





A tri-directional examination of adolescent personality, perceived parenting, and economic and parental adversity contexts in influencing adolescent behavioral outcomes

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Abstract

Introduction: Adolescent personality is consistently linked to behavioral strengths and difficulties. However, most of this work is limited in that it does not consider personality beyond the Big Five or economic or parental adversity contexts. The Tri-Directional Framework of Parent and Offspring Traits and Outcomes highlights the collective influence of personality, parenting, and context on offspring behavioral outcomes.

Methods: Parent and adolescent cross-sectional data were collected from 2019 to 2021 as part of the Parents and Children Together project in the United Kingdom. Adolescents ($N = 310$, 48.7% female) self-reported on Dark Triad traits, parenting, and behavior. Parents ($N = 288$, 46.9% mothers) self-reported on socioeconomic status and adverse childhood experiences. In two path analysis models, we examined: (1) adolescent Dark Triad, context, and their interactions as predictors of perceived maternal and paternal warmth, hostility, and control; and (2) adolescent Dark Triad, perceived parenting, context, and personality-parenting interactions as predictors of adolescent behavioral strengths and difficulties.

Results: Adolescent narcissistic traits were the strongest predictors of perceived maternal parenting, whereas adolescent psychopathy and Machiavellianism were the strongest predictors of perceived paternal parenting. Adolescent personality interacted with contextual factors in predicting parenting, but not with perceived parenting in predicting behavior.

Conclusion: Adolescent Dark Triad traits, especially narcissism, and contextual factors are important for the parent-offspring relationship and developmental outcomes. We recommend that research move beyond assessing direct trait-outcome associations to examining how these associations operate in different environments.

KEYWORDS

adolescence, adolescent behavior, parenting, personality, socioeconomic status

1 | INTRODUCTION

Personality is defined as stable patterns in one's behavior and responses to environmental demands (Allport, 1961) and is linked to behavioral outcomes in adolescence (Hart et al., 1997). Adolescent behavioral strengths and difficulties are associated with outcomes such as academic achievement (Papageorgiou et al., 2020), social well-being (Carlo & Padilla-Walker, 2020), and mental health (Akingbuwa et al., 2020). Specifically focusing on intraindividual characteristics (e.g., personality), the Tri-Directional Framework of Parent and Offspring Traits and Outcomes (Truhan, Sedikides, et al., 2021, *in press*) highlights the interconnectedness of parent and

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offspring traits, parenting, and contextual factors in influencing offspring (e.g., behavior) and parent (e.g., stress) outcomes (see Supporting Information Materials for further information). Parenting may have variable influences on adolescent development subject to adolescent traits. Further, economic and parental adversity contexts influence associations among adolescent traits, parenting, and adolescent outcomes. In addition to providing a research framework, the Tri-Directional Framework offers new directions for research on parent and offspring traits and outcomes. We take into account three important influences: individual traits, parenting, and context. In particular, we adopt an interactive model of adolescent traits, parenting, and economic and parental adversity contexts in investigating adolescent behavioral outcomes.

Based on the Tri-Directional Framework (Truhan, Sedikides, et al., 2021, *in press*), we assess adolescent personality traits (i.e., Dark Triad), perceived maternal and paternal parenting, and economic (i.e., socioeconomic status [SES]) and parental adversity (i.e., adverse childhood experiences [ACEs]) contexts. We build upon previous work (Truhan et al., 2022) that assessed associations among parental Big Five and Dark Triad, self-reported parenting, SES, ACEs, and adolescent behavior. Truhan and colleagues (2022) found that SES moderated personality-parenting associations for mothers, whereas parents' past ACEs moderated personality-parenting associations for fathers. Further, parent Dark Triad traits explained greater variance in parental warmth and hostility than the Big Five. First, we will review the literature on adolescent personality, parenting, context, and adolescent behavior, and then will highlight our contribution.

1.1 | Adolescent personality, perceived parenting, and behavioral outcomes

The literature on adolescent personality and behavior has mostly focused on the Big Five traits of extraversion, neuroticism, agreeableness, conscientiousness, and openness (McCrae & Costa, 1996). Consistent links have been demonstrated between conscientiousness and externalizing behavior (negative; Van Heel et al., 2019), neuroticism and internalizing behavior (positive; Millikan et al., 2002), as well as resilient personality (i.e., low neuroticism plus average scores on the remaining four Big Five traits) and prosocial behavior (positive; Xie et al., 2016). However, the Big Five does not cover the entire spectrum of personality (Papageorgiou et al., 2020; Robinson & Sedikides, 2020). Another direction highlighted by the Tri-Directional Framework is for research to consider personality traits outside of the Big Five with parents and offspring. Therefore, we add to the literature by examining adolescent Dark Triad personality, and, for the first time, adolescents' perception of both maternal and paternal parenting in relation to Dark Triad traits.

The Dark Triad comprises subclinical narcissism, subclinical psychopathy, and Machiavellianism (Paulhus & Williams, 2002). From an evolutionary perspective, these traits may be considered socially adaptive or maladaptive in a variety of ways. For example, narcissism has been linked with some forms of prosocial behavior (Kauten & Barry, 2016; Konrath & Tian, 2018) and with academic achievement (Papageorgiou et al., 2018; Zajenkowski et al., 2022), which are considered socially desirable outcomes (Hawley, 2014; Sedikides & Campbell, 2017). Also, psychopathy may be considered socially adaptive as it has been linked with reproductively relevant traits (Tielbeek et al., 2018) and, occasionally with career and social success strategies (Book et al., 2015), although this has been disputed in more recent literature (Eisenbarth et al., 2018, 2022). In the current study, Dark Triad traits are related to positive and negative adolescent perceived parenting and behavioral strengths and difficulties, and as such we deem these traits socially adaptive or maladaptive based on the nature of associated outcomes within this context.

Extant work on the Dark Triad with adolescents indicates the link between narcissism and prosocial outcomes may be facilitated by socially adaptive facets of narcissism, such as authority and self-sufficiency (Barry et al., 2003), and via mental toughness (Papageorgiou et al., 2018). However, socially maladaptive narcissism (e.g., exploitativeness) predicts conduct problems in adolescence (Barry et al., 2003; Witt et al., 2011). Recent work on the structure of narcissism has indicated that, rather than just two opposing sides of the same trait (e.g., adaptive vs. maladaptive, grandiose vs. vulnerable), there are three narcissistic factors: (1) agentic extraversion, (2) self-centered antagonism, and (3) narcissistic neuroticism. These factors comprise many facets (e.g., exploitativeness; Truhan, Wilson, et al., 2021). We will capture adolescent narcissistic facets using the Narcissistic Personality Questionnaire for Children (NPQC; Ang & Yusof, 2006), which measures superiority (facet of agentic extraversion), exploitativeness (facet of antagonism), and self-absorption (facet of narcissistic neuroticism).

Subclinical psychopathy is associated with risk-taking, substance use, and aggression in adolescence (Salekin & Lynam, 2010). Further, adolescent psychopathy predicts both current and future externalizing problems (Loney et al., 2007). Salekin (2016) highlighted the multidimensional nature of psychopathy in adolescence, consisting of grandiose-manipulative, callous-unemotional, and daring-impulsive traits. Youth scoring high on all three psychopathic traits were at greatest risk of future conduct problems, substance use, and aggression, whereas youth solely high on callous-unemotional traits were at greater risk of only future conduct problems (Andershed et al., 2018). However, as our focus in the current study was on a more detailed examination of adolescent narcissism, we included only a unidimensional assessment of adolescent psychopathy.

Compared to adolescent psychopathy and narcissism, adolescent Machiavellianism (e.g., manipulation) has received relatively less attention. Research has indicated that adolescent Machiavellianism predicts conduct problems (Geng et al., 2017) as well as direct and indirect aggression (Barry et al., 2003; Farrell & Vaillancourt, 2021). In a recent study among gifted Russian adolescents, Dark Triad traits explained over 20% more variance than the Big Five in behavioral difficulties

(Papageorgiou et al., 2020). To supplement the growing body of literature focusing on adolescent Dark Triad traits and outcomes, we will examine how Dark Triad traits may inhibit or exacerbate adolescent behavioral strengths and difficulties.

The parent-offspring relationship also influences the association between adolescent personality and behavior. Here, we assessed adolescent perceived maternal and paternal warmth, hostility, and control. These parenting behaviors capture support and care (i.e., warmth), aggression and irritability (i.e., hostility), as well as behavioral regulation and management (i.e., control; Rohner, 1986). Parental warmth is socially adaptive, hostility is socially maladaptive, and control may be socially adaptive or maladaptive depending on degree of parental behavioral regulation (Rohner et al., 2005).

The literature on adolescent personality and parenting reports consistent interaction effects between offspring Big Five traits and parenting behavior in predicting offspring externalizing (De Clercq et al., 2008; de Haan et al., 2010; Mabbe et al., 2019; Prinzie et al., 2003; Van Leeuwen et al., 2007) and internalizing (Van Leeuwen et al., 2007) behaviors. These interactions differ when considering maternal and paternal parenting (Mabbe et al., 2019; Prinzie et al., 2003). According to the Tri-Directional Framework, adolescent traits may play a role in adolescent perceptions of the maternal and paternal parenting they receive (e.g., adolescent exploitativeness is associated with adolescent perceptions of greater parental inconsistent discipline; Mechanic & Barry, 2015). Adolescent traits may also influence adolescent behavioral outcomes, such as externalizing behaviors, conferred directly or indirectly through parenting behaviors, such as parental warmth, hostility, and control. Further, associations between adolescent traits and perceived parenting may change according to different contexts, and associations between adolescent traits and outcomes may change according to the specific type of parenting expressed. We included both economic and parental adversity contexts, as per prior research (Kochanska et al., 2012; Truhan et al., 2022).

1.2 | Adolescent personality, perceived parenting, and context

Previous research has found that SES and parents' past ACEs influence associations between maternal Big Five traits and parenting (Kochanska et al., 2012), as well as maternal and paternal Dark Triad personality and parenting (Truhan et al., 2022). Economic context, such as SES, and parents' stressful life events, such as ACEs, may alter the relation between adolescent personality and adolescents' perception of the parenting they receive, just as these contexts alter parental self-reported personality-parenting associations. Home environment is crucial in development, as parents in high SES homes can provide their offspring with greater resources, social connections, and teaching experiences (Bradley & Corwyn, 2002). Consequently, parents and offspring in low SES homes may suffer from a lack of social and personal resources. Further, children of parents with four or more ACEs exhibit higher externalizing and internalizing behavior problems and are three times more likely to have depression or anxiety than children of parents with no ACEs (Haynes et al., 2020; Schickedanz et al., 2018). Certain ACEs, such as parental abuse and neglect, have greater influence on future wellbeing than ACEs such as parental divorce (Merrick et al., 2017). Personality and resilience influence responses to stress and adversity (Mischel, 2004), and therefore adolescent Dark Triad personality may influence perceived parenting behavior in contexts exposed to greater economic stress and past parental adversity.

Truhan et al. (2022) found that SES moderates the association between maternal extraversion and control, such that mothers in low SES households use lower behavioral control, and mothers in high SES households use greater control. In the same study, ACEs moderated two personality-parenting associations for fathers: (1) paternal conscientiousness and warmth, such that paternal conscientiousness is only positively associated with warmth when fathers experience two or less ACEs, and (2) paternal Machiavellianism and warmth, such that paternal Machiavellianism is negatively associated with warmth when fathers experience two ACEs or less. Moreover, ecological adversity moderates the association between maternal agreeableness and positive parenting, such that agreeableness is positively associated with positive parenting only in cases of low ecological adversity (Kochanska et al., 2012). The literature to date has focused entirely on how stressful circumstances influence personality-parenting links in parents, yet offspring are additionally exposed to stress and home economic context. We therefore examined whether personality in adolescence has socially adaptive or maladaptive associations with perceived parenting depending on economic context and parents' adverse life events.

1.3 | Current study

We took a two-step approach. First, we examined associations between adolescent Dark Triad personality and perceived parenting, with SES and parents' past ACEs as moderators, to assess whether economic and parental adversity contexts change personality and parenting associations for adolescents. Second, we examined associations between adolescent Dark Triad personality and behavioral outcomes, with perceived parenting as moderators, to identify specific links between adolescent Dark Triad traits and behavioral outcomes and test whether these links change depending on perceived parenting behavior. Given the lack of research on adolescent Dark Triad traits in conjunction to perceived parenting and behavioral outcomes, our approach was exploratory. However, guided by literature on adolescent Big Five traits, and research on parental Big Five and Dark Triad traits, we formulated two hypotheses: (1) SES and parents' ACEs will moderate adolescent personality-perceived parenting associations; and (2) adolescent exploitativeness,

psychopathy and Machiavellianism will show positive associations with negative perceived parenting and behavioral problems, whereas superiority will exhibit positive associations with socially adaptive parenting and behavior.

2 | METHOD

2.1 | Sample and procedure

This study was part of the Parents and Children Together (PaCT, 2019-2021) project, approved by the host university's Ethics Committee (Reference No: EPS 18_190). We recruited parents and adolescents residing in the United Kingdom from secondary schools in the community or via Prolific Academic. They completed online questionnaires following consent or assent (ages 11–15 years) to participate. Parents ($N = 288$) had a mean age of 45.86 years ($range = 28–63$, $SD = 6.71$), were 46.9% mothers, and 93.7% White Irish/British or European. Adolescents ($N = 310$) had an average age of 13.85 years ($range = 11–17$, $SD = 1.97$) and were 48.7% female. Power analysis (G*Power 3.1; Faul et al., 2009) indicated that our study had the power to detect small to medium interaction effects (required sample size 159), but not very small interaction effects (required sample size 395).

2.2 | Measures

2.2.1 | Adolescent personality

We assessed Dark Triad traits using the Dirty Dozen for Youths (DD-Y; Muris et al., 2013). We included only the subclinical psychopathy and Machiavellianism scales of the DD-Y, as we additionally assessed narcissism with the Narcissistic Personality Questionnaire for Children (NPQC; Ang & Yusof, 2006) to capture narcissistic facets (i.e., superiority, exploitativeness, self-absorption) in detail. Responses ranged from 1 (*strongly disagree*) to 5 (*strongly agree*). We report scale reliability for all measures in Table 1.

2.2.2 | Adolescent perceived parenting

We assessed adolescents' perception of received parenting with the Parental Acceptance-Rejection Questionnaire/Control Child-Short Form (Child PARQ/Control; Rohner et al., 2005), which contains separate report forms for mother and father. Items are rated from 1 (*almost never true*) to 4 (*almost always true*). We used the warmth ($range = 8–32$), hostility ($range = 6–24$), and control ($range = 5–20$) scales. Scores at or below the midpoint of the warmth scale indicate more perceived coldness than warmth, and the reverse holds for hostility and control.

2.2.3 | Adolescent behavior

Adolescents self-reported on externalizing, internalizing, and prosocial behavior with the Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997). A 3-point scale is used to rate each statement as: not true, sometimes true or certainly true.

2.2.4 | Economic and parental adversity contexts

We assessed parents' adverse life events via parent self-report of the Adverse Childhood Experiences Questionnaire (ACE-Q; Felitti et al., 1998), a 10-item checklist that identifies experiences of abuse and neglect before age 18 years. We assessed SES as a summed score of relevant demographics (higher scores indicated higher SES): household income, educational attainment, single parent status, and parent's age at child birth (SES $range = 7–28$; adapted from Kochanska et al., 2012). For more detail, see Supplementary Information.

2.3 | Statistical analyses

We checked all variables for missing data and normality. There were at most 21 cases of missing data (parent ACEs) for continuous variables. Little's MCAR test (1988) showed data were missing at random: $\chi^2(234) = 240.57$, $p = .37$. Therefore, we

TABLE 1 Descriptive statistics and reliability for all scales.

Variable	Mean (SD)	Variance	Median	Range	Kurtosis	Skew	Items (N)	ω
Adolescents (N = 310)								
SUP	16.61 (4.50)	20.27	16.00	24.00	0.13	0.35	6	0.76
EXP	13.76 (4.52)	20.46	13.00	25.00	0.53	0.61	6	0.77
SAB	9.23 (2.56)	6.57	9.00	13.00	-0.47	0.03	3	0.57
PSY	9.64 (3.02)	9.10	10.00	15.00	-0.09	0.14	4	0.42
MAC	9.06 (3.78)	14.29	9.00	14.00	-0.98	0.29	4	0.78
M.WMT	28.53 (3.65)	13.31	30.00	16.00	0.84	-0.08	8	0.86
M.HTY	7.33 (1.99)	3.98	6.00	12.00	4.02	0.46	6	0.74
M.CTL	13.30 (2.92)	8.54	13.00	14.00	-0.36	0.01	5	0.68
F.WMT	27.99 (4.03)	16.25	29.00	23.00	3.01	-0.06	8	0.88
F.HTY	6.95 (1.68)	2.78	6.00	8.00	3.84	0.77	6	0.70
F.CTL	12.62 (3.03)	9.20	12.00	15.00	-0.32	0.07	5	0.73
EPB	6.24 (3.92)	15.39	6.00	17.00	-0.43	0.45	10	0.80
IPB	5.47 (3.45)	11.93	5.00	16.00	0.02	0.68	10	0.74
PRO	7.60 (1.95)	3.80	8.00	10.00	0.26	-0.73	5	0.74
Parents (N = 288)								
SES	18.20 (4.42)	19.58	18.00	21.00	-0.48	0.05	5	0.59
ACEs	1.48 (2.17)	4.71	1.00	10.00	3.92	2.02	10	0.85

Note: The skew of the normalized maternal and paternal warmth and hostility variables is presented. ω = McDonald's omega (1999). Adolescent Variables: SUP = superiority, EXP = exploitativeness, SAB = self-absorption, PSY = psychopathy, MAC = Machiavellianism, M.WMT = maternal warmth, M.HTY = maternal hostility, M.CTL = maternal control, F.WMT = paternal warmth, F.HTY = paternal hostility, F.CTL = paternal control, EPB = externalizing problem behavior, IPB = internalizing problem behavior, PRO = prosocial behavior. Parent Variables: SES = socioeconomic status, ACEs = adverse childhood experiences.

imputed missing data points using the expectation-maximization algorithm. Maternal and paternal warmth were negatively skewed, and maternal and paternal hostility were positively skewed. The skew of adolescent-reported maternal and paternal parenting suggests that adolescents had relatively positive perceptions of their parents (i.e., low hostility, high warmth). We implemented maximum likelihood estimation with robust standard errors to account for skew. We estimated two path analysis models using the *lavaan* package (Rosseel, 2012) in the R Studio platform (R Core Team, 2020). We treated all variables as observed or manifest. We controlled for adolescent age and sex in all models. We created interaction terms within the data set from centered predictors and moderators (Frazier et al., 2004), and then entered them in the path models. We include only significant variables, paths, and path coefficients (standardized *Beta* coefficients) in the model figures, to increase readability. We did not include residual covariance coefficients.

2.3.1 | Model 1

In Model 1, we included SES, parents' ACEs, adolescent personality (i.e., Superiority, Exploitativeness, Self-absorption, Psychopathy, Machiavellianism), and personality-context interactions (Personality \times SES, Personality \times ACEs) as predictors or exogenous variables, and included adolescent perceived maternal and paternal warmth, hostility, and control as outcomes or endogenous variables. By using a single path analysis model, we can account for the residual covariance among parenting behavior domains as well as between mothers and fathers. We depict Model 1 in Figure 1.

2.3.2 | Model 2

In Model 2, we included SES, parents' ACEs, adolescent personality, perceived maternal and paternal parenting, and adolescent personality-perceived parenting interactions (Personality \times Maternal Warmth, Personality \times Maternal Hostility,

Personality \times Maternal Control, Personality \times Paternal Warmth, Personality \times Paternal Hostility, Personality \times Paternal Control) as predictors or exogenous variables, and included adolescent self-reported externalizing, internalizing, and prosocial behavior as outcomes or endogenous variables. By including all adolescent behavioral outcomes in one model, we account for the residual covariance among different behaviors. We depict Model 2 in Figure 2.

We tested interaction effects identified in the path models separately for additional confirmation. We examined significant interactions with the Johnson-Neyman technique (Johnson & Neyman, 1936) and interaction plots. The Johnson-Neyman procedure solves for the value of the moderator at which the relation between the predictor and criterion variables achieves significance or non-significance.

3 | RESULTS

3.1 | Descriptive statistics

We display descriptive statistics and reliability for all scales in Table 1, and correlation tables in Supporting Information (Tables S1 and S2).

3.1.1 | Model 1: Adolescent personality and context as predictors of perceived parenting

Regarding perceived maternal parenting, Model 1 explained 20%, 17%, and 14% of the variance in maternal warmth, hostility, and control, respectively. For perceived paternal parenting, Model 1 explained 20%, 14%, and 10% of the variance in paternal warmth, hostility, and control, respectively. Adolescent gender and self-absorption and parents' past ACEs did not have any direct effects on perceived parenting, and as such we excluded them from Figure 1. Older adolescents perceived higher maternal and paternal control, and younger adolescents perceived lower maternal hostility. Adolescents in higher SES households perceived higher maternal warmth and control. However, SES had no effect on adolescent perceived paternal

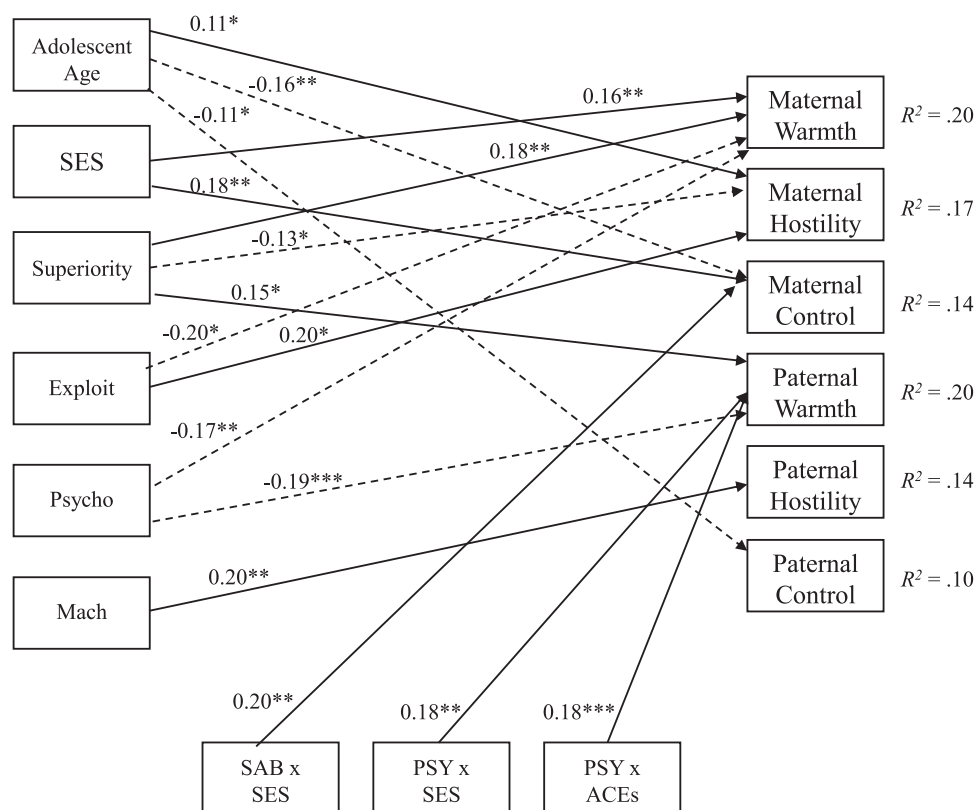


FIGURE 1 Path analysis model of Model 1, including adolescent personality, context, and perceived maternal and paternal parenting. Only significant predictors, paths, and interaction terms are included. Standardized path coefficients are reported. * $p < .05$, ** $p < .01$, *** $p < .001$. ACE, adverse childhood experiences; SES, socioeconomic status.

parenting. Superiority was associated with more positive perceived parenting from both mothers and fathers, whereas exploitativeness, psychopathy, and Machiavellianism were associated with negative perceptions of parenting. Exploitativeness was negatively and positively associated with perceived maternal warmth and hostility, respectively. Psychopathy had negative effects on perceived maternal and paternal warmth. Machiavellianism had a negative effect on perceived paternal hostility. There were also three significant interaction effects.

Interaction effects

We obtained a significant SES × Adolescent Self-Absorption interaction (Figure 3). Adolescent self-absorption was positively associated with perceived maternal control in average-to-high, but not in low, SES households.

We also observed a significant SES × Adolescent Psychopathy interaction (Figure 4a). In average to low SES households (SES ≤ 22), adolescent psychopathy was negatively associated with perceived paternal warmth. However, in high SES households (SES ≥ 23), adolescent psychopathy was unassociated with perceived paternal warmth.

Finally, we found an ACEs × Adolescent Psychopathy interaction (Figure 4b). For adolescents of parents with two or less ACEs, adolescent psychopathy was negatively associated with perceived paternal warmth. However, there was no significant association between psychopathy and perceived paternal warmth for adolescents of parents with three or more ACEs.

3.1.2 | Model 2: Adolescent personality, context, and perceived parenting as predictors of adolescent behavioral outcomes

Model 2 explained 41%, 29%, and 39% of externalizing, internalizing, and prosocial behavior, respectively. Adolescent gender, SES, perceived maternal warmth, hostility, and control, and perceived paternal hostility and control did not have direct effects on adolescent behavioral outcomes, and are therefore not included in Model 2 (Figure 2). Further, there were no significant interaction effects between adolescent personality and perceived parenting in predicting behavioral outcomes. Girls reported higher internalizing behavior. Parents' past ACEs had a positive effect on adolescent prosocial behavior. Adolescent personality was associated with all behavioral outcomes. Superiority was negatively associated with externalizing and internalizing behavior and positively with prosocial behavior. Self-absorption was positively associated with both internalizing and prosocial behavior. Exploitativeness, psychopathy, and Machiavellianism were positively and negatively associated with externalizing and prosocial behavior, respectively. Last, of the parenting domains, only paternal warmth was significant, and had a negative effect on adolescent internalizing behavior.

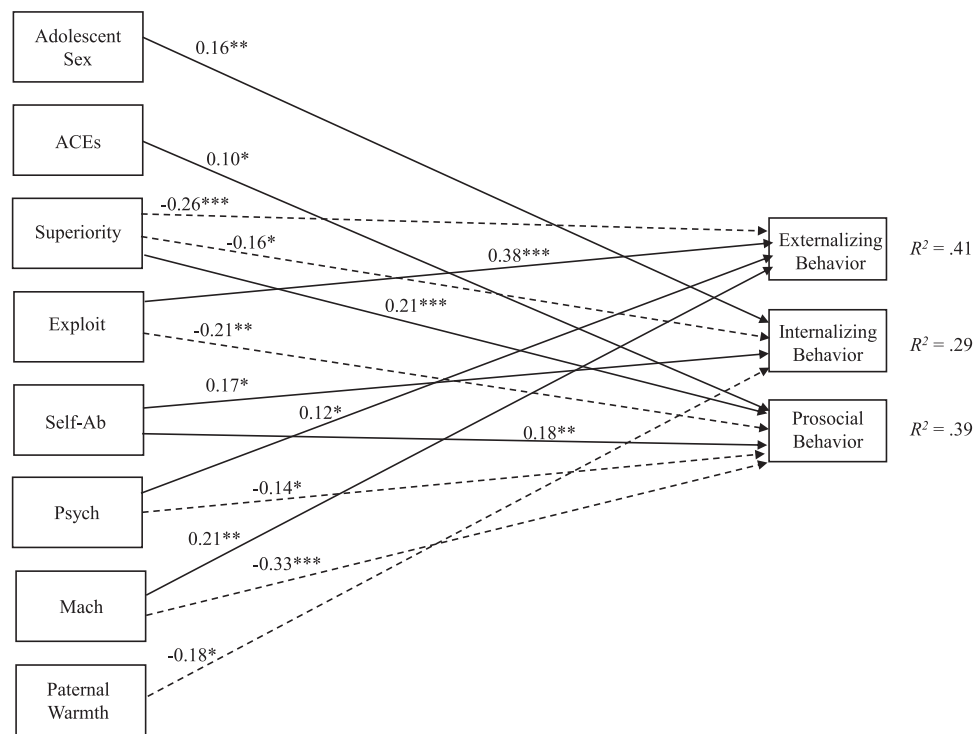


FIGURE 2 Path analysis of Model 2. Including adolescent personality, context, perceived maternal and paternal parenting, and adolescent behavioral outcomes. Only significant predictors, paths, and interaction terms are included. Standardized path coefficients are reported. **p* < .05, ***p* < .01, ****p* < .001. ACE, adverse childhood experiences.

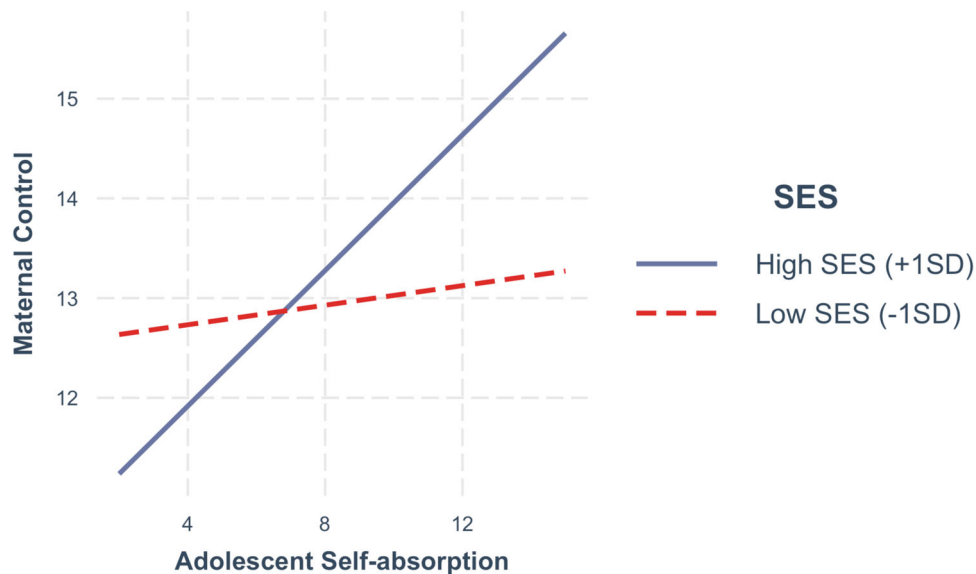


FIGURE 3 SES moderates the association between Adolescent Self-absorption and Perceived Maternal Control. $F_{(3,306)} = 5.32, p < .002, R^2 = 0.05$; $F\Delta_{(1,306)} = 6.16, p < .014$. Low SES: $b = 0.05, SE = 0.08, ns$; High SES: $b = 0.34, SE = 0.10, p < .001$. SES, socioeconomic status.

4 | DISCUSSION

We extended prior work on parental personality and self-reporting parenting (Truhan et al., 2022) by turning the focus to adolescents. Based on the Tri-Directional Framework of Parent and Offspring Traits and Outcomes (Truhan, Sedikides, et al., 2021, in press), we tested: (1) the role of adolescent personality, context, and personality-context interactions on perceived maternal and paternal parenting; and (2) context, adolescent personality, perceived parenting, and personality-parenting interactions on adolescent behavioral outcomes. Results indicated that adolescent Dark Triad traits have a strong influence on behavioral outcomes, over and above adolescent perceived parenting. Further, economic and parental adversity contexts, including SES and parents' ACEs, influence associations between adolescent personality and perceived parenting.

4.1 | Context and adolescent perceived parenting

The literature on child and adolescent personality and parenting behavior has focused on the Big Five in adolescents (de Haan et al., 2010; Prinzie et al., 2012) and temperament in young children (Achtergarde et al., 2015). We complemented this literature by assessing adolescent Dark Triad traits. Further, we addressed economic and parental adversity contextual influences on adolescent personality-perceived parenting associations. SES had a direct positive effect on adolescent perceived maternal warmth and control, and SES and parents' ACEs interacted with adolescent self-absorption and psychopathy in predicting perceived maternal control and paternal warmth.

First, adolescent self-absorption was associated with greater perceived maternal control only in high SES households. Adolescents may experience greater parental pressure to achieve and conform to expectations in high SES households (Romm et al., 2020). Further, highly self-absorbed adolescents may perceive parental interactions as more controlling. Vulnerable narcissism, the broader trait encompassing self-absorption, has been linked with defensive and hostile interpersonal behavior (Sedikides, 2021; Thomaes et al., 2018). Vulnerable narcissistic facets may be particularly susceptible to the influence of SES, and high SES households may come with more parental pressure to achieve, leading to greater perceived maternal control.

Second, both SES and parents' ACEs moderated the relation between adolescent psychopathy and perceived paternal warmth. In low SES households, adolescent psychopathy was negatively associated with perceived paternal warmth, whereas in high SES households adolescents reported relatively high perceived paternal warmth regardless of their psychopathy level. Moreover, the negative association between adolescent psychopathy and perceived maternal warmth was unqualified by SES. Paternal psychopathy is positively associated with self-reported paternal hostility (Truhan et al., 2022). Psychopathy as assessed by the Dirty Dozen primarily captures antisocial and affective (i.e., callous-unemotional) traits (Truhan, Wilson, et al., 2021). It is likely that individuals high in psychopathy perceive a lack of warmth or greater hostility not only in

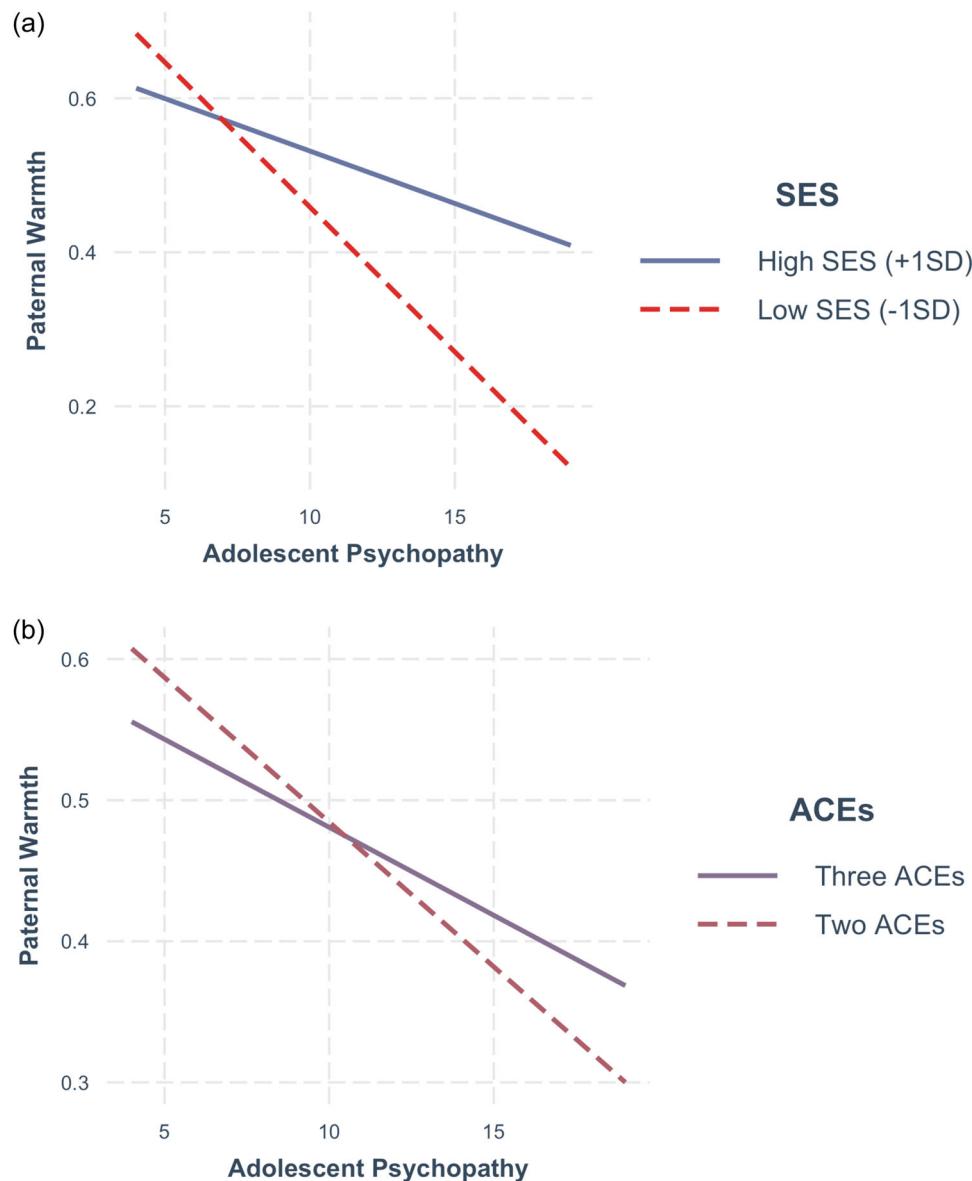


FIGURE 4 (a) SES moderates the association between Adolescent Psychopathy and Perceived Paternal Warmth. $F_{(3,306)} = 9.56, p < .001, R^2 = 0.09$; $F\Delta_{(1,306)} = 3.96, p < .048$. Low SES: $b = -0.52, SE = 0.13, p < .001$; High SES: $b = -0.13, SE = 0.12, ns$. (b) ACEs moderate the association between Adolescent Psychopathy and Perceived Paternal Warmth. $F_{(3,306)} = 9.77, p < .001, R^2 = 0.09$; $F\Delta_{(1,306)} = 8.05, p < .005$. Two ACEs: $b = -0.26, SE = 0.08, p < .001$; Four ACEs: $b = -0.05, SE = 0.12, ns$. ACE, adverse childhood experiences; SES, socioeconomic status.

themselves, but also in close relationships. In low SES households, perceived paternal coldness may be amplified by low paternal involvement or use of harsher, punitive parenting (Nepomnyaschy et al., 2020).

The association between adolescent psychopathy and perceived paternal warmth was also moderated by parents' ACEs. Adolescent psychopathy was negatively linked to perceived paternal warmth only when parents reported two ACEs or less. When parents reported more than two ACEs, adolescents reported lower perceived paternal warmth regardless of psychopathy level. These results indicate that more agreeable and empathetic adolescents report higher paternal warmth only when their father experienced low childhood adversity. Prior work has noted that parents' past ACEs contribute to future negative and disorganized parent-offspring interactions (Murphy et al., 2014). We demonstrated, for the first time, how parents' past ACEs might also influence their offspring's perception of the parenting they receive, particularly from fathers.

Several main effects of adolescent personality on perceived parenting were unmoderated by economic and parental adversity contextual factors. Adolescent exploitativeness was negatively and positively associated with perceived maternal warmth and hostility, respectively. Mechanic and Barry (2015) found that adolescent exploitativeness was positively associated with perceived parental inconsistent discipline and poor monitoring. Interestingly, this influence did not extend to perceived paternal parenting, as there were no significant associations between adolescent exploitativeness and perceived

parenting from fathers. Truhan et al. (2022) reported that parental narcissistic antagonism, which incorporates exploitativeness, was negatively associated with self-reported warmth for mothers but not for fathers. Exploitativeness or antagonism may be associated with viewing both the self and close relationships as colder or more detached, potentially deriving from low agreeableness, also a core facet of psychopathy. Adolescent superiority, on the other hand, was related to greater perceived maternal and paternal warmth and lower maternal hostility. Adolescent superiority is strongly associated with self-esteem, and overall narcissism with inflated views of teacher support and relationship quality (Ang & Yusof, 2006). Adolescent superiority may be linked to greater perceived warmth from mothers and fathers due to inflated self-views.

Last, adolescent Machiavellianism was positively related to perceived paternal hostility. Machiavellianism predicts adolescent emotional dysregulation, suggesting that adolescents high in Machiavellianism are prone to anger, worry, and losing emotional control (Lau & Marsee, 2013). Also, highly Machiavellian adolescents report more family disengagement and dissatisfaction with family functioning (Láng & Birkás, 2014). Machiavellian adolescents may therefore evoke more hostile interactions with parents or perceive parenting as more hostile and aggressive, particularly with fathers. We did not find an association between adolescent Machiavellianism and perceived maternal parenting. Moving to Model 2, adolescent Dark Triad traits influenced behavioral strengths and difficulties, which were unmoderated by perceived parenting.

4.2 | Adolescent Dark Triad traits and behavioral outcomes

The bulk of the adolescent personality and behavior literature has centered on the Big Five and behavioral difficulties (i.e., internalizing and externalizing behavior; De Clercq et al., 2008; de Haan et al., 2010; Mabbe et al., 2019; Prinzie et al., 2003; Van Leeuwen et al., 2007). We advanced this literature by assessing Dark Triad traits and prosocial behavior. Adolescent personality was most effective in explaining behavioral strengths and difficulties, above and beyond economic and parental adversity contextual factors and perceived maternal and paternal parenting.

Both adolescent superiority and self-absorption were positively linked to prosocial behavior, and superiority was negatively linked to externalizing behavior. Results regarding adolescent superiority are consistent with findings indicating positive associations between grandiose narcissism and some forms of prosocial behavior (Kauten & Barry, 2016; Konrath & Tian, 2018) as well as grandiose narcissism and academic achievement (Papageorgiou et al., 2018; Zajenkowski et al., 2022). Self-absorption, which would typically be subsumed within vulnerable narcissism (Truhan, Wilson, et al., 2021), may function as a socially adaptive trait regarding prosocial behavior. The need for admiration may lead adolescents to express healthier behaviors to achieve praise, or these adolescents may perceive their own behavior as more prosocial and less disruptive. However, self-absorption was also positively associated with internalizing behavior, suggesting it may be socially maladaptive in terms of internalizing problems. Lastly, internalizing behavior was the only behavioral outcome influenced by perceived parenting, such that perceived paternal warmth was negatively related to adolescent internalizing, over and above adolescent personality.

Adolescent Machiavellianism, psychopathy, and socially maladaptive narcissism are typically associated with negative outcomes, including behavioral problems, aggression, and emotional dysregulation (Ang & Yusof, 2006; Barry et al., 2003; Farrell & Vaillancourt, 2021; Geng et al., 2017; Lau & Marsee, 2013; Papageorgiou et al., 2020; Salekin & Lynam, 2010; Witt et al., 2011). We demonstrated the specific facets of narcissism associated with behavioral outcomes. Of all traits and facets assessed, adolescent exploitativeness was the strongest positive predictor of externalizing behavior. Adolescent exploitativeness is directly linked to bullying and cyberbullying through normative beliefs about aggression (Ang et al., 2010, 2011). According to our findings, this trait is related to adolescent externalizing behavior in general. Further, by examining specific facets (e.g., exploitativeness) of personality traits, as we did with adolescent narcissism, we begin to untangle the links between personality and developmental outcomes.

We did not obtain significant interactions between adolescent personality and perceived parenting in predicting adolescent behavioral strengths and difficulties. These null effects contradict research on child and adolescent Big Five and parenting as predictors of externalizing and internalizing behavior (De Clercq et al., 2008; de Haan et al., 2010; Mabbe et al., 2019; Prinzie et al., 2003; Van Leeuwen et al., 2007). The absence of adolescent personality-parenting interactions could be due to lack of extreme scores in our community sample of parents and adolescents, thereby making interaction effects difficult to detect (McClelland & Judd, 1993). Mabbe and colleagues (2019), whose study shares most similarities to ours regarding sample size and composition, reported one significant interaction between adolescent emotional stability and maternal psychological control in predicting externalizing behavior (and no significant interactions in predicting internalizing behavior). Further, a study with parental personality (Truhan et al., 2022) found no significant interactions between Big Five or Dark Triad personality and parenting in predicting adolescent behavioral outcomes. Therefore, our results may indicate that adolescent Dark Triad traits do not interact with parenting behaviors similarly to Big Five traits, instead showing stronger direct associations uninfluenced by perceived parenting.

Our work has theoretical implications. Researchers should consider how economic and parental adversity contexts influence adolescent personality development and associated outcomes, such as behavioral strengths and difficulties.

Although our models explained a substantial amount of variance in adolescent behavior, there is still unexplained variance, and we were only able to account for 10%–20% of perceived parenting. Future investigations might assess parent and offspring temperament, emotion regulation, stress, and psychopathology, as well as ecological factors, such as neighborhood and school environment. Considering that personality traits are to a degree heritable, there may also be genetic influences involved in these associations (Sanchez-Roige et al., 2018). Further, our study is the first to examine narcissism in detail (i.e., assessment of specific narcissistic traits) in relation to behavioral strengths and difficulties in adolescents. This approach can increase understanding of which personality facets are socially adaptive or maladaptive for adolescent development. Superiority was associated with more socially desirable perceptions of parenting and behavioral outcomes, exploitativeness had socially undesirable associations, and self-absorption varied in its associations. Beyond the Big Five, the Dark Triad may explain additional variance in adolescent outcomes, as has been shown previously with parents (Truhan et al., 2022); as such, future work on adolescent personality may include more comprehensive personality assessments. Finally, our work has practical implications. Interventions with families and adolescents may wish to incorporate more personality focused assessments, including the Dark Triad, so that parenting programs can be tailored to best fit parent and offspring personality and home environment. Interventions to improve parenting may have additional benefits for positive adolescent outcomes, as adolescents who perceived more positive parenting exhibited greater behavioral strengths. Promotion of socially adaptive narcissistic traits, such as superiority, may also be beneficial for adolescent behavior among other outcomes.

4.3 | Limitations and future directions

Study strengths include assessment of the Dark Triad, involving both adolescent and parent respondents, use of robust estimation techniques, and testing an economically diverse sample. One limitation concerns the inclusion of many parameters in the path models, meaning the models had less power to detect true effects. These effects may have been spurious or weak (Button et al., 2013). Given that we did not estimate variables included in the path models as latent variables, measurement error is also a limitation. Follow-up research might include a full Structural Equation Model with latent variables of adolescent personality, perceived parenting, and behavioral outcomes in a larger sample.

Also, we used adolescent self-report for personality, parenting, and behavioral strengths and difficulties, which may be influenced by common-method variance (Podsakoff et al., 2003). However, our intention was to assess adolescent perceived parenting, and parent reports of adolescent behavior may be influenced by parents' own personality traits (Clark et al., 2017). Future researchers could collect information on offspring behavior from additional respondents (e.g., teachers). Regarding Dark Triad traits, social desirability may also have influenced self-reports on the Dirty Dozen (Kowalski et al., 2018). Further, the psychopathy scale of the Dirty Dozen had a low reliability estimate ($\omega = 0.42$). Low reliability can lead to attenuation, and in a model with multiple predictors this may produce stronger, weaker, or inaccurate relations. The association between prosocial behavior and psychopathy, examined separately with a correction for attenuation, was stronger than the original, uncorrected correlation, suggesting a true association between adolescent psychopathy and prosocial behavior. However, the results including psychopathy should be interpreted with caution. A more reliable psychopathy measure, such as the Antisocial Process Screening Device–Self-Report (APSD; Frick & Hare, 2002), should be used in the future.

Additionally, we used a unidimensional measure of adolescent psychopathy, and so we may have missed important connections among psychopathic traits, parenting, and adolescent behavioral outcomes attributable to specific psychopathic traits or facets (Salekin, 2016). Follow-up investigations might capture more nuanced associations by employing a multidimensional measure, such as the APSD. There has also been recent work on adult Machiavellianism highlighting the multidimensionality of this trait (Collison et al., 2018). Although this work has not yet extended to adolescence, research could benefit from developing multidimensional measures of child and adolescent Machiavellianism to further unpack personality-outcome associations.

Furthermore, item-content overlap between adolescent personality and the SDQ may have influenced the strength of the associations between these constructs. Studies on child temperament and behavior (Lemery et al., 2002), and on child personality and problem behavior (Prinz et al., 2005), have addressed this issue. Dropping overlapping items did not affect original results obtained with all items. We examined overlapping items between adolescent personality measures (i.e., DD, NPQC) and the SDQ using exploratory factor analyses. Only one item from the DD psychopathy scale and one item from the NPQC overlapped with the SDQ scales.

Although including a total ACE score can provide insight into relations between adverse life events, personality, and perceived parenting, there are limitations of a total risk score. Prior work has highlighted that ACEs such as abuse and neglect have a much greater impact on future life outcomes than parental divorce (Merrick et al., 2017). Therefore, use of a severity threshold can be misleading, depending on the type of childhood adversity experienced. Future research might examine the moderating effects of specific ACEs on personality and parenting with a larger sample to further untangle these interactions.

Last, the study design was cross-sectional, and we therefore cannot determine the direction of effects. We can only conclude there are significant associations between contextual factors, adolescent personality, perceived parenting, and adolescent behavioral outcomes. Longitudinal studies indicate that adolescent personality influences future externalizing behaviors (de Haan et al., 2010; Mabbe et al., 2019). However, coercion theory (Patterson, 1982; Patterson et al., 1992) states that offspring behavior functions as a response and stimulus to parenting behavior, such that offspring behavior influences parenting behavior, which then reinforces offspring behavior. Indeed, the Tri-Directional Framework highlights the bi-directional association between parenting behavior and offspring outcomes, such that they may influence each other.

5 | CONCLUSION

Personality traits beyond the Big Five contribute substantially to adolescent behavioral strengths and difficulties. Moreover, economic and parental adversity contextual factors, such as SES and parents' ACEs, influence associations between adolescent personality and perceived parenting from both mothers and fathers. The Tri-Directional Framework may help to guide future research on family systems and child development, as it considers individual, relationship, and contextual factors that potentially influence offspring developmental outcomes.

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CONFLICT OF INTEREST STATEMENT

The authors declare no conflicts of interest.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions. Materials and analysis code for this study are available from the corresponding author upon reasonable request.

ETHICS STATEMENT

This study was performed in line with the principles of the Declaration of Helsinki. Approval was granted by the Research Ethics Committee of Queen's University Belfast (Reference No: EPS 18_190).

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SUPPORTING INFORMATION

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