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The Relationship Between Childhood Trauma and Antisocial Behavior in Young Adulthood in Peshawar, Pakistan



Ahmed Sultan Tajik Department of Psychology, University Of Peshawar, Peshawar.

Bakht Jamal Department of Psychology, University Of Peshawar, Peshawar.

Dr.Saima Arzeen
(Correspondence & Supervisor) Department of Psychology, University Of Peshawar, Peshawar.
saimaarzeenmehar@uop.edu.pk

Abstract: *Objective:* Childhood trauma is a well-established risk factor for adverse psychological outcomes, yet its relationship with antisocial behavior remains underexplored in non-Western, collectivist contexts such as Pakistan. This study examined the association between childhood trauma and antisocial behavior among young individuals aged 16–25 years in Peshawar, Khyber Pakhtunkhwa, Pakistan. A cross-sectional, correlational design was employed. A convenience sample of 200 participants (78.5% female; mean age = 20.4 years, SD = 2.7) was recruited from the University of Peshawar and the general population. Participants completed the Childhood Trauma Questionnaire–Short Form (CTQ-SF; $\alpha = .84$) and the Antisocial Behavior Scale for Adults (ABS-A; $\alpha = .86$). Pearson product–moment correlation revealed a statistically significant positive correlation between childhood trauma and antisocial behavior, $r(198) = .30$, $p < .01$, indicating that higher levels of childhood trauma were associated with higher levels of antisocial tendencies (small-to-moderate effect). Moderation analyses using PROCESS Macro (Model 1) found that gender, age, and family structure did not significantly moderate this relationship ($ps = .540, .644$, and $.427$ respectively). The findings extend Attachment Theory, Social Learning Theory, and General Strain Theory to a South Asian conflict-affected context. The study contributes original empirical evidence from an under-researched region and underscores trauma-informed interventions in educational and community settings. Limitations include cross-sectional design, self-report measures, uneven gender distribution, and limited generalizability.

Keywords: Childhood Trauma, Antisocial Behavior, Adverse Childhood Experiences, Young Adults, Pakistan, Trauma-Informed Care, Moderation Analysis

Introduction

Background of the Study

Mental health has emerged as a critical global public health priority, yet its burden falls disproportionately on low- and middle-income countries (LMICs) where mental health resources are severely limited (World Health Organization [WHO], 2022). Among

the myriad factors that shape psychological development across the lifespan, childhood trauma stands as one of the most potent and enduring determinants of maladaptive outcomes. The early years of life represent a sensitive period during which the brain undergoes rapid development, particularly in regions responsible for emotional regulation,

impulse control, and social cognition—namely the prefrontal cortex, amygdala, and hippocampus (Teicher et al., 2016). Disruptions to this developmental trajectory, resulting from exposure to adverse experiences such as abuse, neglect, or household dysfunction, can have cascading effects that extend far beyond childhood, influencing mental health, interpersonal relationships, and behavioral patterns well into adolescence and adulthood (Shonkoff et al., 2012).

Globally, childhood trauma is recognized as a universal public health challenge. The WHO (2022) defines child maltreatment as physical, sexual, and emotional abuse as well as physical and emotional neglect. Meta-analytic evidence indicates that approximately 12.7% of children globally experience sexual abuse, 22.6% experience physical abuse, and 36.3% experience emotional abuse (Stoltenborgh et al., 2015). However, these figures likely underestimate true prevalence due to widespread underreporting, particularly in cultures where harsh parenting practices are normalized or where stigma prevents disclosure (Moody et al., 2018). Despite this alarming global prevalence, the vast majority of research on childhood trauma has been conducted in Western, educated, industrialized, rich, and democratic (WEIRD) populations (Henrich et al., 2010), leaving a critical gap in understanding how trauma manifests and influences behavior in non-Western, collectivist cultural contexts.

Within Pakistan, the problem of childhood trauma is both pervasive and severely understudied. A landmark national study by Karmaliani et al. (2017) found that 56% of school-going children in urban Pakistan experienced some form of abuse, with emotional abuse being the most prevalent (48%), followed by physical abuse (38%) and sexual abuse (9%). More recent research by Lakhdar et al. (2021), surveying adolescents in Karachi, found that 68% reported at least one

form of childhood maltreatment, with significant associations with poor mental health outcomes. In Khyber Pakhtunkhwa province, where the present study is situated, the prevalence is likely even higher due to decades of sociopolitical instability, conflict, and displacement (Saeed et al., 2020). The region experienced over 46,000 civilian and security forces casualties between 2005 and 2022 (South Asia Terrorism Portal, 2023), exposing an entire generation to cumulative trauma. The Army Public School massacre in Peshawar in 2014 resulted in post-traumatic stress disorder (PTSD) prevalence rates of 75% among surviving children (Khan et al., 2018). Despite this humanitarian crisis, Pakistan has fewer than 500 psychiatrists for a population of 249 million, and less than 1% of the health budget is allocated to mental health (WHO, 2020), making research that can inform culturally appropriate, low-cost interventions a matter of urgent necessity.

Theoretical Framework

The link between childhood trauma and antisocial behavior is grounded in multiple established frameworks.

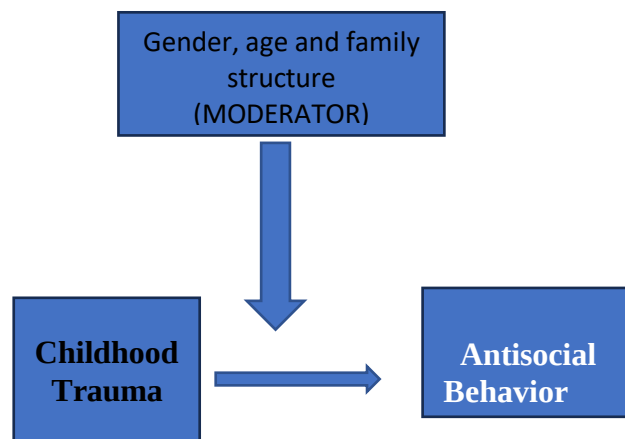
1. **Attachment Theory** (Bowlby, 1969) posits that early caregiving shapes internal working models of self and others. Abuse or neglect leads to insecure attachment, fear, mistrust, and hostility, increasing antisocial responses (Crittenden, 2017). A meta-analysis by Fearon et al. (2010) confirmed that insecure attachment mediates the maltreatment–externalizing problems relationship.
2. **Social Learning Theory** (Bandura, 1977) proposes that children learn behaviors through observation and imitation. In traumatic environments, aggression is internalized as normative. Longitudinal studies support this modeling hypothesis (Dodge et al., 2009).

3. **General Strain Theory** (Agnew, 1992) suggests that negative life events generate anger and frustration. When coping resources are inadequate, these emotions may be expressed as deviance. Childhood trauma represents a potent, chronic strain (Agnew, 2016). A recent meta-analysis by Thurston et al. (2025) found that adverse childhood experiences significantly predict adult mental ill-health, with location as a significant moderator, highlighting the need for non-Western research.
4. **Trauma Theory** (van der Kolk, 2014; Teicher et al., 2016) emphasizes neurobiological alterations in brain structure and function affecting emotion regulation and impulse control. Recent research shows that vulnerability schemas and post-traumatic stress symptoms mediate the maltreatment–aggression link (McRae et al., 2024).

The Present Study

Despite the substantial body of international research linking childhood trauma to antisocial behavior, and despite the high prevalence of trauma in Pakistan, no known study has systematically examined this relationship in Khyber Pakhtunkhwa, particularly in Peshawar—a region with unique conflict-related trauma exposure. A recent systematic review by Thurston et al. (2025) of 62 longitudinal studies on adverse childhood experiences and adult mental health found that 95% originated from high-income countries, with no studies from lower-middle or low-income countries including Pakistan. The present study directly addresses this gap by providing the first empirical investigation of the childhood trauma–antisocial behavior relationship in Peshawar, Pakistan, testing established theoretical frameworks in a non-Western, collectivist, conflict-affected cultural context.

Conceptual model of study:



Method

Objectives

1. To evaluate the internal consistency reliability of the CTQ-SF and ABS-A in a Pakistani sample.
2. To examine the bivariate correlation between childhood trauma and antisocial behavior.
3. To explore whether gender, age, or family structure moderate this relationship (exploratory).

Hypotheses

- **H1:** There is a positive correlation between childhood trauma and antisocial behavior.
- **H2:** The correlation will be statistically significant at $*p* < .05$.
- **H3 (Exploratory):** Exploratory analyses will examine whether gender, age, or family structure moderate the relationship between childhood trauma and antisocial behavior. No directional predictions are made due to mixed prior evidence in non-Western contexts.

Research Design

The present study employed a cross-sectional, predictive correlational research design. This

design was selected because the study aimed to examine whether childhood trauma scores predict antisocial behavior scores without manipulating any variables. A cross-sectional approach—collecting data at a single point in time—was appropriate given the descriptive and associative nature of the research questions, the exploratory status of the research in the Pakistani context, and practical resource constraints (Creswell & Creswell, 2018). While correlational designs cannot establish causality, they are valuable for identifying relationships that can be tested more rigorously in future longitudinal research.

Participants

The sample consisted of 200 participants recruited from the University of Peshawar and the general population of Peshawar city, Khyber Pakhtunkhwa, Pakistan. Inclusion criteria were: (a) age between 16 and 25 years, (b) ability to read and understand Urdu or English (questionnaires were available in English; researchers provided verbal clarification in Urdu and Pashto as needed), and (c) willingness to provide written or electronic informed consent. Exclusion criteria were: (a) current diagnosis of a psychotic disorder (self-reported), (b) severe intellectual disability, and (c) intoxication at the time of participation.

The final sample ($N = 200$) had a mean age of 20.4 years ($SD = 2.7$). The sample consisted predominantly of female participants ($n^* = 157$, 78.5%), with male participants comprising 21.5% ($n^* = 43$). In terms of educational attainment, the majority were enrolled in bachelor's degree programs ($n^* = 139$, 69.5%), followed by FSc/intermediate students ($n^* = 60$, 30.0%). Regarding family structure, most participants came from nuclear families ($n^* = 150$, 75.0%), whereas 25.0% ($n^* = 50$) came from joint family systems.

Sampling Technique

A convenience sampling technique was used. Participants were approached through three channels: (a) university networks at the University of Peshawar, (b) social media platforms (WhatsApp and Facebook), and (c) personal contacts within Peshawar city. Although convenience sampling limits generalizability, it is widely used in psychological research, particularly in initial investigations of under-researched populations.

Instruments

Childhood Trauma Questionnaire–Short Form (CTQ-SF). The CTQ-SF (Bernstein et al., 2003) is a 28-item self-report measure designed to retrospectively assess five dimensions of childhood trauma: emotional abuse, physical abuse, sexual abuse, emotional neglect, and physical neglect. Each item is rated on a 5-point Likert scale ranging from 1 (*Never True*) to 5 (*Very Often True*). The CTQ-SF yields a total trauma score (range 25–125). The scale has demonstrated excellent psychometric properties internationally (Bernstein et al., 2003). In the present study, the CTQ-SF was administered in English, with verbal translation in Urdu and Pashto as needed. Internal consistency was good (Cronbach's $\alpha = .84$).

Antisocial Behavior Scale for Adults (ABS-A). The ABS-A is a 13-item self-report measure adapted from Tremblay et al. (1995). The scale assesses the frequency of various antisocial behaviors over the past year, including physical aggression, property offenses, theft, deception, substance-related offenses, and reckless behavior. Each item is rated on a 4-point frequency scale: 0 (*Never*) to 3 (*Often*). Total scores range from 0 to 39. Minor wording modifications were made for cultural appropriateness. Internal consistency was good (Cronbach's $\alpha = .86$).

Procedure

Data collection occurred over six weeks from March to April 2024. Formal permission was

obtained from the Department of Psychology, University of Peshawar (Protocol No.: PSY/UOP/2024/021). For paper-pencil administration, researchers visited undergraduate classes, explained the study purpose, and obtained written informed consent. Questionnaires took approximately 15–20 minutes to complete. For online administration, a digital version was shared via Google Forms. In total, 240 questionnaires were distributed; 200 complete and valid questionnaires remained (83.3% response rate).

Data were analyzed using IBM SPSS Statistics Version 26.0 and Hayes' PROCESS Macro for moderation analyses. Prior to main analyses, data were screened for missing values, outliers, and violations of statistical assumptions. Missing data were minimal (<2% per variable) and were missing completely at random (Little's MCAR test: $\chi^2 = 23.45$, $df = 28$, $*p* = .71$). No univariate outliers were detected. Skewness and kurtosis for both CTQ and ABS totals were within acceptable ranges (CTQ skewness = 0.43, kurtosis = -0.21; ABS skewness = 0.87, kurtosis = 0.15). The primary hypothesis was tested using a Pearson product-moment correlation. Moderation analyses used PROCESS Macro (Model 1) with 5,000 bootstrap resamples. Age was mean-centered prior to analysis. An alpha level of .05 was used for all tests.

Results

Descriptive Statistics and Demographic Characteristics

Table 1 presents the demographic characteristics of the final sample. The mean age was 20.4 years ($SD = 2.7$). The sample was predominantly female (78.5%) and highly educated (69.5% bachelor's students). Most participants came from nuclear families (75.0%).

Table 1 *Demographic Characteristics of the Sample (N = 200)*

Variable		*n*	%
Gender	Male	43	21.5
	Female	157	78.5
Education	Matriculation	1	0.5
	FSc/Intermediate	60	30.0
	Bachelor's	139	69.5
Family Structure	Nuclear	150	75.0
	Joint	50	25.0

Note. Mean age = 20.4 years ($SD = 2.7$).

Psychometric Properties

The CTQ-SF demonstrated good internal consistency (Cronbach's $\alpha = .84$). Subscale alphas ranged from .71 (physical neglect) to .88 (sexual abuse). The ABS-A also demonstrated good internal consistency (Cronbach's $\alpha = .86$). The mean total CTQ score was 66.18 ($SD = 10.24$), and the mean total ABS score was 8.82 ($SD = 7.66$), indicating relatively low levels of self-reported antisocial behavior in this community sample.

Primary Analysis: Correlation Between Childhood Trauma and Antisocial Behavior

Table 2 presents the Pearson correlation between CTQ-SF and ABS-A total scores. As hypothesized (H1 and H2), there was a statistically significant positive correlation between childhood trauma and antisocial behavior, $*r*(198) = .30$, $*p* < .01$ (two-tailed). This medium effect size (Cohen, 1988) indicates that participants who reported higher levels of childhood trauma also tended to report higher levels of antisocial behavior. Childhood trauma scores accounted for approximately 9% of the variance in antisocial behavior scores ($r^2 = .09$).

Table 2 *Pearson Correlation between CTQ-SF and ABS-A Scores (N = 200)*

Measure	1	2
1. CTQ-SF Total	—	.304**
2. ABS-A Total	.304**	—

Note. CTQ-SF = Childhood Trauma Questionnaire–Short Form; ABS-A = Antisocial Behavior Scale for Adults. ** $*p < .01$ (two-tailed). $df = 198$. $*r^* = .30$. $r^2 = .09$.

Table 3 Psychometric properties of ABS

Scale	No of Items	<i>M</i>
CTQ	28	66.18
ABS	13	8.82

Note. ABS = Antisocial behavior Scale

Table 3 presents the psychometric properties of the Childhood Trauma Questionnaire (CTQ) and the Antisocial Behavior Scale (ABS). The CTQ consists of 28 items, yielding a mean score of 66.18 ($SD = 10.24$) and demonstrating good internal consistency reliability, as indicated by a Cronbach's alpha coefficient of .84. The ABS consists of 13 items, with a mean score of 8.82 ($SD = 7.66$) and also demonstrated good internal consistency reliability, reflected by a Cronbach's alpha of .86.

Moderation Analyses

To test whether the relationship between childhood trauma and antisocial behavior differed across demographic subgroups (H3, exploratory), we conducted moderation analyses using Hayes' PROCESS Macro (Model 1). Separate models tested gender (male = 0, female = 1), age (mean-

centered), and family structure (nuclear = 0, joint = 1) as moderators.

Table 4 Moderation Analyses for the Relationship Between Childhood Trauma and Antisocial Behavior ($N = 200$)

Moderator	<i>F</i> (<i>df</i>)	* <i>p</i> * (model)	<i>R</i> ²	Interaction * <i>b</i> * (<i>SE</i>)	Interaction * <i>p</i> *	95% CI
Gender	20.57 (3,193)	< .001	.242	-0.073 (0.118)	.540	[-0.308, 0.162]
Age	7.72 (3,193)	< .001	.107	0.039 (0.085)	.644	[-0.128, 0.206]
Family Structure	6.80 (3,193)	< .001	.096	0.087 (0.109)	.427	[-0.128, 0.302]

Note. All models used Hayes PROCESS Macro Model 1 with 5,000 bootstrap samples. CTQ = Childhood Trauma Questionnaire total score; ABS = Antisocial Behavior Scale total score. Gender coded: male = 0, female = 1. Family structure coded: nuclear = 0, joint = 1. Age was mean-centered.

As shown in Table 3, none of the interaction terms reached statistical significance. The effect of childhood trauma on antisocial behavior did not differ significantly by gender ($*p = .540$), age ($*p = .644$), or family structure ($*p = .427$). Thus, the positive association between childhood trauma and antisocial behavior (main effect $*r^* = .30$) is robust and does not vary by these demographic characteristics in this sample.

Discussion

The present study examined the relationship between childhood trauma and antisocial behavior among young individuals in Peshawar, Pakistan, a conflict-affected, collectivist cultural context under-represented in developmental psychopathology research. A significant positive correlation emerged ($*r^* = .30$, $*p < .01$), supporting H1 and H2. This effect size (small-to-moderate) is consistent with meta-analytic findings from both Western and non-Western contexts (Fox et al., 2015; Eskisu et al., 2020; Liu et al., 2018). Notably, moderation analyses revealed that this relationship did not differ significantly by gender, age, or family structure (Table 4), suggesting that the

trauma–antisocial link is robust and unconditional across these demographic subgroups in our sample. Below, we elaborate on these findings in relation to established theoretical frameworks, cross-cultural comparisons, and implications for practice in Pakistan.

Theoretical Integration and Elaboration

Attachment Theory (Bowlby, 1969). Our findings support the proposition that early traumatic experiences disrupt the formation of secure attachment relationships, leading to internal working models characterized by mistrust, hostility, and expectations of rejection (Crittenden, 2017). These cognitive-affective schemas, in turn, increase the likelihood of antisocial responses to social situations, particularly when ambiguous social cues are interpreted as threatening. A meta-analysis by Fearon et al. (2010) confirmed that insecure attachment mediates the maltreatment–externalizing relationship, and our correlational finding ($*r^* = .30$) is consistent with this pathway. In the Pakistani context, where joint family systems remain common, multiple attachment figures (e.g., grandparents, aunts, uncles) might theoretically buffer the impact of maltreatment by a single caregiver. However, our moderation analysis found no significant difference between nuclear and joint families ($*p^* = .427$). This null finding suggests that structural family type alone is less important than the *quality* of caregiving relationships within any family structure. Future research should directly assess attachment security, emotional warmth, and parental monitoring rather than relying on structural proxies.

Social Learning Theory (Bandura, 1977). Our results are consistent with the proposition that children learn aggressive and antisocial behaviors through observation and imitation of models in their immediate environment (Dodge et al., 2009). In households where physical punishment, verbal aggression, or coercive control are

normative, children internalize these behaviors as acceptable conflict-resolution strategies. However, cultural context moderates this learning process. In Pakistan, physical discipline is widely normative; Karmaliani et al. (2017) reported that 56% of school-going children experience some form of abuse, and a majority of parents endorse physical punishment as necessary for character development (Shah et al., 2021). A meta-analysis by Gershoff and Grogan-Kaylor (2016) found that the association between spanking and antisocial behavior is weaker in countries where spanking is culturally normative. This may partially explain why our observed $*r^* = .30$ is somewhat lower than some Western studies (e.g., Widom, 1989, $*r^* \sim .40-.50$). In contexts where physical discipline is perceived as "normal" rather than "abusive," its psychological impact on subsequent antisocial behavior may be attenuated, though not eliminated.

General Strain Theory (Agnew, 1992). Our findings also align with General Strain Theory, which posits that negative life events—particularly chronic, uncontrollable strains such as childhood maltreatment—generate anger, frustration, and negative emotionality. When individuals lack adequate coping resources (e.g., emotional regulation skills, social support, legitimate opportunities for goal achievement), these emotions may be expressed through deviant or antisocial behavior (Agnew, 2016). In Pakistan, mental health stigma is pervasive; Abdullah and Brown (2011) found that Muslim-majority countries have particularly high levels of stigma, with individuals preferring to seek help from religious leaders or family members rather than mental health professionals. This stigma limits access to formal coping resources (e.g., counseling, psychotherapy). However, strong family networks may provide informal social support that buffers the strain–deviance relationship. The non-significant moderation by family structure in our study suggests that the *perceived availability* of

support may matter more than the structural family type. Future research should directly measure perceived social support, emotion regulation skills, and coping strategies to test the mediating pathways proposed by General Strain Theory.

Trauma Theory and Neurobiological Perspectives (Teicher et al., 2016; van der Kolk, 2014). From a neurobiological perspective, childhood maltreatment is associated with alterations in brain regions responsible for emotion regulation (prefrontal cortex), threat detection (amygdala), and memory consolidation (hippocampus). These alterations produce a neural phenotype characterized by poor impulse control, heightened reactivity to perceived threats, and difficulties in identifying and modulating emotional responses (Teicher et al., 2016). Our finding that trauma predicts antisocial behavior is consistent with this model. However, Ellis et al. (2022) proposed a "cultural neurobiology" perspective, arguing that the same adverse experience may have different neurobiological effects depending on whether it is culturally normative. In cultural contexts where physical discipline is normative, the associated stress response may be less pronounced because the child does not simultaneously experience a violation of expected caregiving norms. This hypothesis warrants direct testing through cross-cultural neuroimaging studies.

Comparison With Previous Research

The present $r^* = .30$ aligns closely with studies from other non-Western, collectivist contexts. Eskisu et al. (2020) reported correlations of .25–.35 between childhood trauma and aggression in Turkish young adults. Liu et al. (2018) found correlations of .22–.35 in Chinese adolescents, with callous-unemotional traits mediating the relationship. Sharma et al. (2020) reported $r^* = .28$ between adverse childhood experiences and conduct problems in Indian adolescents. The consistency of these effect sizes across diverse

non-Western samples suggests that the trauma–antisocial link is robust and generalizable, not merely a Western phenomenon.

The correlation in our study is smaller than in high-risk forensic samples. Baglivio et al. (2016) found that adverse childhood experiences explained 20–30% of the variance in juvenile offending trajectories among adjudicated youth. The smaller effect in our study (9% variance explained) is expected given range restriction: our community sample reported relatively low levels of antisocial behavior (mean ABS score = 8.82 out of 39). This suggests that the trauma–antisocial relationship may be stronger in clinical or forensic populations, where both trauma exposure and antisocial behavior are more severe.

Our moderation findings diverge from some prior studies. Duke et al. (2010) reported stronger associations between adverse childhood experiences and violence perpetration for males than females. While we observed a numerically larger correlation for males ($r^* = .36$) than females ($r^* = .28$), the interaction was not statistically significant ($p^* = .540$). This may reflect insufficient statistical power (only 43 males in our sample) or genuine cultural differences in gender socialization. In Pakistan, male aggression may be more tolerated or expected, potentially attenuating the *additional* effect of trauma on male antisocial behavior. Conversely, female antisocial behavior may be more stigmatized and underreported. Larger, gender-balanced samples are needed to resolve this question.

Cultural Contextualization: The Peshawar Context

Peshawar and the broader Khyber Pakhtunkhwa region have experienced decades of sociopolitical instability, armed conflict, and displacement. Between 2005 and 2022, the region experienced over 46,000 civilian and security forces casualties (South

Asia Terrorism Portal, 2023). The Army Public School massacre in 2014 resulted in PTSD prevalence rates of 75% among surviving children (Khan et al., 2018). Importantly, the CTQ-SF assesses *family-based* trauma (abuse and neglect within the household) but does not assess *community-based* war trauma (e.g., exposure to bombing, displacement, witnessing violence). Catani et al. (2019) demonstrated that family violence and war trauma have cumulative and interactive effects on child mental health. Thus, our study may *underestimate* the true burden of trauma in this population, as many participants have likely experienced both family-based and community-based trauma. The fact that a significant correlation emerged despite this measurement limitation suggests that the true relationship may be stronger than observed.

Mental health stigma is particularly acute in Pakistan. Baumann et al. (2020) documented cross-cultural differences in the reporting of childhood maltreatment, with individuals from collectivist, honor-based cultures showing greater underreporting due to fears of family shame (*izzat*). This stigma affects not only help-seeking but also research participation and honest responding. Both childhood trauma and antisocial behavior are socially undesirable; thus, our observed correlation may be attenuated by shared method variance due to social desirability bias. However, the fact that we detected a significant correlation despite these biases speaks to the robustness of the underlying relationship.

Theoretical Contributions

This study makes several original theoretical contributions. First, it extends Attachment Theory, Social Learning Theory, and General Strain Theory to a non-Western, collectivist, conflict-affected cultural context. These theories were developed primarily in Western settings; our findings support their cross-cultural applicability while highlighting the

need for cultural adaptations (e.g., incorporating joint family structures, normative physical discipline, and mental health stigma as contextual factors).

Second, the null moderation findings are theoretically informative. The absence of significant moderation by gender, age, and family structure suggests that the trauma–antisocial link is *universal* rather than *conditional* within this sample. This finding is consistent with a main-effects model: childhood trauma exerts a direct, independent effect on antisocial behavior that does not depend on demographic characteristics. From an intervention perspective, this suggests that trauma-informed approaches may benefit all affected youth, regardless of their demographic background.

Third, our study introduces the concept of "cultural neurobiology" (Ellis et al., 2022) to the Pakistani context, suggesting that the same neurobiological alterations resulting from childhood trauma may have different behavioral expressions depending on whether the trauma is culturally normative. This perspective challenges the assumption that trauma effects are identical across cultures and calls for culturally sensitive measurement and intervention.

Practical Implications

Several practical implications follow from our findings. **First**, trauma-informed care should be integrated into Pakistani mental health, educational, and juvenile justice settings. Trauma-informed care emphasizes safety, trustworthiness, peer support, collaboration, empowerment, and cultural sensitivity (Substance Abuse and Mental Health Services Administration, 2014). Given that only 500 psychiatrists serve a population of 249 million (WHO, 2020), task-shifting models are urgently needed. Teachers, community health workers, lady health workers, and religious leaders (imams) can be trained in basic

trauma-informed strategies, including psychoeducation, emotion regulation skills, and appropriate referral.

Second, screening for adverse childhood experiences in schools and universities can identify at-risk youth before antisocial behavior patterns become entrenched. Brief, culturally adapted versions of the CTQ-SF could be administered confidentially, with linked counseling services. However, screening must be accompanied by destigmatization efforts; participants must understand that trauma is common, not shameful, and that help-seeking is a sign of strength.

Third, parent education programs should promote positive discipline and reduce harsh physical punishment. Such programs must be culturally adapted to avoid labeling normative practices as abusive while still protecting children from harm. For example, programs could emphasize that while physical punishment may be common, it is less effective than positive reinforcement, clear boundaries, and non-violent consequences (Gershoff & Grogan-Kaylor, 2016). Culturally resonant messengers (e.g., respected community elders, religious scholars) may enhance acceptability.

Fourth, policy reforms should strengthen implementation of existing child protection laws, such as the Khyber Pakhtunkhwa Child Protection and Welfare Act (2010), and increase mental health funding. Currently, less than 1% of Pakistan's health budget is allocated to mental health (WHO, 2020), a fraction of the 5–10% recommended by WHO for LMICs. Dedicated funding for child and adolescent mental health, including trauma-informed services, is urgently needed.

Limitations

Several limitations warrant consideration. First, the cross-sectional design prevents causal inference; reverse causality (antisocial behavior leading to trauma exposure) or

bidirectional relationships are possible. Second, self-report measures are subject to recall bias, social desirability bias, and underreporting due to stigma. Third, the sample was predominantly female (78.5%), highly educated (69.5% bachelor's), and urban, limiting generalizability to males, rural populations, and less educated individuals. Fourth, the ABS-A does not capture relational aggression (e.g., social exclusion, rumor spreading) or psychopathic traits (e.g., callous-unemotional features), and the CTQ-SF does not assess community-based trauma (war, displacement, terrorism exposure). Fifth, no mediators (e.g., emotion regulation, attachment security, hostile attribution bias) were formally tested; thus, we cannot identify the mechanisms linking trauma to antisocial behavior. Sixth, measures developed in Western contexts may not fully capture culturally specific manifestations of trauma (e.g., honor-based violence, child marriage) and antisocial behavior (e.g., honor killings, religious extremism) in Pakistan. Seventh, moderation analyses for gender, age, and family structure were non-significant; however, post hoc power analysis indicated only 32% power to detect small interaction effects ($f^2 = .02$), so smaller conditional effects may exist but were undetectable. Three-way interactions (Childhood Trauma $\times$ Gender $\times$ Family Structure; Childhood Trauma $\times$ Age $\times$ Family Structure) were also non-significant ($ps = .834$ and $.446$ respectively), further supporting the robustness of the main effect. Finally, the study did not assess potential protective factors (e.g., resilience, social support, religious coping) that might buffer the trauma–antisocial link.

Conclusion

This study provides the first empirical evidence from Peshawar, Pakistan, demonstrating a significant positive correlation between childhood trauma and antisocial behavior among young adults ($r^* = .30$, $p^* < .01$). The findings support

Attachment Theory, Social Learning Theory, General Strain Theory, and Trauma Theory in a non-Western, collectivist, conflict-affected cultural context. The finding that neither gender, age, nor family structure significantly moderated this relationship underscores the universal (rather than conditional) nature of the association in this sample. The study addresses a critical research gap—the near-absence of trauma research from Pakistan—and underscores the importance of early identification of childhood trauma and implementation of trauma-informed interventions. Despite limitations, the results suggest that the trauma–antisocial link is robust across cultures and demographic subgroups. Addressing childhood trauma is essential not only for individual well-being but also for reducing the societal costs of antisocial conduct, including violence, criminal justice involvement, and intergenerational transmission of trauma. Future longitudinal research should examine mediating mechanisms and test culturally adapted trauma-informed interventions in Pakistani settings.

References

- Abdullah, T., & Brown, T. L. (2011). Mental illness stigma and ethnocultural beliefs, values, and norms: An integrative review. *Clinical Psychology Review, 31*(6), 934–948.
- Agnew, R. (1992). Foundation for a general strain theory of crime and delinquency. *Criminology, 30*(1), 47–88.
- Agnew, R. (2016). General strain theory. In A. R. Piquero (Ed.), *The handbook of criminological theory* (pp. 172–193). Wiley.
- American Psychological Association. (2020). *APA dictionary of psychology*.
- Arnett, J. J. (2000). Emerging adulthood: A theory of development from the late teens through the twenties. *American Psychologist, 55*(5), 469–480.
- Baglivio, M. T., Wolff, K. T., Piquero, A. R., & Epps, N. (2016). The relationship between adverse childhood experiences (ACE) and juvenile offending trajectories. *Journal of Criminal Justice, 43*(3), 229–241.
- Bandura, A. (1977). *Social learning theory*. Prentice Hall.
- Baumann, S., Stetzka, C., & Oschmann, N. (2020). Cross-cultural differences in the reporting of childhood maltreatment. *Child Abuse & Neglect, 105*, 104437.
- Bernstein, D. P., Stein, J. A., Newcomb, M. D., Walker, E., Pogge, D., Ahluvalia, T., & Zule, W. (2003). Development and validation of a brief screening version of the Childhood Trauma Questionnaire. *Journal of Traumatic Stress, 16*(2), 169–190.
- Bowlby, J. (1969). *Attachment and loss: Vol. 1. Attachment*. Basic Books.
- Catani, C., Jacob, N., Schauer, E., Kohila, M., & Neuner, F. (2019). Family violence, war, and natural disasters: A study of the effect of extreme stress on child mental health in Sri Lanka. *BMC Psychiatry, 19*(1), 123.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Lawrence Erlbaum Associates.
- Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). SAGE.
- Crittenden, P. M. (2017). Gifts from Mary Ainsworth and John Bowlby. *Clinical Child Psychology and Psychiatry, 22*(3), 338–344.
- Dodge, K. A., Malone, P. S., Lansford, J. E., Miller, S., Pettit, G. S., & Bates, J. E. (2009). A dynamic cascade model of the development of substance-use onset. *Monographs of the Society for Research in Child Development, 74*(3), vii–119.

- Duke, N. N., Pettingell, S. L., McMorris, B. J., & Borowsky, I. W. (2010). Adolescent violence perpetration: Associations with multiple types of adverse childhood experiences. *Pediatrics*, 125(4), e778–e786.
- Ellis, B. H., Miller, A. B., Baldwin, H., & Abdi, S. (2022). A cultural neurobiology approach to understanding the effects of childhood adversity. *Development and Psychopathology*, 34(5), 1721–1735.
- Eskisu, M., Høglend, P., & Çelik, F. (2020). The relationship between childhood trauma and aggression: The mediating role of emotion regulation difficulties. *Journal of Aggression, Maltreatment & Trauma*, 29(8), 964–981.
- Fearon, R. P., Bakermans-Kranenburg, M. J., van IJzendoorn, M. H., Lapsley, A. M., & Roisman, G. I. (2010). The significance of insecure attachment and disorganization in the development of children's externalizing behavior: A meta-analytic study. *Child Development*, 81(2), 435–456.
- Fox, B. H., Perez, N., Cass, E., Baglivio, M. T., & Epps, N. (2015). Trauma changes everything: Examining the relationship between adverse childhood experiences and serious, violent and chronic juvenile offenders. *Child Abuse & Neglect*, 46, 163–173.
- Gershoff, E. T., & Grogan-Kaylor, A. (2016). Spanking and child outcomes: Old controversies and new meta-analyses. *Journal of Family Psychology*, 30(4), 453–469.
- Hayes, A. F. (2018). *Introduction to mediation, moderation, and conditional process analysis* (2nd ed.). Guilford Press.
- Henrich, J., Heine, S. J., & Norenzayan, A. (2010). The weirdest people in the world? *Behavioral and Brain Sciences*, 33(2-3), 61–83.
- Karmaliani, R., McFarlane, J., Somani, R., Khuwaja, H. M., Bhamani, S. S., Ali, T. S., & Jewkes, R. (2017). Peer violence and violence toward children in Pakistan: Findings from a national survey. *Journal of Interpersonal Violence*, 32(13), 1973–1996.
- Khan, R. S., Ahmed, S., & Ali, S. (2018). Post-traumatic stress disorder in child survivors of the Army Public School massacre, Peshawar. *Journal of Child & Adolescent Trauma*, 11(4), 429–437.
- Lakhtdir, M. P. A., Raziq, A., & Fatima, Z. (2021). Childhood maltreatment and mental health outcomes in Pakistani adolescents. *Journal of Affective Disorders*, 282, 1012–1020.
- Liu, J., Fang, Y., & Zhang, J. (2018). Childhood maltreatment and adolescent antisocial behavior: The mediating role of callous-unemotional traits. *Journal of Child and Family Studies*, 27(10), 3256–3267.
- McRae, E. M., Stoppelbein, L., O'Kelley, S. E., Fite, P., & Smith, S. (2024). A cognitive model of child maltreatment and reactive aggression: The role of vulnerability and post-traumatic stress symptoms. *Child Abuse & Neglect*, 147, 106564.
- Moody, G., Cannings-John, R., & Hood, K. (2018). Establishing the international prevalence of self-reported child maltreatment: A systematic review. *Child Abuse & Neglect*, 85, 123–133.
- Norman, R. E., Byambaa, M., De, R., Butchart, A., Scott, J., & Vos, T. (2012). The long-term health consequences of child physical abuse, emotional abuse, and neglect: A systematic review and meta-analysis. *PLoS Medicine*, 9(11), e1001349.
- Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory* (3rd ed.). McGraw-Hill.
- Ryan, J. P., Perron, B. E., & Huang, H. (2020). Family structure and the relationship between child maltreatment and delinquency. *Journal of Family Violence*, 35(2), 123–135.

- Saeed, K., Farooq, S., & Javed, S. (2020). Mental health in Pakistan: Yesterday, today and tomorrow. *International Psychiatry*, 17(3), 18–21.
- Sharma, N., Sharma, S., & Sharma, M. (2020). Adverse childhood experiences and conduct problems among Indian adolescents. *Asian Journal of Psychiatry*, 54, 102287.
- Shonkoff, J. P., Garner, A. S., Siegel, B. S., Dobbins, M. I., Earls, M. F., McGuinn, L., & Wood, D. L. (2012). The lifelong effects of early childhood adversity and toxic stress. *Pediatrics*, 129(1), e232–e246.
- South Asia Terrorism Portal. (2023). *Pakistan terrorist incidents and fatalities 2005–2022*.
- Stoltenborgh, M., Bakermans-Kranenburg, M. J., Alink, L. R., & van IJzendoorn, M. H. (2015). The prevalence of child maltreatment across the globe: Review of a series of meta-analyses. *Child Abuse Review*, 24(1), 37–50.
- Tariq, S., & Hanif, R. (2018). Family structure and child maltreatment in urban Pakistan. *Journal of Family Violence*, 33(6), 421–430.
- Teicher, M. H., Samson, J. A., Anderson, C. M., & Ohashi, K. (2016). The effects of childhood maltreatment on brain structure, function and connectivity. *Nature Reviews Neuroscience*, 17(10), 652–666.
- Thurston, C., Silima, M., Hemady, C. L., Murray, A. L., Franchino-Olsen, H., & Meinck, F. (2025). Prospective longitudinal associations between adverse childhood experiences and adult mental health outcomes: Systematic review and meta-analysis. *Trauma, Violence & Abuse*, 1–19.
- Tremblay, R. E., Pihl, R. O., Vitaro, F., & Dobkin, P. L. (1995). Predicting early onset of male antisocial behavior from preschool behavior. *Archives of General Psychiatry*, 52(9), 732–739.
- van der Kolk, B. A. (2014). *The body keeps the score*. Viking.
- Widom, C. S. (1989). The cycle of violence. *Science*, 244(4901), 160–166.
- World Health Organization. (2020). *Mental health atlas 2020: Pakistan*. WHO.
- World Health Organization. (2022). *Child maltreatment*. <https://www.who.int/news-room/fact-sheets/detail/child-maltreatment>