instrument assesses the five broad personality dimensions proposed by the Five Factor Model: Neuroticism, Extraversion, Openness, Agreeableness, and Conscientiousness. It consists of 150 items rated on a five-point Likert scale ranging from 0 ("Strongly disagree") to 4 ("Strongly agree").

Internal consistency and temporal stability indices were adequate in Spanish adolescent populations (Ortet et al., 2010): $\alpha_{\text{month}} = .83$ and $\alpha_{\text{year}} = .56$ for Neuroticism; $\alpha_{\text{month}} = .82$ and $\alpha_{\text{year}} = .76$ for Extraversion; $\alpha_{\text{month}} = .88$ and $\alpha_{\text{year}} = .68$ for Openness; $\alpha_{\text{month}} = .71$ and $\alpha_{\text{year}} = .53$ for Agreeableness; $\alpha_{\text{month}} = .93$ and $\alpha_{\text{year}} = .82$ for Conscientiousness (Ortet et al., 2010).

Dark Triad Dirty Dozen [DTDD] (Jonason & Webster, 2010; Maneiro et al., 2019). This scale assesses the Dark Triad traits through 12 items rated on a five-point Likert scale ranging from 1 ("Strongly disagree") to 5 ("Strongly agree"). It provides scores for Machiavellianism, Psychopathy, and Narcissism, as well as a total composite score. Psychometric properties have shown adequate reliability in Spanish adolescent samples, with a McDonald's omega coefficient for the global score of $\omega = .88$ (Navas et al., 2020a).

Direct question on lying frequency extracted from the CEMA-A questionnaire (Armas-Vargas et al., 2023), this single-item measure asked: "How many lies do you usually tell per day?". Responses were recorded using a nine-point Likert-type scale ranging from 1 ("0 lies") to 9 ("More than 21 lies").

Procedure

Data collection was carried out in participants' educational centres by the research team. The study was approved by the Ethics and Animal Welfare Research Committee of the University of La Laguna (Reference code: CEIBA2023-3242). Prior to administering the questionnaires, participants, their legal guardians, and the school administrators were informed about the study's objectives and methodology. After obtaining informed consent from all three parties, participants completed the questionnaires voluntarily on electronic devices in a classroom setting. The sessions were supervised by a teacher and a member of the research team. Anonymity of participants was ensured throughout the process.

Data Analysis

First, the characteristics of the sample were analysed. Participants were grouped into three age ranges: the first group (13–14 years) represented 36.2% of the sample; the second group (15–16 years) comprised 38.7%; and the third group (17–19 years) accounted for the remaining 25.1%.

Group differences were examined using multivariate analysis of variance (MANOVA), with sex and age group as independent variables and all study variables entered simultaneously as dependent variables. Significant multivariate effects were followed by univariate ANOVAs and Bonferroni-adjusted post hoc comparisons. Effect sizes were estimated using partial eta squared (η^2) for multivariate and univariate effects.

Subsequently, the relationship between lying frequency and personality traits assessed via the JS NEO-S and DTDD

questionnaires was examined using Pearson's correlation coefficient.

Two discriminant analyses were performed. The first used the variable "daily lying frequency", which was recoded into a dichotomous variable ("lie one or more times per day" vs. "does not lie daily"). The second analysis used sex as the grouping variable, with personality traits as predictors.

Data were analysed using R version 4.0.5 (R Core Team, 2017), the lavaan package (Rosseel, 2012), and the syntax provided by the ULLRToolbox (Hernández & Betancort, 2018).

Results

An analysis of the self-reported lying frequency among adolescents revealed that 64.10% of participants admitted to lying one or more times per day. However, upon further breakdown, only 10% of adolescents acknowledged lying more than four times per day. This indicates that although most adolescents lie at least once a day, high-frequency lying (more than four lies daily) is relatively uncommon within the sample.

A multivariate analysis of variance (MANOVA) was conducted on the full sample ($n = 207$) to examine the effects of sex and age group on all study variables. Box's M test was significant (Box's $M = 379.88$, $F = 1.49$, $df_1 = 225$, $df_2 = 47,331.99$, $p < .001$), and Pillai's Trace was therefore selected as the multivariate test statistic due to its robustness.

The multivariate analysis revealed a significant main effect of sex on the combined dependent variables, $F(9, 193) = 3.95$, $p < .001$, $\eta^2 = .16$, indicating a large multivariate effect. A significant main effect of age group was also observed, $F(18, 388) = 2.61$, $p < .001$, $\eta^2 = .11$, reflecting a moderate multivariate effect. The interaction between sex and age group was not statistically significant at the multivariate level, $F(18, 388) = 1.04$, $p = .419$.

Given the significant multivariate effects, univariate ANOVAs were examined to identify the specific variables contributing to these differences. As shown in Table 1, no significant sex or age-group differences were found in daily lying frequency. With respect to personality dimensions, females scored significantly higher than males in Neuroticism, Extraversion, and Openness to Experience. These sex differences were small to moderate in magnitude, with the largest effect observed for Openness to Experience.

Regarding age-group comparisons, significant differences emerged for Openness and Agreeableness, with the youngest group scoring lower than the older groups. The magnitude of these effects was moderate to large. Concerning the Dark Triad traits, significant age differences were observed only for subclinical Psychopathy, with higher scores reported by the youngest group; however, this effect was small in magnitude.

Table 1*Mean differences (MANOVA) and post hoc Bonferroni contrasts by sex and age groups*

	Male						Female						Sex <i>F</i> (η^2)	Age groups <i>F</i> (η^2)
	G1		G2		G3		G1		G2		G3			
JS NEO-S	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
N	86.47	12.14	88.94	15.92	92.52	20.75	94.43	15.61	98.44	16.17	99.63	18.12	12.58(.06)***	1.91(.02)
E	96.29	16.38	99.86	18.08	86.76	17.22	97.84	12.76	99.67	18.68	102.11	14.24	5.67(.03)*	1.66(.02)
O	95.84	11.61	102.74	13.09	104.56	16.08	101.41	11.65	111.44	13.67	113.59	15.88	16.42(.08)***	11.53(.10)***
A	95.61	10.70	102.11	12.20	104.92	15.06	96.49	14.18	103.47	13.90	104.48	11.33	.11(.00)	8.31(.08)***
C	101.71	17.31	99.20	14.53	99.44	19.01	100.57	15.43	106.84	15.15	105.26	21.47	2.92(.01)	.24(.00)
DTDD														
Mach	10.87	3.71	10.17	2.73	10.56	3.43	10.49	2.58	11.02	3.11	10.70	2.89	.22(.00)	.01(.00)
Psych	10.76	2.93	9.37	3.44	9.68	3.79	10.46	2.80	9.02	3.20	8.48	4.05	1.71(.01)	4.61(.04)**
Narc	11.37	3.63	10.83	3.73	10.44	3.71	11.59	3.08	11.67	3.77	11.78	3.96	2.40(.01)	.17(.00)
LF	1.97	.97	2.06	1.47	1.88	1.13	1.46	.51	2.11	1.40	1.74	.53	1.65(.01)	2.30(.02)

Note. N = Neuroticism; E = Extraversion; O = Openness; A = Agreeableness; C = Conscientiousness; Mach = Machiavellianism; Psych = psychopathy; Narc = narcissism; LF = Lying Frequency; G1=13 and 14 years; G2=15 and 16 years; G3=17, 18 and 19 years; M = mean; SD = standard deviation.

* $p < .05$; ** $p < .01$; *** $p < .001$.

Univariate *F* tests are reported for each JSNEO-S and Dark Triad Dirty Dozen scale factor: For sex, $F(9, 193)$; for age groups, $F(18, 388)$; and for the sex $\times$ age groups interaction $F(18, 388)$. Effect sizes are reported as partial eta squared (η^2). Bonferroni-adjusted post hoc comparisons indicated that, for Openness, $G1 < G2$ ($p < .001$) and $G1 < G3$ ($p < .001$); for Agreeableness, $G1 < G2$ ($p < .01$) and $G1 < G3$ ($p < .001$); for psychopathy, $G1 > G2$ ($p < .05$) and $G1 > G3$ ($p < .05$).

Finally, follow-up univariate analyses revealed a significant interaction between sex and age group for Extraversion, $F(2, 201) = 3.91$, $p < .05$, $\eta^2 = .04$, indicating that sex differences in this trait varied across age groups. Inspection of the group means indicated that sex differences in Extraversion were minimal in the younger age groups but became more pronounced in the oldest group.

After examining group differences, we explored the associations among study variables (see Table 2). Results indi-

cated that self-reported daily lying frequency was positively and significantly correlated with Neuroticism and Machiavellianism, and negatively correlated with Conscientiousness. Among the Big Five and Dark Triad dimensions, Agreeableness and Conscientiousness showed negative correlations with Machiavellianism and Psychopathy. Additionally, Narcissism was negatively correlated with Agreeableness, suggesting that individuals with higher Narcissism tend to exhibit lower levels of Agreeableness.

Table 2*Correlations*

	JS NEO-S							
	1	2	3	4	5	6	7	8
1.Lying Frequency								
2.Neuroticism	.18**							
3.Extraversion	-.10	-.18**						
4.Openness	-.13	.18**	.30***					
5.Agreeableness	-.10	.04	.05	.40***				
6.Conscientiousness	-.24***	-.14*	.09	.37***	.39***			
7.Machiavellianism	.22**	.19**	.03	-.09	-.43***	-.20**		
8.Psychopathy	.12	-.05	-.11	-.35***	-.53***	-.23***	.43***	
9.Narcissism	.03	.09	.19**	.01	-.20**	.07	.37***	.24***

Note. * $p < .05$; ** $p < .01$; *** $p < .001$

Building upon these associative findings, a discriminant analysis was subsequently conducted to examine whether the set of personality traits could reliably distinguish between males and females. Age, the five temperament factors, and the three Dark Triad traits were entered as predictor variables. The resulting discriminant function correctly classified the majority of cases (see Table 3). Results indicated that males scored lower than females in anxiety, Openness, Neuroticism, and Extraversion, suggesting that these variables significantly contributed to group differentiation. Standardized coefficients and structure matrices include 95% confidence intervals.

Table 3*Discriminant Analysis for Sex*

Predicted Group	Actual Group	
	Male	Female
Male	71	27
Female	48	61
% Correct Classification	72%	56%
Wilks' Lambda	$F(1, 205) = 30.55$, $p < .001$ ***, Wilks=.87	
Group Centroid Values	-.38	.38
Discriminant Variables	Standardized Coefficients	
Openness	.56	
Neuroticism	.69	
Extraversion	.35	

Note. *** $p < .001$

In a second step, a similar discriminant analysis was conducted using lying behaviour as the grouping variable. Specifically, the continuous variable for lying frequency was re-coded into a binary variable with two values: "liar" (133 participants) and "non-liar" (74 participants). The resulting discriminant function for lying behaviour (Table 4) was statistically significant, successfully differentiating individuals who lie from those who do not. The profile of individuals who reported lying was characterized by high scores in Machiavellianism and low scores in Conscientiousness, with a correct classification rate of 67% for liars and 68% for non-liars. All relevant effect sizes and classification metrics are reported with 95% confidence intervals. In summary, although no group differences were found in lying frequency itself, significant sex and age effects emerged for several personality traits, and lying behaviour was primarily associated with Machiavellianism and low Conscientiousness.

Table 4
Discriminant Analysis for Lying Behaviour

Predicted Group	Actual Group	
	Lies	Does not lie
Lies	89	44
Does not lie	24	50
% correct classification	.67	.68
Wilks' Lambda	$F(1, 205) = 34.65, p < .001^{***}, Wilks = .86$	
Group Centroid Values	.43	-.43
Discriminant Variables	Standardized Coefficients	
Machiavellianism		.79
Conscientiousness		-.53

Note. $***p < .001$

Discussion

This study aimed to explore the frequency of lying among adolescents and its relationship with personality traits, specifically the Big Five dimensions and the Dark Triad. Furthermore, the study sought to examine whether age and sex play a differential role in lying behaviour, and whether a personality profile could be established to distinguish adolescents who lie from those who do not. In doing so, this study extends prior work by examining lying frequency in adolescence using an integrated personality framework that considers both normative and maladaptive traits simultaneously.

Regarding the prevalence of lying, the results reveal that 64.1% of adolescents reported lying one or more times per day, reinforcing the notion that lying is highly frequent during adolescence. However, it is noteworthy that only 10% admitted to lying more than four times a day, suggesting that while lying is a common practice, excessive lying is less prevalent. These results are consistent with those reported by Levine et al. (2013), who found that adolescents aged 14 to 17 lied an average of 4.1 times per day, significantly more frequently than university students and adults. Moreover, their data revealed a markedly skewed distribution, wherein most lies originated from a small group of "prolific liars", a pattern that is partially replicated in our sample.

The consistency between both studies reinforces the notion that adolescence is a particularly active period for dishonest behaviour, likely influenced by factors such as moral development (Crain, 1985; Kohlberg, 1984), the pursuit of autonomy (Jensen et al., 2004), and the social adjustment dynamics characteristic of this developmental stage (Engels et al., 2006). In this context, lying may function as a strategy for emotional or social regulation. Rather than being exclusively maladaptive, deceptive behaviour during adolescence may serve regulatory purposes related to identity negotiation, peer integration, or the management of interpersonal conflict. These findings highlight the importance of addressing adolescent lying from a preventive and educational perspective, one that considers not only its frequency but also the context and potential adaptive functions it may serve during development (Talwar & Crossman, 2011).

Within this developmental framework, the present study also identified significant relationships between personality traits and the frequency with which adolescents admitted to lying. Machiavellianism showed a positive association with lying frequency, whereas Conscientiousness was negatively related to this behaviour. Machiavellianism, traditionally linked to manipulation and strategic interpersonal control (Christie & Geis, 1970; Geng et al., 2017; Maneiro et al., 2019), emerged as a particularly relevant trait in understanding deceptive tendencies during adolescence. Similarly, prior research has documented its association with willingness to lie (Anwar & Zubair, 2019). In contrast, Conscientiousness, which reflects self-regulation, planning, and responsibility, appeared to function as a protective factor. Adolescents who perceived themselves as more organized and responsible reported fewer lies, consistent with adult findings linking Conscientiousness to honesty and reduced engagement in dishonest behaviour (Elaad & Reizer, 2015; Gillath et al., 2010; Hart et al., 2020; Malesky et al., 2021).

Importantly, individual differences in the tendency to use deception as a regulatory strategy may depend on broader personality configurations. The observed pattern, characterized by high Machiavellianism and low Conscientiousness, suggests that lying frequency may reflect a combination of antagonistic interpersonal orientation and reduced inhibitory control. Furthermore, the positive association between Neuroticism and lying frequency indicates that affective vulnerability may also play a role. In the present study, adolescents who reported lying more frequently tended to score higher in Neuroticism, a trait linked to negative affect, interpersonal insecurity, and low self-esteem during adolescence (Oropesa et al., 2022). Such emotional instability may increase the likelihood of using deception as a defensive strategy to protect self-image or avoid stressful interpersonal situations. Complementary evidence suggests that emotionally insecure adolescents may engage in indirect forms of self-presentation management, such as idealized portrayals on social media (Michikyan et al., 2014), reinforcing the notion that deception can serve affect-regulatory functions. It is worth noting that while some studies in adults have also found a positive

correlation between Neuroticism and the propensity to lie (Elaad & Reizer, 2015; Hart et al., 2020), others have not found a significant association (Malesky et al., 2021), indicating that this relationship may vary depending on the developmental stage or context assessed. Taken together, these findings suggest that lying during adolescence may be understood not as an isolated conduct, but as an expression of underlying self-regulatory, interpersonal, and affective tendencies that vary dimensionally across individuals. In line with research linking manipulative interpersonal traits and diminished self-regulatory capacities to elevated antisocial behaviour during adolescence, the identification of such personality configurations may help contextualize lying within broader risk processes and inform more targeted early preventive efforts aimed at reducing vulnerability to maladaptive interpersonal patterns (Meldrum et al., 2018; Salihovic & Stattin, 2017).

In the present study, although personality traits were associated with lying frequency, sex did not emerge as a significant differentiating factor. No significant sex differences were found in daily lying frequency in the MANOVA results, and sex did not contribute to the discriminant profile distinguishing liars from non-liars. The literature on this topic among adolescents remains inconclusive. Some studies report no sex differences (Glätzle-Rützler & Lergetporer, 2015), while others suggest that such differences may depend on variables like personality traits or self-esteem (Armas-Vargas, 2020). For instance, Guerra et al. (2022) found that although girls tend to lie less frequently, they are more likely to tell completely fabricated lies, whereas boys tend to rely more on partial lies, which involve omission or distortion of facts. Previous research has also shown that, during both childhood and adolescence, boys generally report higher frequencies of lying and show greater tolerance toward dishonest behaviour compared to girls (Gervais et al., 2000; Jensen et al., 2004; Keltikangas-Järvinen & Lindeman, 1997; Stouthamer-Loeber, 1986). In adulthood, sex differences in lying have been associated with the content of the lies (Haselton et al., 2005), and men have been found to engage more frequently in malicious lies than women (Armas-Vargas et al., 2023; Capraro, 2018; Elaad & Gonen-Gal, 2022), as well as to perceive themselves as more skilled at lying (Elaad et al., 2024).

With respect to sex differences in personality, the results obtained in this study indicated that girls scored higher than boys in Openness, Neuroticism, and Extraversion. These three traits also significantly contributed to the discriminant analysis by sex. These findings are consistent with previous studies on the Big Five personality traits in adolescents (Bleidorn et al., 2013; De Bolle et al., 2015; McCrae et al., 2015; Soto et al., 2011; Vecchione et al., 2012). However, research focusing on Dark Triad traits has reported significant differences favouring boys, who score higher than girls on these characteristics (Anwar & Zubair, 2019; Egorova & Adamovich, 2018; Navas et al., 2020b). In contrast, the present study did not reveal significant sex differences in any of

the Dark Triad traits. This discrepancy may reflect sample-specific characteristics, developmental factors associated with adolescence, or cultural differences that could attenuate previously reported gender gaps in socially aversive traits. Additionally, the use of a brief assessment measure may have limited the sensitivity of the instrument to detect subtle sex differences in these traits.

Regarding age-related differences, the pattern observed in our data showed that younger adolescents (aged 13-14) scored lower in Openness and Agreeableness and showed higher levels of psychopathic traits compared to older adolescents. This could be explained by lower levels of empathic development in early adolescence, as the ability to understand and connect with others' emotions is still maturing during this stage (Blakemore, 2008; Decety & Michalska, 2010; Van der Graaff et al., 2018). Additionally, cognitive egocentrism is more pronounced at this age, which may hinder perspective-taking and emotional connection with others (Elkind, 1967).

Nevertheless, no significant age-related differences were found in the frequency of lying in our sample. This pattern is theoretically noteworthy. One possible explanation is that although personality dispositions continue to mature throughout adolescence, the functional use of lying may remain relatively stable because it fulfils developmentally normative purposes, such as negotiating autonomy and managing peer relationships (Jensen et al., 2004; Talwar & Crossman, 2011). In this sense, developmental changes may influence the motivation, context, or quality of deceptive behaviour rather than its overall frequency. At the same time, it is important to acknowledge that the use of a self-reported frequency measure may have limited sensitivity to detect subtle developmental variations. Future research should therefore distinguish more clearly between frequency, function, and moral evaluation of deception across different stages of adolescence.

In line with this, several study limitations should be acknowledged. Given the sensitive nature of the topic, potential response biases such as social desirability may have influenced participants' reports (Grimm, 2010; Pérez, 1996). In addition, lying frequency was assessed using a single-item self-report measure. Although single-item measures may present lower reliability compared to multi-item scales, prior research suggests that they can be appropriate when assessing clearly defined and concrete constructs (Wanous et al., 1997). Nevertheless, single-item measures do not allow the assessment of internal consistency nor the differentiation of motivational or contextual dimensions of deception. Future research should employ more comprehensive analyses that go beyond the frequency of lying to explore the nature and motivations behind dishonest behaviour. Moreover, the context in which lying occurs appears to be a key factor, as prior studies have shown that both the frequency and type of lies vary significantly depending on the relational context; for example, lies directed at strangers differ from those directed at close friends (Ennis et al., 2008). These findings underscore

the need for a standardized and validated measure that directly and comprehensively assesses lying behaviour. Additionally, although the sample size was adequate for the statistical analyses conducted, replication in larger and more diverse samples is warranted to enhance the generalizability of the findings.

Conclusions

The present study contributes to the understanding of adolescent deception by integrating normative (Big Five) and maladaptive (Dark Triad) personality traits within a single analytical framework. Findings indicate that lying frequency is primarily associated with a configuration characterized by high Machiavellianism, low Conscientiousness, and higher levels of Neuroticism, reflecting the combined influence of an instrumentally manipulative orientation, reduced self-regulatory control, and affective vulnerability.

Notably, although significant age-related differences were observed in several personality traits, lying frequency itself remained relatively stable across age groups. This pattern suggests that developmental changes may influence the function or motivation of deception more than its overall frequency. However, a more comprehensive and multidimensional assessment of deceptive behaviours would be necessary to examine this possibility in greater depth.

Furthermore, the discriminant analyses demonstrated that personality traits can distinguish adolescents who report daily lying from those who do not, underscoring the potential applied relevance of these findings. Beyond their theoretical contribution, these results suggest that identifying per-

sonality configurations characterized by a manipulative interpersonal orientation and low self-regulation may inform preventive strategies aimed at strengthening adaptive interpersonal functioning during adolescence. These findings do not introduce novel preventive principles; rather, they specify a personality profile that may help contextualize lying behaviour within broader self-regulatory and interpersonal processes, thereby contributing to more targeted prevention approaches.

Overall, these findings emphasize the importance of examining adolescent dishonesty beyond mere frequency counts and encourage future research to consider its contextual, motivational, and psychological determinants within a developmental framework.

Complementary information

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