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The Mediating Role of Self-Control Between Parental Attachment and Adolescent Delinquency

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ABSTRACT

Adolescent delinquency is a major concern in Iranian society, influenced by familial and social factors. The present study examined whether self-control mediated the relationship between parental attachment and delinquency among 528 adolescents (63% female) aged 15–17 years recruited from high schools in Tehran. Mediation analysis showed that stronger parental attachment was associated with greater self-control, which in turn predicted lower delinquency. Sobel tests and bootstrapping confirmed self-control as a significant partial mediator for both maternal and paternal attachment. The findings highlight the importance of strengthening parent-child bonds to reduce delinquent behavior among Iranian adolescents.

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Introduction

Adolescent delinquency includes behaviors such as aggression, substance use, vandalism, and other violations that threaten the well-being of young individuals and the safety of their communities. Extensive research in criminology and developmental psychology has established that the family is one of the most significant socializing influences on these behaviors during adolescence (Abhishek and Balamurugan 2024; AlHorany et al. 2025; World Health Organization 2015). Empirical evidence indicates that delinquent behavior is not a singular occurrence but emerges from the interplay of multiple causal factors throughout various stages of childhood and adolescent development (Hawkins and Weis 2017). This interplay can adversely affect children's emotional regulation and contribute to an increase in externalizing behaviors, thereby elevating the risk of delinquency during adolescence (Cheung and Huang 2024).

Within the familial context, the security of adolescents' emotional bonds with their parents – conceptualized as parental attachment – serves as a fundamental protective factor (Armsden and

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Greenberg 1987; Bowlby 1988). Secure attachment establishes a framework for emotional regulation (Mikulincer and Shaver 2019), promotes the internalization of social norms (Kochanska & Aksan, 1995), and fosters the development of self-control (Burt 2020), all of which mitigate adolescents' engagement in delinquent behaviors (Hoeve et al. 2012). Consequently, the present study focused on the family domain by investigating the interaction between parental attachment and self-control in predicting delinquency among Iranian adolescents.

The family is a foundational structure in shaping individuals' physical, mental, emotional, and social development (Sabah and Alduais 2024). Through effective communication and resilience, families provide stability and support during periods of adversity, fostering adaptability and problem-solving skills (Sabah, Khalaf Rashid al-Shujairi, and Boumediene 2021). Collective family efficacy contributes to emotional well-being and social cohesion, creating a nurturing environment that facilitates personal growth and development (Sabah et al. 2023a; 2023b).

Several family-related variables are implicated in shaping behavior outcomes among adolescents. Variables such as family structure, parental quality (Hoffmann 2023; Nelson, Ayodeji, and Ologun 2024), family relationships, parenting styles, and the general family environment (Mwangangi 2019) have all been identified as significant predictors of juvenile behavioral issues and delinquency. In particular, parent monitoring deficits, family conflict (Kennedy, Detullio, and Millen 2020), rejection by the parents, and low parent-child interaction (Loeber and Stouthamer-Loeber 1986) have been known to be strongly associated with juvenile delinquency. Moreover, abusive and neglectful family environments that are dysfunctional can also fuel delinquency (Aazami et al. 2023).

Alshammari (2017) argued that families with strong cultural foundations are more effective in preventing delinquency. In Iran (where the present study was carried out), social values, religion, and family relationships are closely intertwined (Abbasi-Shavazi and McDonald 2008). Traditionally, Iranian parents closely monitor their children's behavior, but cultural shifts, particularly among younger couples, challenge these norms (Rana & Malhotra, 2005). Therefore, understanding how families can effectively harness protective factors to prevent juvenile delinquency is very important.

Protective factors that inhibit juvenile delinquency include strong social bonds with conventional institutions (e.g., family and school) (Liu and Miller 2020). Research has shown that strong family bonds, positive relationships, good school engagement, academic achievement, and community resources – such as family therapy programs, multi-systemic interventions, and community-based prevention initiatives such as sports activities, educational programs, and psychological support – can mitigate juvenile delinquency (Aazami et al. 2023; Kennedy, Detullio, and Millen 2020). The effects of these protective factors may also vary by gender (Liu and Miller 2020).

For Iranian adolescents, having sisters, participating in family leisure activities, and achieving academic success are significant protective factors in the prevention of substance use disorders (Shahraki, Sedaghat, and Fararouei 2019). Male adolescents are more vulnerable to delinquency when experiencing high parental conflict post-divorce, severe economic challenges, and strained parent-child relationships (Esmaeili, Yaacob, and Juhari 2012). Fatemi et al. (2016) highlighted the critical role of family dynamics in teenage delinquency, stressing the importance of parental supervision, family bonding, and emotional communication in reducing delinquent behaviors. Mohebbi, Mirnasab, and Wiener (2016) found that adolescent bullies – specifically, secondary school students aged 15 to 19 years – have authoritarian parents and lack parental care, while both bullies and victims exhibit lower levels of parental bonding compared to those with no bullying experiences. Understanding the impact of family dynamics on bullying is essential, particularly because bullies often have weaker attachments to their parents (Mohebbi, Mirnasab, and Wiener 2016).

Parent-child attachment is a key factor in understanding and addressing adolescent delinquency. Numerous studies have consistently shown a strong association between the quality of parent-child attachment and the likelihood of adolescent delinquency across various cultural contexts (Arbona and Power 2003; Hamme Peterson, Buser, and Westburg 2010; Moreira et al. 2022; Pittman and Chase-Lansdale 2001). Attachment theory underscores the importance of early bonds in shaping socio-emotional development (Allen 2023). The attachment formed between infants and their primary caregivers significantly

influences an individual's relationships, self-concept, and emotional regulation (Berk 2013). Understanding the relationship between parent-child attachment and juvenile delinquency provides a framework for exploring how social bonds influence behavior (Fairbairn et al. 2018).

Social control theory posits that strong connections to conventional social institutions, such as family, school, peer groups, and employment, as well as internalized beliefs about conformity, reduce the likelihood of engaging in deviant or criminal activities (Aslan, Rosinaite, and Khojanashvili 2019; Hirschi 1969). Adolescents with secure attachments to their parents are less likely to exhibit deviant behavior (Hirschi 2004). Family dynamics, including parental involvement, supervision, monitoring, and emotional closeness, significantly influence adolescent delinquency (Demuth and Brown 2004). Moreover, weak parent-child attachment increases the risk of criminal activities among adolescents (Higgins, Jennings, and Mahoney 2010; Juffer, Bakermans-Kranenburg, and Van IJzendoorn 2023; Rankin and Quane 2002; Van Ijzendoorn et al. 2023; Zegers et al. 2006). These findings highlight the critical role of parent-child attachment in shaping adolescent behavior within the framework of social control theory. A lack of parental attachment may accelerate the development of criminal behavior, emphasizing the early influence of parental attachment on behavior (Hay 2001).

Self-control, a key concept in Hirschi's social control theory, has been extensively studied in relation to delinquency (Alvarez-Rivera and Fox 2010; Chapple 2005; Cheung and Cheung 2008). Self-control involves managing impulses, considering long-term consequences, and regulating behavior (Gottfredson and Hirschi 1990). The level of self-control developed during formative years significantly influences tendencies toward criminal behaviors. Low self-control, characterized by a desire for immediate gratification, is a major factor in persistent delinquency. In contrast, individuals with strong self-control are better at delaying gratification, reducing their likelihood of committing crimes. Gottfredson and Hirschi (1990) suggest that low self-control often stems from a lack of nurturing and discipline, further highlighting its importance in their theory.

Hirschi's (1969) social bond theory posits that four social bonds (i.e., attachment, commitment, involvement, and belief) connect individuals to conventional society (e.g., family, school, law, religion) and serve to inhibit delinquent behavior by promoting conformity. In contrast, self-control theory (Gottfredson and Hirschi 1990) posits that low self-control is a stable personal trait, developed through early parenting, which directly contributes to criminal behavior. Although these theories are conceptually distinct, subsequent scholarship has suggested that strong parental attachment may enhance self-control, thereby integrating these two theoretical perspectives (Pratt and Cullen 2000). Previous research has explored the direct relationship between parenting and self-control (Burt, Simons, and Simons 2006; Gibbs, Giever, and Martin 1998; Hay 2001; Jo and Zhang 2014; Li et al. 2019; Love et al. 2020; Unnever, Cullen, and Pratt 2003). Studies indicate low self-control mediates the relationship between parenting and deviant behavior among college and high school students (Gibbs, Giever, and Martin 1998; Hay 2001). Hay (2001) showed that effective parenting is inversely associated with self-control and that parental monitoring discipline moderately influences delinquency through self-control, challenging the notion that self-control primarily accounts for the impact of monitoring discipline on delinquency.

Janssen et al. (2016) found that parenting influences delinquency both directly and indirectly through self-control, delinquent attitudes, peer delinquency, and exposure to criminogenic environments. Effective parental guidance, including clear boundaries, vigilant supervision, and consistent discipline, significantly fosters adolescent self-control. Strong parent-child attachments create bonds as barriers that inhibit deviant behaviors (Gottfredson and Hirschi 1990). Conversely, inadequate or ineffective parenting can lead to diminished self-control, increasing the propensity for delinquent activities (Hay 2001; Unnever, Cullen, and Pratt 2003). This interplay between attachment, self-control, social control, and delinquency underscores the multifaceted nature of factors influencing adolescent behavior and development. Collectively, these factors mediate the effects of parenting on delinquency (Hoeve et al. 2009; Vazsonyi and Huang 2010). Additionally, changes in parenting during adolescence are indirectly related to shifts in delinquent attitudes and peer delinquency (Li et al. 2019). Li et al. (2019) provide significant insights into the nuanced dynamics between parenting and adolescent delinquency.

Research examining the impact of parental attachment on delinquency and self-control's role in delinquency has often been conducted separately (Chapple 2005; Hoeve et al. 2009; Jo and Zhang 2014; Meldrum, Miller, and FlexonL 2013; Muftić and Updegrove 2018). Recognizing their interactions and incorporating Hirschi's (1969) social control theory can deepen the understanding. The present study employed various theoretical perspectives to elucidate the direct and indirect effects of parental attachment on adolescent delinquency, accounting for the mediating role of self-control among Iranian youth and providing insights for interventions to reduce delinquency.

The present study was informed by social bond theory and self-control theory, and it examined a mediation model in which parental attachment (both maternal and paternal) served as a predictor of self-control and examined whether it subsequently predicted delinquency. More specifically, it was hypothesized that (i) higher parental attachment would be associated with lower levels of adolescent delinquency (H_1), and (ii) adolescent self-control would partially mediate the relationship between parental attachment and delinquency (H_2).

Methods

Study design and sampling procedures

A cross-sectional survey study was conducted, and middle and late adolescents aged 15 to 17 years were recruited in Tehran (Iran). A two-stage cluster-random sampling design (Thompson 2012), involving the selection of districts followed by schools, was implemented to achieve a geographically representative sample that remained logistically feasible within the constraints of the research team's available funding. Several steps were taken to ensure the random selection of the sample. Firstly, the Ministry of Education provided the geographical distribution of schools in Tehran, which was divided into five regions (North, West, East, South, and Central). Each region in Tehran comprises specific districts: North (three districts), West (three districts), East (four districts), South (five districts), and Central (four districts). Next, one educational district was randomly selected from each geographical region, and one girls' and one boys' school were chosen from each district. Each school includes three grades (first, second, and third grade), each with several classes. One class from each grade was randomly chosen, and all students in the selected class were invited to participate in the study. The study strictly adhered to ethical standards, including obtaining permissions, employing trained personnel, and ensuring participant confidentiality. Data collection was conducted in classrooms using paper-based surveys under controlled conditions. The researcher explained the study, distributed surveys, and ensured confidentiality. Students completed the surveys within 30–45 minutes, after which they were collected securely for data processing.

Ethical approval was received from the first author's Ethics Research Committee (ERGS/1/2012/SS03/UPM/01/1), and informed consent was obtained from all participants and their parents. The participants were granted the right to withdraw from the study anytime. The principles of anonymity and confidentiality were applied. All methods related to human participants were conducted following the guidelines of the Declaration of Helsinki.

Determination of sample size

To estimate the sample size for the present study, Schoemann et al.'s (2017) method focused on the relationships between variables in mediation analysis. The required sample size was determined to be 118 when standardized coefficients were set at 0.3 for both the a and b paths, 0.1 for the c' path with an alpha level of 0.05, and a desired power of 0.80. Additionally, a general sample size estimation formula was applied for the survey study to ensure a robust sample size calculation. With a population size of 170,205 and a sample size estimation formula, the required sample size was 384.

$$\text{Sample size} = \frac{N \times Z^2 \times p \times (1-p)}{(N-1) \times E^2 + z^2 \times p \times (1-p)}$$

Here, N is the population size ($N = 170{,}205$), z is the z-value (set at 1.96 for a 95% confidence level), p is the estimated proportion (set at 0.5 for maximum variability), and E is the margin of error (set at 0.05).

This combined approach provided an accurate sample size estimate by integrating mediation analysis requirements and population considerations. Because 384 is larger than 118, 384 was determined to be the required sample size for the present study. Additionally, to accommodate potential non-cooperation and incomplete data from some participants, the method suggested by Salkind (2000) was followed to adjust for the unavailability of participants: sample size (n) = 384 + (384 × 0.5) = 576. Consequently, the present study's total number of distributed surveys was 576, focusing on school-going adolescents in Tehran, Iran.

Measures

Demographic measures

Participants provided information on their age, gender, and family characteristics. Parental characteristics included the father's and mother's age categories and the highest level of education completed. These demographic variables were collected to examine potential associations with the study outcomes.

Delinquency Scale

A scale comprising 31 items was used to assess delinquent behaviors that occurred over the past 12 months among Iranian adolescents. This scale included 15 items adapted from a study by Harris et al. (2006) and 16 newly developed delinquency items developed by the research team based on the delinquent behaviors of Iranian adolescents. The 16 culture-specific items were developed by the research team following a thorough review of Iranian school disciplinary records and Islamic sources. These items were not directly adapted from any existing Western delinquency inventories, thereby ensuring contextual relevance. The new items complemented the 15 items that were adapted from Harris et al. (2006). Sources related to delinquency, such as school discipline reports of blacklisted behaviors committed by students in Iran and Islamic literature, were consulted during the item development process. All scale items were retained and utilized in the present study. Items (e.g., "How often did you get into a serious physical fight?," "How often were you loud, rowdy, or unruly in a public place?", and "How often did you not abide by the rules of Islamic clothing (hejab) for girls and decent appearance for boys?") are rated on a four-point scale, ranging from 1 (not at all) to 4 (5 times or more). The total score was calculated by summing up all the items. A higher total score on the scale indicates greater delinquent behavior. In the present study, the scale demonstrated good internal consistency (Cronbach's alpha = .88).

Inventory of Parent and Peer Attachment

The Inventory of Parent and Peer Attachment (IPPA) (Armsden and Greenberg 1987) was used to assess the perception of the emotional and cognitive aspects of the participants' relationships with their parents. The scale includes three subscales that assess adolescent relationships with their mother, father, and peers. However, only the mother and father subscales were employed in the present study. Each subscale comprises 25 items (e.g., "My mother/father respects my feelings," "I feel my mother/father does a good job as parents", and "I wish I had a different mother/father") rated on a five-point Likert scale, ranging from 1 (almost never or never true) to 5 (almost always or always true). Total scores for these scales were calculated by summing up all 25 items after reversing the scores of negatively worded items within the scale. Higher scores indicate a more secure attachment to the mother and/or father. The IPPA has been recognized as a reliable tool for assessing attachment, with a Cronbach's alpha of .93 (Armsden and Greenberg 1987). In the present study, the subscales demonstrated very good internal consistency (Cronbach's alpha = .89 for maternal attachment and .90 for paternal attachment).

Self-Control Scale

The Self-Control Scale (SCS) (Grasmick et al. 1993) was used to assess self-control. This scale comprises 24 items (e.g., "I often act on the spur of the moment without thinking," "I devote much thought and effort to preparing for the future", and "I often do what brings me pleasure here and now, even at the cost of some distant goal") that are rated on a four-point scale from 1 (strongly disagree) to 4 (strongly agree). The scale is scored by summing up all items, where higher scores indicate greater self-control. In the present study, the scale demonstrated good internal consistency (Cronbach's alpha = .80).

Data analysis

Descriptive statistics were used to categorize participants based on their paternal attachment, maternal attachment, self-control, and delinquency levels. Frequencies and percentages were calculated to determine the distribution of participants at low and high levels for each variable. The results of collinearity statistics showed no problem with multicollinearity. More specifically, all variance inflation factor (VIF) values ranged between 1.04 and 4.76, indicating no evidence of multicollinearity or perfect multicollinearity between the independent variables.

The cutoff values for the variables in this study were determined using the grand mean scores. This method was applied to classify participants into high and low categories for each variable. The obtained grand mean scores served as reference points to distinguish between these levels. This approach aligns with previous research, which suggests that utilizing the mean score as a cutoff value is a valid and practical method, especially when the data exhibit a normal or near-normal distribution (Sayili et al. 2024). Additionally, the use of mean-based cutoffs has been recognized as an effective strategy in cases where established benchmark values are unavailable (Sarkın and Gülleroğlu 2019). By relying on the mean score, this method captures the central tendency of the data and facilitates a balanced classification that reflects the sample's distribution. Because there are no established clinical or normative benchmarks for these constructs among Iranian adolescents, recommended practice was followed by splitting scores using the sample's grand mean (i.e., the overall average score of the entire sample on a given measure), a method shown to yield balanced groupings when distributions are approximately normal (Sarkın and Gülleroğlu 2019; Sayili et al. 2024).

The primary analyses employed multiple linear regression utilizing continuous variables. Standardized coefficients (β) and 95% confidence intervals (CIs) are reported, while the change in R^2 (ΔR^2) indicates effect size. Cutoff scores were utilized exclusively in Table 1 to enhance reader comprehension and to align with previous Iranian studies (Sayili et al. 2024). For the purpose of hypothesis testing, continuous metrics were maintained to preserve variance. Although structural equation modeling (SEM) was considered, it was not used for two reasons: (i) the one-mediator model is just-identified (i.e., there is only one solution for the tested model; here, the fit statistics of this model will be perfect given that $\chi 2$ is 0. Under this condition, it cannot be ascertained if the tested model is a good model), resulting in fit indices of limited utility, and (ii) the ratio of sample size to parameters (N/parameter > 20) means that ordinary least squares (OLS) combined with the Sobel test is statistically equivalent (Hayes 2022). More specifically, the entry method of multiple regression was used to systematically evaluate each variable's contributions. To ensure the validity and robustness of the findings, multicollinearity was assessed using variance inflation factors (VIFs). A VIF threshold of 10 was established to identify potential multicollinearity issues that could distort the results (Gujarati 2003; Sabah, Aljaberi, and Hassan 2025; Seber and Lee 2012).

Moreover, the study utilized a three-step regression analysis and the Sobel test to investigate the mediating role of self-control in the association between paternal and maternal attachment and delinquency. Following Baron and Kenny's (1986) framework, the analysis comprised three main steps: first, examining the relationship between paternal and maternal attachment and self-control; second, assessing the impact of self-control on delinquency; and third, determining whether the inclusion of self-control in the model reduced the effect of

Table 1. Participants' levels of parental attachment, self-control, and delinquency.

Variables	N	%
Paternal attachment ($n = 514$)		
Low ≤85.72	156	30.4
High > 85.73	358	69.6
Maternal attachment ($n = 516$)		
Low ≤88.74	140	27
High > 88.75	376	73
Self-control ($n = 528$)		
Low ≤60.85	74	140
High > 60.86	454	86
Delinquency ($n = 528$)		
Low < 18.67	431	81.6
High > 18.68	97	18.4

paternal and maternal attachment on delinquency (with a beta ratio < 1.0). All regression models controlled for the variables of sex, age, number of siblings, parental education, and survey completion time. These covariates were included in Step 1 of each model prior to the introduction of the primary predictors. The Sobel test was utilized to assess the significance of the mediation effect, offering a comprehensive understanding of how self-control may mediate the relationship between parental attachment and delinquency. This test evaluates whether the product of path a (X → M) and path b (M → Y) is significantly different from zero. A z-score greater than 1.96 indicates significant mediation (Sobel 1982). While bootstrapping is recognized as a more robust method, the Sobel test remains suitable for large sample sizes ($N > 500$) and provides a well-established measure of effect size (Preacher and Hayes 2004).

Results

Participant and family demographic characteristics

Among the 576 invited participants, 528 high school students (63% females and 37% males) completed the survey (response rate 88.3%). The mean age of the present sample was 16.04 years (SD = .80; range from 15 to 17 years). Looking at their family characteristics, most fathers were aged 40–54 years (69.5%), and most mothers were aged under 40 years (63.1%). Educationally, approximately 40% of fathers and 49% of mothers had completed their diploma (high school diploma in Iran).

Parental attachment and delinquency

Based on the sample and distribution of normative data, cutoff scores for parental attachment, self-control, and delinquency are shown in Table 1. For paternal attachment, 69.6% had scores of 85.73 and above (indicating a high level of attachment), and 30.4% had scores of 85.72 and below (indicating a low level of attachment). For maternal attachment, 73% had scores of 88.75 and above (indicating a high level of attachment), and 27% had scores of 88.74 and below (indicating a low level of attachment). For self-control, 86% had scores of 60.86 and above (indicating high self-control), and 14% had scores of 60.85 and below (indicating low self-control). For delinquency, 18.4% had scores of 18.68 and above (indicating high levels of delinquent behavior), and 81.6% had scores of 18.67 and below (indicating low levels of delinquent behavior). These findings suggest a predominantly well-adjusted group of adolescents characterized by strong family bonds, good self-control skills, and low delinquency rates. The high prevalence of strong parental attachment (69.6% paternal, 73% maternal) was accompanied by a low delinquency rate (81.6%) (supporting H_1).

Self-control, parental attachment, and delinquency

A three-step mediation analysis examined whether self-control mediated the relationship between paternal and maternal attachment on delinquency. In the first step, significant models emerged for both paternal attachment ($F[7, 492] = 13.70$, $p < 0.001$) and maternal attachment ($F[7, 489] = 13.49$, $p < 0.001$), with each showing a significant effect on self-control ($p < 0.05$). The second step tested direct effects of parental attachment (paternal/maternal) and covariates (sex, age, number of siblings, parents' education) on delinquency. Both paternal and maternal attachment were independently associated with delinquency ($p < 0.001$) after adjusting for covariates. In the third step, introducing self-control into the model reduced the influence of paternal attachment (beta ratio < 1.0) and maternal attachment (beta ratio < 1.0) on delinquency, indicating partial mediation (Tables 2 and 3). The Sobel test confirmed significant indirect effects for both paternal attachment ($Z = -5.88$, $SE = 0.014$, $p < 0.001$) and maternal attachment ($Z = -5.96$, $SE = 0.014$, $p < 0.001$), demonstrating that self-control partially mediated their relationship with delinquency (partially supporting H_2).

Discussion

The results of the present study demonstrated how parental attachment and self-control are associated with adolescent delinquency. They highlighted the role of both maternal and paternal attachments in potentially mitigating delinquent behaviors, aligning with previous research on the importance of secure parent-child relationships for positive outcomes (Browning, Leventhal, and Brooks-Gunn 2004; Widmer et al. 2023). The findings supported H_1 (i.e., that there would be a negative association between parental attachment and adolescent delinquency). Moreover, the findings also indicated that self-control partially mediated the relationship between parental attachment and delinquent behavior (partially supporting H_2).

The significant role of paternal attachment in the present study's findings warrant particular consideration within the Iranian context. In numerous Iranian families, fathers assume both instrumental (provider) and moral-authority roles. Consequently, warm and engaged fathering conveys a distinct message of acceptance and behavioral guidance, which may enhance adolescents' internal self-control mechanisms. Qualitative research conducted with parents in Tehran highlighted that paternal advice is frequently framed

Table 2. Mediation model testing for self-control as mediator of the effect of paternal attachment on delinquency.

Model and Step		Statistics				
Independent variable	Dependent variable	B	SE	Beta	*t*	R^2
Model 1						.16
Paternal attachment	Self-control	.19	.02	.36	8.58**	
Sex		1.93	.93	.08	2.07**	
Age		.72	.56	.05	1.27	
Number of siblings		−.53	.38	−.05	−1.37	
Mother's education		.06	.37	.01	.15	
Father's education		−.14	.36	−.02	−.40	
Model 2						.23
Paternal attachment	Delinquency	−.30	.03	−.40	−9.94**	
Sex		2.97	1.3	.09	2.29**	
Age		2.30	.79	.112	2.92**	
Number of siblings		.55	.54	.04	1.02	
Mother's education		.41	.52	.04	.78	
Father's education		.95	.50	.10	1.90	
Model 3						.31
Paternal attachment	Delinquency	−.22	.03	−.30	−7.04**	
Sex		3.85	1.23	.12	3.12**	
Age		2.63	.74	.13	3.52**	
Number of siblings		.30	.51	.02	.60	
Mother's education		.44	.49	.04	.88	
Father's education		.88	.47	.09	1.87	
Self-control		−.45	.06	−.31	−7.66**	

**$p \leq .001$.

Table 3. Mediation model testing for self-control as mediator of the effect of maternal attachment on delinquency.

Model and step		Statistics				
Independent variable	Dependent variable	B	SE	Beta	*t*	R^2
Model 1						.16
Maternal attachment	Self-control	.19	.02	.36	8.69**	
Sex		1.93	.92	.09	2.08**	
Age		.45	.56	.03	.80	
Number of siblings		−.53	.38	−.06	−1.40	
Mother's education		−.17	.37	−.02	−.47	
Father's education		.05	.35	.01	.15	
Model 2						.23
Maternal attachment	Delinquency	−.31	.03	−.40	−9.95**	
Sex		2.68	1.29	.08	2.07**	
Age		2.46	.78	.12	3.12**	
Number of siblings		.57	.53	.04	1.07	
Mother's education		.51	.52	.05	.98	
Father's education		.92	.49	.09	1.85	
Model 3						
Maternal attachment	Delinquency	−.22	.03	−.28	−6.955**	.31
Sex		3.58	1.22	.11	2.92**	
Age		2.67	.74	.13	3.59**	
Number of siblings		.32	.50	.02	.63	
Mother's education		.43	.49	.04	.87	
Father's education		.94	.46	.10	2.02**	
Self-control		−.46	.06	−.32	−7.82**	

**$p \leq .001$.

as a means of transmitting religious and cultural norms. Youth interpret such guidance as moral imperatives aimed at avoiding publicly observable misbehaviors, such as fighting or violations of dress codes (Farshi et al. 2018; Rahkar Farshi et al. 2019). Therefore, the present study's findings extend on the predominantly Western evidence – where paternal influences are less consistent – and emphasize the necessity for father-inclusive prevention programs in Middle Eastern contexts.

Notably, the mediating effect of self-control was comparable across both maternal and paternal figures, underscoring its potential central role in the developmental pathway leading to lower adolescent delinquency. This supports Hirschi's (1969) social control theory, which posits that robust social bonds foster conformity and reduce deviance, and aligns with studies associating better parental attachments with increased self-control (Alvarez-Rivera and Fox 2010; Chapple 2005; Cheung and Cheung 2008; Hope and Chapple 2004; Mirandi et al. 2023; Vazsonyi and Belliston 2007).

The study showed that poor paternal attachment was particularly associated with diminished self-control and heightened delinquency, emphasizing the critical role of fathers in adolescent development. This complements prior research focusing on maternal influences (Arbona and Power 2003; Pittman and Chase-Lansdale 2001; Yang, Schlomer, and Lippold 2022). Further research should explore how paternal and maternal attachments affect self-control and delinquency differently. Additionally, age and the intricate relationship between fathers' educational attainment and delinquency suggest that cultural or contextual factors may influence these dynamics (Demuth and Brown 2004).

Overall, the findings reinforce the importance of strong parental bonds and self-control in inhibiting adolescent delinquency. Moreover, they underscore the need for comprehensive strategies involving both parents to foster secure attachments and enhance self-control, offering valuable guidance for future interventions and research to improve youth outcomes.

Implications

The relationship between parental attachment and adolescent delinquency is crucial for developing targeted interventions to foster healthy development and reduce delinquency. The study's implications are significant for parents, counselors, educators, and policymakers. Parents should prioritize building

strong, supportive relationships with their adolescents through effective communication and empathy. Engaging actively with their children and focusing on open dialogue and problem-solving are key to enhancing attachment security and self-control, which helps inhibit the development of delinquent behaviors. Counselors and educators should use insights from the present study to design interventions that improve attachment security and self-control. Evidence-based methods, such as cognitive-behavioral and family systems therapy, can aid adolescents in managing emotional challenges and impulses. School programs promoting positive parenting could also contribute to this effort.

Moreover, the findings can guide the development of preventative programs and policies that support parental education and strengthen secure attachment. Investing in these areas would likely enhance adolescent resilience and contribute to safer communities. Integrating attachment-focused strategies into youth programs may boost the effectiveness of delinquency prevention efforts. The present study highlights the importance of secure parental attachments, effective self-control, and targeted interventions in reducing adolescent delinquency. The findings provide a framework for enhancing development and behavioral outcomes across various sectors.

Limitations and recommendations

The present study provides valuable insights into the association between parental attachment and adolescent delinquency. However, it has several limitations. Firstly, self-report measures may introduce biases such as social desirability and recall bias. Future studies should incorporate various data sources, such as parent reports and objective observations. Secondly, focusing solely on a sample from Tehran may restrict the generalizability of the results to participants from other areas in Iran and other cultural contexts. Research should encompass diverse cultural settings to improve applicability. Thirdly, the cross-sectional design hinders the determination of causal relationships. Longitudinal studies are needed to explore the temporal sequence and bidirectional effects of parental attachment, self-control, and delinquency.

Moreover, the survey did not include a validated peer-delinquency scale, which limited the ability to control for the significant influence of deviant peers. Future research should integrate this construct to differentiate between family and peer pathways (Warr 2002). Additionally, the cross-sectional nature of the data precluded the possibility of ruling out reciprocal relationships, in which low self-control may diminish parental attachment over time (Meldrum et al. 2016). Longitudinal designs employing cross-lagged panel analyses are necessary to examine potential bidirectionality between the studied variables. Lastly, although self-control was examined as a mediator, other factors such as peer influences, socio-economic status, and family dynamics warrant further exploration for a more holistic understanding.

Future research should investigate how cultural contexts affect the relationship between parental attachment, self-control, and adolescent delinquency to deepen the understanding of these dynamics. Additionally, examining the impact of technology and social media on parent-adolescent relationships could show how digital communication influences attachment and delinquency. Finally, longitudinal studies tracking individuals from adolescence to adulthood are needed to assess the long-term effects of parental attachment and self-control on delinquency, well-being, and mental health.

Conclusion

The present study highlights the potential critical influence of parental attachment on adolescent behavior, particularly in relation to delinquency. Strong emotional bonds, effective communication, and parental monitoring are essential in promoting positive development and reducing delinquent tendencies. The research reaffirmed the importance of both maternal and paternal attachment while emphasizing the pivotal role of self-control, which emerged as the primary predictor of delinquency and a mediator in the attachment-delinquency relationship. Additionally, the study points to the increasing susceptibility to delinquent behavior as adolescents age, suggesting the importance of developmental and contextual factors. These findings provide valuable insights for developing

interventions focused on enhancing self-control and strengthening parental attachments to mitigate adolescent delinquency.

Author contributions

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Disclosure statement

No potential conflict of interest was reported by the author(s).

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Data availability statement

The datasets supporting the present study's findings are available from the corresponding author upon reasonable request.

References

Aazami, A., R. Valek, A. N. Ponce, and H. Zare. 2023. "Risk and Protective Factors and Interventions for Reducing Juvenile Delinquency: A Systematic Review." *Social Sciences* 12(9):474. doi:10.3390/socsci12090474.

Abbasi-Shavazi, J. and P. McDonald. 2008. "Family Change in Iran: Religion, Revolution and the State." Pp. 177–98 in *International Family Change: Ideational Perspectives*, 1st ed. edited by R. Jayakody, A. Thornton, and W. G. Axinn. New York: Lawrence Erlbaum Associate, Taylor & Francis Group.

Abhishek, R. and J. Balamurugan. 2024. "Impact of Social Factors Responsible for Juvenile Delinquency - a Literature Review." *Journal of Education and Health Promotion* 13(1): 102. doi: 10.4103/jehp.jehp_786_23.

AlHorany, A. K., H. S. Aishah, J. Rumaya, and M. A. Aljaberi. 2025. "Effectiveness of Integrative Structural Family Therapy and Double ABCX Model on Marital Adjustment and Parenting Stress Among Parents of Children with Autism: Randomized Controlled Trial." *Child & Family Behavior Therapy* 47(1): 1–31. doi: 10.1080/07317107.2024.2395296.

Allen, B. 2023. "Attachment and Clinical Practice with Infants and Young Children: The Field of Infant Mental Health." Pp. 127–51 in *The Science and Clinical Practice of Attachment Theory: A Guide from Infancy to Adulthood*, edited by B. Allen. Washington: American Psychological Association. doi: 10.1037/0000333-007.

Alshammari, A. A. 2017. "*The Role of Socioeconomic Status, Strain, Parental, and Peer Influence on Delinquency Among African-American Youth*. Doctoral dissertation, Howard University, ProQuest Dissertations & Theses Global, (WA), (DC), the U.S

Alvarez-Rivera, L. L. and K. A. Fox. 2010. "Institutional Attachments and self-Control: Understanding Deviance Among Hispanic Adolescents." *Journal of Criminal Justice* 38(4):666–74. doi:10.1016/j.jcrimjus.2010.04.040.

Arbona, C. and T. G. Power. 2003. "Parental Attachment, self-Esteem, and Antisocial Behaviors Among African American, European American, and Mexican American Adolescents." *Journal of Counseling Psychology* 50 (1):40–51. doi:10.1037/0022-0167.50.1.40.

Armsden, G. C. and M. T. Greenberg. 1987. "The Inventory of Parent and Peer Attachment: Individual Differences and Their Relationship to Psychological well-Being in Adolescence." *Journal of Youth and Adolescence* 16(5):427–54. doi:10.1007/BF02202939.

Aslan, M., V. Rosinaite, and L. Khojanashvili. 2019. "Social Control Theory Variables in Conceptualizing Bonding Models of Attachment Theory and Adolescent Development." *Academic Journal of Interdisciplinary Studies* 8 (2):199–207. doi:10.2478/ajis-2019-0031.

Baron, R. M. and D. A. Kenny. 1986. "The moderator–Mediator Variable Distinction in Social Psychological Research: Conceptual, Strategic, and Statistical Considerations." *Journal of Personality and Social Psychology* 51(6):1173–82. doi:10.1037/0022-3514.51.6.1173.

Berk, L. E. 2013. *Child Development*. London: Pearson.

Bowlby, J. 1988. *A Secure Base: Parent-Child Attachment and Healthy Human Development*. New York: Basic Books.
Browning, C. R., T. Leventhal, and J. Brooks-Gunn. 2004. "Neighborhood Context and Racial Differences in Early Adolescent Sexual Activity." *Demography* 41(4):697–720. doi:10.1353/dem.2004.0029.
Burt, C. H. 2020. "Self-Control and Crime: Beyond Gottfredson and Hirschi's Theory." *Annual Review of Criminology* 3 (1): 43–73. doi: 10.1146/annurev-criminol-011419-041344.
Burt, C. H., R. L. Simons, and L. G. Simons. 2006. "A Longitudinal Test of the Effects of Parenting and the Stability of Self-Control: Negative Evidence for the General Theory of Crime." *Criminology an Interdisciplinary Journal* 44 (2):353–96. doi:10.1111/j.1745-9125.2006.00052.x.
Chapple, C. L. 2005. "self-Control, Peer Relations, and Delinquency." *Justice Quarterly* 22(1):89–106. doi:10.1080/07418820420000333654.
Cheung, N. W. and Y. W. Cheung. 2008. "Self-Control, Social Factors, and Delinquency: A Test of the General Theory of Crime Among Adolescents in Hong Kong." *Journal of Youth and Adolescence* 37(4): 412–30. doi: 10.1007/s10964-007-9218-y.
Cheung, S. and C.-C. Huang. 2024. "Adolescent Delinquency: The Role of Early Childhood Exposure to Intimate Partner Violence." *Family Relations* 73(2):874–90. doi:10.1111/fare.12949.
Demuth, S. and S. L. Brown. 2004. "Family Structure, Family Processes, and Adolescent Delinquency: The Significance of Parental Absence versus Parental Gender." *Journal of Research in Crime and Delinquency* 41(1):58–81. doi:10.1177/0022427803256236.
Esmaeili, N. S., S. N. Yaacob, and R. Juhari. 2012. "Family Predictors of Delinquency Among Male Adolescents of Divorced Families in Mashhad, Iran." *Archives Des Sciences* 65(11): 46–54. doi: 10.5539/ass.v9n11P41.
Fairbairn, C. E., D. A. Briley, D. Kang, R. C. Fraley, B. L. Hankin, and T. Ariss. 2018. "A meta-Analysis of Longitudinal Associations Between Substance Use and Interpersonal Attachment Security." *Psychological Bulletin* 144(5):532–55. doi:10.1037/bul0000141.
Farshi, M. R., L. Valizadeh, V. Zamanzadeh, M. Rassouli, V. Lopez, and M. Cleary. 2018. "Perceptions of Iranian Parents Towards the Paternal Role in Raising Adolescent Children." *Nursing & Health Sciences* 20(4): 479–85. doi: 10.1111/nhs.12538.
Fatemi, D., A. Rahimi, M. Saadati, and M. Abbaszadeh. 2016. "The Survey of family's Role in Delinquency of Teenagers (Case Study: Zanjan city's Teenagers)." *Strategic Research on Social Problems* 5(3): 35–50. doi: 10.22108/ssoss.2016.20960.
Gibbs, J. J., D. Giever, and J. S. Martin. 1998. "Parental Management and self-Control: An Empirical Test of Gottfredson and Hirschi's General Theory." *Journal of Research in Crime and Delinquency* 35(1):40–70. doi:10.1177/0022427898035001002.
Gottfredson, M. R. and T. Hirschi. 1990. *A General Theory of Crime*. Redwood City, California: Stanford University Press.
Grasmick, H. G., C. R. Tittle, R. J. Bursik Jr, and B. J. Arneklev. 1993. "Testing the Core Empirical Implications of Gottfredson and Hirschi's General Theory of Crime." *Journal of Research in Crime and Delinquency* 30(1):5–29. doi:10.1177/0022427893030001002.
Gujarati, D. 2003. *Basic Econometrics*. New York: McGraw-Hill.
Hamme Peterson, C., T. J. Buser, and N. G. Westburg. 2010. "Effects of Familial Attachment, Social Support, Involvement, and self-Esteem on Youth Substance Use and Sexual Risk Taking." *The Family Journal* 18(4):369–76. doi:10.1177/1066480710380546.
Harris, K. M., C. T. Halpern, A. Smolen, and B. C. Haberstick. 2006. "The National Longitudinal Study of Adolescent Health (add Health) Twin Data." *Twin Research and Human Genetics* 9(6): 988–97. doi: 10.1375/twin.9.6.988.
Hawkins, J. D. and J. G. Weis. 2017. "The Social Development Model: An Integrated Approach to Delinquency Prevention." Pp. 3–27 in *Developmental and Life-Course Criminological Theories*, edited by T. R. McGee and P. Mazerolle. London: Routledge. doi: 10.4324/9781315094908.
Hay, C. 2001. "Parenting, Self-Control, and Delinquency: A Test of Self-Control Theory." *Criminology* 39(3):707–36. doi:10.1111/j.1745-9125.2001.tb00938.x.
Hayes, A. F. 2022. *Introduction to Mediation, Moderation, and Conditional Process Analysis: A Regression-Based Approch*. 3rd ed. New York: Guilford Press.
Higgins, G. E., W. G. Jennings, and M. Mahoney. 2010. "Developmental Trajectories of Maternal and Paternal Attachment and Delinquency in Adolescence." *Deviant Behavior* 31(7):655–77. doi:10.1080/01639620903415851.
Hirschi, T. 1969. *Causes of Delinquency*. Oakland, California: University of California Press.
Hirschi, T. 2004. "Self-Control and Crime." Pp. 537–52 in *Handbook of Self-Regulation: Research, Theory, and Applications*, edited by R. F. Baumeister and K. D. Vohs. New York: The Guilford Press.
Hoeve, M., J. S. Dubas, V. I. Eichelsheim, P. H. van der Laan, W. Smeenk, and J. R. M. Gerris. 2009. "The Relationship Between Parenting and Delinquency: A Meta-Analysis." *Journal of Abnormal Child Psychology* 37(6): 749–75. doi: 10.1007/s10802-009-9310-8.
Hoeve, M., G. J. J. M. Stams, C. E. van der Put, J. S. Dubas, P. H. van der Laan, and J. R. M. Gerris. 2012. "A Meta-Analysis of Attachment to Parents and Delinquency." *Journal of Abnormal Child Psychology* 40(5): 771–85. doi: 10.1007/s10802-011-9608-1.

Hoffmann, J. P. 2023. "Family Structure, Unstructured Socializing, and Delinquent Behavior." *Journal of Criminal Justice* 87: 102086. doi: 10.1016/j.jcrimjus.2023.102086.
Hope, T. and C. Chapple. 2004. "Maternal Characteristics, Parenting, and Adolescent Sexual Behavior: The Role of Self-Control." *Deviant Behavior* 26(1): 25–45. doi: 10.1080/016396290500405.
Janssen, H. J., V. I. Eichelsheim, M. Deković, and G. J. N. Bruinsma. 2016. "How is Parenting Related to Adolescent Delinquency? A Between- and Within-Person Analysis of the Mediating Role of Self-Control, Delinquent Attitudes, Peer Delinquency, and Time Spent in Criminogenic Settings." *European Journal of Criminology* 13(2): 169–94. doi: 10.1177/1477370815608881.
Jo, Y. and Y. Zhang. 2014. "Parenting, self-Control, and Delinquency: Examining the Applicability of Gottfredson and Hirschi's General Theory of Crime to South Korean Youth." *International Journal of Offender Therapy and Comparative Criminology* 58(11):1340–63. doi:10.1177/0306624X13494670.
Juffer, F., M. J. Bakermans-Kranenburg, and M. H. Van IJzendoorn. 2023. *Promoting Positive Parenting: An Attachment-Based Intervention*. Oxfordshire: Taylor & Francis.
Kennedy, T. D., D. Detullio, and D. H. Millen. 2020. "Risk and Protective Factors for Delinquency." Pp. 47–81 in *Juvenile Delinquency*, edited by T. D. Kennedy, D. Detullio, and D. H. Millen. Cham, Switzerland: Springer. doi: 10.1007/978-3-030-38250-6_3.
Kochanska, G. and N. Aksan 1995. "Mother-Child Mutually Positive Affect, the Quality of Child Compliance to Requests and Prohibitions, and Maternal Control as Correlates of Early Internalization." *Child Development* 66(1): 236–54.
Li, J.-B., Y. E. Willems, F. M. Stok, M. Deković, M. Bartels, and C. Finkenauer. 2019. "Parenting and self-Control Across Early to Late Adolescence: A three-Level meta-Analysis." *Perspectives on Psychological Science* 14(6):967–1005. doi:10.1177/1745691619863046.
Liu, L. and S. L. Miller. 2020. "Protective Factors Against Juvenile Delinquency: Exploring Gender with a Nationally Representative Sample of Youth." *Social Science Research* 86: 102376. doi: 10.1016/j.ssresearch.2019.102376.
Loeber, R. and M. Stouthamer-Loeber. 1986. "Family Factors as Correlates and Predictors of Juvenile Conduct Problems and Delinquency." *Crime and Justice* 7: 29–149. doi: 10.1086/449112.
Love, H., R. W. May, M. Cui, and F. D. Fincham. 2020. "Helicopter Parenting, self-Control, and School Burnout Among Emerging Adults." *Journal of Child and Family Studies* 29(2):327–37. doi:10.1007/s10826-019-01560-z.
Meldrum, R. C., H. V. Miller, and J. L. FlexonL. 2013. "Susceptibility to Peer Influence, Self-Control, and Delinquency." *Sociological Inquiry* 83(1): 106–29. doi: 10.1111/j.1475-682x.2012.00434.x.
Meldrum, R. C., M. Verhoeven, M. Junger, M. A. G. van Aken, and M. Deković. 2016. "Parental Self-Control and the Development of Male Aggression in Early Childhood: A Longitudinal Test of Self-Control Theory." *International Journal of Offender Therapy and Comparative Criminology* 62(4): 935–57. doi: 10.1177/0306624X16662921.
Mikulincer, M. and P. R. Shaver. 2019. *Attachment in Adulthood: Structure, Dynamics, and Change*. 2nd ed. New York: Guilford Press.
Mirandi, M., A. Lis, C. Mazzeschi, J.-B. Li, L. P. Salmi, and E. Delvecchio. 2023. "Flourishing and self-Control in Adolescence: The Role of Perceived Parenting." *International Journal of Environmental Research and Public Health* 20 (16):6568. doi:10.3390/ijerph20166568.
Mohebbi, M., M. Mirnasab, and J. Wiener. 2016. "Parental and School Bonding in Iranian Adolescent Perpetrators and Victims of Bullying." *School Psychology International* 37(6):583–605. doi:10.1177/0143034316671989.
Moreira, D., D. S. Moreira, F. Barbosa, V. Sousa-Gomes, and M. Fávero. 2022. "Childhood Traumatic Experiences and Psychopathy: A Comprehensive Review." *Psychological Trauma: Theory, Research, Practice, & Policy* 14(8): 1281–87. doi: 10.1037/tra0001191.
Muftić, L. R. and A. H. Updegrove. 2018. "The Mediating Effect of self-Control on Parenting and Delinquency: A Gendered Approach with a Multinational Sample." *International Journal of Offender Therapy and Comparative Criminology* 62(10):3058–76. doi:10.1177/0306624x17725732.
Mwangangi, R. K. 2019. "The Role of Family in Dealing with Juvenile Delinquency." *Open Journal of Social Sciences* 7 (3):52–63. doi:10.4236/jss.2019.73004.
Nelson, A., E. O. Ayodeji, and C. A. Ologun. 2024. "Quality of Parenting and Juvenile Delinquency." *World Journal of Advanced Research & Reviews* 23(1): 2425–34. doi: 10.30574/wjarr.2024.23.1.2226.
Pittman, L. D. and P. L. Chase-Lansdale. 2001. "African American Adolescent Girls in Impoverished Communities: Parenting Style and Adolescent Outcomes." *Journal of Research on Adolescence* 11(2):199–224. doi:10.1111/1532-7795.00010.
Pratt, T. C. and F. T. Cullen. 2000. "The Empirical Status of Gottfredson and Hirschi's General Theory of Crime: A Meta-Analysis." *Criminology* 38: 931–64. doi: 10.1111/j.1745-9125.2000.tb00911.x.
Preacher, K. J. and A. F. Hayes. 2004. "SPSS and SAS Procedures for Estimating Indirect Effects in Simple Mediation Models." *Behavior Research Methods, Instruments, & Computers* 36(4): 717–31. doi: 10.3758/BF03206553.
Rahkar Farshi, M., L. Valizadeh, V. Zamanzadeh, M. Rassouli, D. Lees, V. Lopez, and M. Cleary. 2019. "A Qualitative Study of Iranian parents' Experiences of Interacting with Their Adolescent Children." *Journal of Transcultural Nursing* 30(6):569–75. doi:10.1177/1043659618823916.
Rana, M. and D. Malhotra 2005. "Family Environment as a Predictor of Aggressive Behavior." *Studia psychologica* 47(1): 61.

Rankin, B. H. and J. M. Quane. 2002. "Social Contexts and Urban Adolescent Outcomes: The Interrelated Effects of Neighborhoods, Families, and Peers on African-American Youth." *Social Problems* 49(1):79–100. doi:10.1525/sp.2002.49.1.79.

Sabah, A. and A. Alduais. 2024. "Intersections of Family Expressiveness and Adolescent Mental Health: Exploring Parent–Adolescent Relationships as a Mediator." *Mental Health and Social Inclusion*. Advance online publication. 29 (3): 246–58. doi: 10.1108/MHSI-06-2024-0104.

Sabah, A., M. A. Aljaberi, J. Hajji, C.-Y. Fang, Y.-C. Lai, and C.-Y. Lin. 2023. "Family Communication as a Mediator Between Family Resilience and Family Functioning Under the Quarantine and COVID-19 Pandemic in Arabic Countries." *Children* 10(11):1742. doi:10.3390/children10111742.

Sabah, A., M. A. Aljaberi, and S. A. Hassan. 2025. "Examining Benign and Malicious Envy and Flourishing Among Muslim University Students in Algeria: A Quantitative Study." *Social Sciences & Humanities Open* 11: 101293. doi: 10.1016/j.ssaho.2025.101293.

Sabah, A., M. A. Aljaberi, K.-H. Lee, and C.-Y. Lin. 2023. "Psychometric Properties of the Perceived Collective Family Efficacy Scale in Algeria." *Healthcare* 11(19):2691. doi:10.3390/healthcare11192691.

Sabah, A., O. Khalaf Rashid al-Shujairi, and S. Boumediene. 2021. "The Arabic Version of the Walsh Family Resilience Questionnaire: Confirmatory Factor Analysis of a Family Resilience Assessment Among Algerian and Iraq Families." *International Journal of Systemic Therapy* 32(4):273–90. doi:10.1080/2692398X.2021.1960117.

Salkind, N. J. 2000. *Exploring Research*. Fourth ed. Upper Saddle River: Prentice Hall.

Sarkın, D. B. Ş. and H. D. Gülleroğlu. 2019. "Anxiety in Prospective Teachers: Determining the Cut-Off Score with Different Methods in Multi-Scoring Scales." *Educational Sciences: Theory & Practice* 19(1): 3–21. doi: 10.12738/estp.2019.1.0116.

Sayili, U., E. Siddikoglu, D. Turgut, H. E. Arisli, B. Ceyhan, M. G. Gunver, S. O. Yildiz, E. Yurtseven, and E. Erginoz. 2024. "Does Categorizing Scale Scores with Cutoff Points Affect Hypothesis-Testing Results?" *Discover Mental Health* 4(1):14. doi:10.1007/s44192-024-00067-4.

Schoemann, A. M., A. J. Boulton, and S. D. Short 2017. "Determining Power and Sample Size for Simple and Complex Mediation Models." *Social Psychological & Personality Science* 8(4): 379–86. doi: 10.1177/1948550617715068.

Seber, G. A. and A. J. Lee. 2012. *Linear Regression Analysis*. Hoboken, New Jersey, United States: John Wiley & Sons.

Shahraki, G., Z. Sedaghat, and M. Fararouei. 2019. "Family and Social Predictors of Substance Use Disorder in Iran: A Case-Control Study." *Substance Abuse Treatment, Prevention, and Policy* 14(1): 1–8. doi: 10.1186/s13011-019-0201-x.

Sobel, M. E. 1982. "Asymptotic Confidence Intervals for Indirect Effects in Structural Equation Models." *Sociological Methodology* 13: 290–312. doi: 10.2307/270723.

Thompson, S. K. 2012. *Sampling*. 3rd ed. Hoboken, New Jersey, United States: Wiley.

Unnever, J. D., F. T. Cullen, and T. C. Pratt. 2003. "Parental Management, ADHD, and Delinquent Involvement: Reassessing Gottfredson and Hirschi's General Theory." *Justice Quarterly* 20(3):471–500. doi:10.1080/07418820300095591.

Van Ijzendoorn, M. H., C. Schuengel, Q. Wang, and M. J. Bakermans-Kranenburg. 2023. "Improving Parenting, Child Attachment, and Externalizing Behaviors: Meta-Analysis of the First 25 Randomized Controlled Trials on the Effects of video-Feedback Intervention to Promote Positive Parenting and Sensitive Discipline." *Development and Psychopathology* 35(1):241–56. doi:10.1017/S0954579421001462.

Vazsonyi, A. T. and L. M. Belliston. 2007. "The Family → Low self-Control → Deviance: A cross-Cultural and cross-National Test of self-Control Theory." *Criminal Justice and Behavior* 34(4):505–30. doi:10.1177/0093854806292299 .

Vazsonyi, A. T. and L. Huang. 2010. "Where Self-Control Comes From: On the Development of Self-Control and Its Relationship to Deviance Over Time." *Developmental Psychology* 46(1):245–57. doi:10.1037/a0016538.

Warr, M. 2002. *Companions in Crime: The Social Aspects of Criminal Conduct*. Cambridge, UK: Cambridge University Press. doi: 10.1017/CBO9780511803956.

Widmer, A., M. Havewala, J. C. Bowker, and K. H. Rubin. 2023. "Secure Attachment Relationships with Mothers, but Not Fathers, Moderate the Relation Between attention-Deficit Hyperactivity Symptoms and Delinquency in Adolescents." *Journal of Attention Disorders* 27(1):46–56. doi:10.1177/10870547221120694.

World Health Organization. 2015. *Preventing Youth Violence: An Overview of the Evidence*. Geneva, Switzerland: World Health Organization.

Yang, P., G. Schlomer, and M. Lippold. 2022. "Mothering versus Fathering? Positive Parenting versus Negative Parenting? Their Relative Importance in Predicting Adolescent Aggressive Behavior: A Longitudinal Comparison." *Developmental Psychology* 59(1): 69–83. doi: 10.1037/dev0001442.

Zegers, M. A. M., C. Schuengel, M. H. van IJzendoorn, and J. M. A. M. Janssens. 2006. "Attachment Representations of Institutionalized Adolescents and Their Professional Caregivers: Predicting the Development of Therapeutic Relationships." *American Journal of Orthopsychiatry* 76(3): 325–34. doi: 10.1037/0002-9432.76.3.325.