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ORIGINAL PAPER

Disrupting the Link between Exposure to Violence and Adolescent Delinquency: The Protective Role of Expectations about the Future

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Abstract

Exposure to violence significantly influences adolescent delinquency, posing a critical public health concern. We examine the moderating role of expectations about the future in this context, particularly whether their impact differs between minor and severe delinquency. Analyzing data from the fifth wave of the National Survey of Child and Adolescent Well-Being ($n = 1,272$), we employed hierarchical linear regression and the PROCESS macro. Our findings reveal that exposure to violence is positively associated with delinquency; meanwhile, expectations about the future are negatively associated with adolescent delinquency. Positive expectations about the future significantly mitigate the impact of exposure to violence on adolescent delinquency across both severity categories. We underscore the necessity of fostering positive expectations about the future to prevent delinquency, advocating for strength-based intervention strategies for at-risk adolescents.

Highlights

- Exposure to violence increases both minor and severe adolescent delinquency.
- Positive future expectations are associated with lower levels of delinquency.
- Future expectations mitigate the impact of violence exposure on delinquency.
- The protective effect is consistent across delinquency severity levels.

Keywords Exposure to violence · Adolescent delinquency · Expectations about the future · Intervention strategies · At-risk youth

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Adolescence is a critical developmental period in the transition from childhood to adulthood, during which experiences shape future outlooks. However, adolescent delinquency—defined as illegal behaviors committed by individuals under the age of 18—shows the highest prevalence between the ages of 12 and 17 (Jennings et al., 2018). In 2019, U.S. courts handled approximately 772,600 delinquency cases (Hockenberry et al. 2021). Delinquency hinders youth development, contributing to mental health issues like anxiety and depression (Defoe et al., 2023) and an increased likelihood of criminal justice involvement in adulthood (Drury et al., 2020).

Extensive research has identified multiple individual, social, and environmental factors contributing to adolescent delinquency (Fava et al., 2023; Leban & Delacruz, 2023). Exposure to violence, particularly in familial contexts, is among the most substantial predictors (Bobbio et al., 2020; Jolliffe et al., 2017). Adolescents who experience violence within their domestic environment, whether directly or

indirectly, often develop feelings of helplessness and/or hopelessness, leading to externalizing behaviors, such as delinquency (Jones & Pierce, 2021; Steketee et al., 2021).

Although the link between exposure to violence and adolescent delinquency is well-established, the moderating protective role of expectations about the future—defined as the perceived capability to achieve goals (Knight et al., 2017)—remains underexplored. While prior research has primarily treated expectations about the future as predictors of behavior (Caldwell, Wiebe, & Cleveland, 2006; Du & Lyu, 2021; Mahler et al., 2017), we propose that examining them as moderators can offer essential insights for preventing adolescent delinquency. Whether the effects of expectations about the future vary with delinquency severity remains unclear. In this regard, we explored how expectations about the future influence the relationship between exposure to violence and delinquency while accounting for the severity of delinquent behavior.

Literature Review

Exposure to Violence and Adolescent Delinquency

Prior studies have consistently demonstrated a significant association between adolescents' exposure to violence, whether as witnesses or victims, and an increased likelihood of delinquency (Bobbio et al., 2020; Fox et al., 2015; Jolliffe et al., 2017). This link is well-supported by General Strain Theory (GST) and Social Learning Theory (SLT). GST proposes that exposure to violence is a significant source of stress, triggering negative emotions such as anger and depression, which can drive adolescents to engage in delinquent behavior as a coping mechanism (Agnew, 1992; Akers & Jennings, 2015; Gardner et al., 2019). SLT correspondingly highlights that individuals learn behaviors by observing and modeling behavioral patterns in their families or communities (Kunkel et al., 2006; Winfree, 2015). Inadequate socialization can further reinforce inappropriate behaviors (Manzoni & Schwarzenegger, 2019). Exposure to violence can disrupt the development of pertinent social norms and behaviors, leading to the internalization of aggressive tendencies and an increase in delinquent acts (Gottfredson & Hirschi, 1990; Wei & Lü, 2023).

The Role of Expectations about the Future

While extensive research has proven the detrimental effects of exposure to violence on adolescent delinquency, the potential protective factors that can disrupt this cycle have received less attention. Positive expectations about the future—an individual's sense of belief in their capacity to achieve personal goals—serve as one such protective factor (Knight et al., 2017). Empirical evidence suggests that adolescents who have positive expectations about the future are less likely to engage in delinquency, as these expectations promote motivation, resilience, and a clear sense of direction (Cui et al., 2020; Mahler et al., 2018). In contrast, adolescents lacking positive expectations about the future may engage in delinquent behaviors to cope with feelings of hopelessness and a perceived lack of control over their futures. The self-fulfilling prophecy theory emphasizes the importance of positive expectations about the future, suggesting that individuals tend to behave in ways consistent with their perceptions of the future, thereby increasing the likelihood that those expectations will become a reality (Merton, 1948). The reciprocal interplay between the present self ("I am") and the future self ("I want to be") directs adolescent behavior toward desired future objectives (Nurra, C & Oyserman, 2018). As adolescents explore future possibilities, establish goals, and seek ways to achieve them, they actively build their identities—a principal developmental task during adolescence (Branje et al., 2021; Fornell et al., 2023). Expectations concerning future family life, including romantic relationships and parenthood, as well as career and educational aspirations, are particularly salient for adolescents across diverse cultural contexts. These domains represent fundamental developmental tasks that help prepare individuals for adult responsibilities in both work and family contexts (McCabe & Barnett, 2000). Consequently, fostering positive expectations about the future may be a crucial intervention strategy to counteract the adverse effects of exposure to violence.

Resilience Theory and Positive Expectations about the Future

Resilience theory offers a valuable framework for understanding how adolescents respond to exposure to violence, especially in relation to their expectations about the future and likelihood of engaging in delinquent behavior. Defined as the capacity to adapt positively in the face of adversity, resilience enables adolescents to maintain psychological well-being despite exposure to traumatic or stressful events (Prince et al., 2019). For adolescents exposed to violence, resilience may stem from personal inherent strengths or supportive external resources that help them cope (Afifi & MacMillan, 2011; Meng, Li, & Fang, 2018). A critical element of resilience is the ability to maintain positive expectations about the future, which serve as protective factors by reducing the likelihood of delinquent behaviors despite adverse experiences.

Resilience typically encompasses three key processes: reducing perceived threats, sustaining positive emotions,

and fostering future-oriented problem-solving (Luthar et al., 2020). The latter two processes are particularly critical in preventing delinquency among violence-exposed adolescents (Chafouleas & Iovino, 2021). By sustaining goal-directed thinking, adolescents with strong future orientation are more inclined to align their behavior with long-term goals and aspirations, avoiding impulsive or negative responses to trauma (Cui et al., 2020; Mahler et al., 2018).

Thus, resilience is about not only surviving hardship but also using positive future goals to guide constructive choices. Prior studies confirm that youth who demonstrate resilience through positive views of their future are better equipped to handle the challenges caused by exposure to violence and show a reduced tendency toward delinquent acts. They are more likely to pursue opportunities and constructive pathways and avoid risky behaviors stemming from their traumatic experiences (Afifi & MacMillan, 2011; Meng et al., 2018). Thus, positive expectations about the future function as a key mechanism through which resilience operates to buffer against delinquency in violence-exposed adolescents.

The Importance of Examining Delinquency Severity

Examining delinquency severity is crucial for understanding the complex interplay between exposure to violence, expectations about the future, and adolescent behavior. Different levels of delinquency bring about distinct legal and social outcomes. Minor delinquency, such as skipping classes or running away from home, may prompt informal interventions and discipline (parental or school-based). In contrast, serious delinquent acts (e.g., assault or weapon carrying) can result in severe legal consequences, such as formal criminal charges or juvenile detention (Office of Juvenile Justice and Delinquency Prevention, 2015).

The psychological outcomes associated with delinquency also vary by severity, with minor acts evoking short-term feelings of guilt and stress. Meanwhile, serious offenses tend to be associated with profound mental health issues, such as anxiety, depression, or trauma (Song, Wang, & Zhang, 2022). Minor and severe delinquent behaviors often stem from disparate underlying social, emotional, and developmental factors. Minor delinquency may arise from experimentation or peer influence, whereas severe delinquency is more frequently associated with experiences of trauma or systemic resource deficits (DeLisi et al., 2021). Considering these distinctions provides clear insights into how exposure to violence may interact with expectations about the future across varying levels of delinquency, informing targeted policies and interventions.

Current State of Interventions for Moderate to Severe Delinquency

Despite the substantial body of research on adolescent delinquency, more research is needed to design effective interventions targeting adolescents with moderate to severe delinquency. While many interventions aim to reduce general delinquency, others focus on specific behaviors, such as aggression, substance use, bullying, or gang involvement. Interventions like functional family therapy, which focuses on family interactions to reduce problem behaviors; multisystemic treatment, which emphasizes comprehensive, tailored interventions across family, school, and community systems; and cognitive behavioral therapy (CBT), which helps youth develop self-regulation and future-oriented problem-solving skills, have shown effectiveness for youth with high-risk profiles, particularly when adapted to address specific behavioral concerns (Borduin et al., 2009; Henggeler & Schoenwald, 2011). By situating the current study within this broader context, our goal is to help researchers, practitioners, and policymakers better understand how strengthening protective factors—such as positive expectations about the future—can complement existing evidence-based interventions for high-risk youth.

Hypotheses

Based on the literature review and theoretical frameworks discussed, the current study proposes the following hypotheses:

1. Exposure to violence is positively associated with adolescent delinquency, such that greater exposure to violence correlates with increased engagement in minor and severe delinquent behaviors.
2. Expectations about the future are negatively associated with adolescent delinquency, with more positive expectations about the future predicting lower levels of both minor and severe delinquency.
3. Expectations about the future moderate the relationship between exposure to violence and adolescent delinquency, such that the positive association is weaker (i.e., less pronounced) at higher levels of expectations about the future.
4. The moderating effect of expectations about the future on the relationship between exposure to violence and delinquency will differ based on delinquency severity.

Current Study

We seek to validate the association between exposure to violence and adolescent delinquent behavior while examining

the moderating role of expectations about the future. By categorizing delinquency into minor and severe forms, we evaluate how expectations about the future influence this relationship across severity levels, informing tailored interventions for violence-exposed adolescents.

Methods

Data and Participants

We used cross-sectional general-use data derived from the fifth wave of the National Survey of Child and Adolescent Well-Being (NSCAW I), funded by the U.S. Department of Health and Human Services. NSCAW I is a longitudinal study designed to assess adolescents' well-being, investigate abuse or neglect, and describe key characteristics of child development. NSCAW I focuses specifically on children and adolescents involved with the child welfare system, a high-risk population exposed to more violent environments. Thus, the dataset is not representative of the general population, and sample characteristics may differ from those of the general population.

The NSCAW I was derived using a two-stage stratified cluster sampling method, including a total of 5,873 adolescents aged from infancy to 18 years, identified through child welfare investigations in 83 U.S. counties. For data collection, trained groups of individuals conducted in-person interviews with adolescents, their parents, and non-parental adult caregivers. Informed consent was given from adolescents while it was secured from their caregivers and caseworkers. The current analysis focused exclusively on adolescents aged 12 to 17, excluding those younger than 12 due to missing data, and those older than 17 who could not be classified as adolescent delinquents because they were adults. The final sample comprised 1,272 participants.

Measures

Exposure to Violence

Exposure to violence was assessed using the Violence Exposure Scale for Children (VEX-R; Fox & Leavitt, 1995), which measures both personal and vicarious exposure to violence through 17 items. The VEX-R is a self-report instrument designed for children, presented in a cartoon format. Participants were shown cards illustrating various violent and criminal behaviors and were asked to describe the frequency of their exposure to these acts, either as victims or witnesses. Examples of assessed behaviors include shouting, throwing objects, physical aggression (e.g., hitting), possessing weapons (e.g., a gun or knife), and witnessing arrests. Exposure to violence was operationally constructed to include both witnessing and experiencing violence, regardless of severity, as both forms are linked to harmful psychological consequences (Steketee et al., 2021). Responses were measured on a 4-point Likert scale ranging from (1) *Never* to (4) *Many times*, with higher scores indicating greater exposure. The reliability coefficient for this measure was 0.89.

Delinquency

The NSCAW I delinquency assessment used a modified self-report measure to assess youths' involvement in a range of delinquent behaviors within the child welfare context. This measure drew items from both the Modified Self-Report of Delinquency (MSRD; Elliot & Ageton, 1980) and the Denver Youth Survey (DYS). These items assessed youths' self-reported delinquent acts in the past six months. Responses were collected via Audio Computer-Assisted Self-Interviewing to enhance accuracy when reporting sensitive topics such as engagement in delinquency.

In this study, delinquency was categorized by severity—specifically as minor or severe (Sibley et al., 2010). Minor delinquency encompasses behaviors that typically result in disciplinary actions or minor sanctions, such as being unruly in public, attempting to steal items valued at $5 or less, running away from home, and skipping classes. The Cronbach's α for minor delinquency was 0.65. Severe delinquency includes more serious offenses—gang fights, inflicting grievous harm or threats of sexual violence, carrying or using weapons, arson, assaulting individuals, and vandalism or theft of property—which may result in juvenile justice involvement. The Cronbach's α for severe delinquency was 0.68. Responses for both types of delinquency were categorized as (0) *No* or (1) *Yes*, and the total score was derived from the combined responses. Overall delinquency was measured by aggregating items from both categories, yielding a Cronbach's α of 0.72.

Expectations About the Future

Expectations about the future were assessed to quantify the degree of optimism and anticipation individuals held. The expected outcomes covered distinct life domains, including career aspirations, educational goals, and expectations regarding marriage and parenthood (Resnick et al., 1997). Each item was framed to draw out a forward-looking standpoint, starting with "When I am an adult, …," followed by specific examples such as "I will have a good job" (career), "I will graduate from high school" (education), "I will be married" (marriage), and "I will have children and raise a family" (parenthood). Respondents were asked to indicate

the likelihood of achieving these future outcomes on a 5-point Likert scale, ranging from (1) *No chance* to (5) *It will happen*. The Cronbach's α for expectations about the future was 0.60.

Covariates

The analysis included 10 covariates informed by established theoretical and empirical research: age, gender, race, family income, parental monitoring, caregiver–child relationships, peer relationships, school engagement, depression, and religiousness. Religiousness was included given its recognized role in affecting the link between stressful life events and delinquent behavior (Salas-Wright et al., 2013). Participants' ages ranged from 12 to 17 years. Gender was coded as a binary variable: (0) *Male* or (1) *Female*, and race was categorized as (0) *White* or (1) *Non-White*. Family income was measured using four categories: (1) *Less than $19,999*, (2) *$20,000 to $29,999*, (3) *$30,000 to $39,999*, and (4) *$40,000 or more.*

Parental monitoring, a measure of parental awareness and supervision, was assessed using a 5-point Likert scale, with one item reverse-coded. Example items included: "How often do your parents know where you are when you are away from home?" and "How often do your parents know who you are with when you are away from home?" Responses were rated on a 5-point scale from (1) *Never* to (5) *Very often*. The Cronbach's α was 0.68. The quality of caregiver–child relationships was assessed using five items reflecting perceived emotional support and involvement. Youth responded on a 4-point Likert scale ranging from (1) *Not at all true* to (4) *Very true*. Items included statements such as "My caregiver enjoys spending time with me" and "My caregiver does a lot to help me." Higher scores reflect more positive caregiver–child relationships. The Cronbach's α was 0.95.

Peer relationships were measured using a 15-point Likert scale for the quality of social interactions, emotional closeness, and support within peer groups. Nine items were reverse-coded to ensure consistent measurement direction. Sample items included: "Having lots of friends at school" and "Being well-liked by other children at school." Responses were rated on a 5-point Likert scale ranging from (1) *Never* to (5) *Always*. The Cronbach's *α* was 0.90. School engagement was measured using seven items assessing both academic performance and school attachment. Youth rated items on a 4-point scale ranging from (1) *Never* to (4) *Almost always*. Example items included: "How often do you enjoy being in school?" and "How often do you try to do your best work in school?" Higher scores reflect greater school engagement. The Cronbach's α was 0.63.

Depression was measured using nine self-report items assessing emotional well-being over the past two weeks. Items captured symptoms such as sadness, hopelessness, loss of pleasure, and suicidal thoughts. Responses were rated on 3-point Likert scales, with some items reverse-coded so that higher scores reflect greater depressive symptoms. Examples include: "I am sad all the time," "Nothing will ever work out for me," and "Nothing is fun at all." The Cronbach's α was 0.74. Lastly, religiousness was measured using a single item: "How important is religion or spirituality to you?" This item captured the perceived significance of religious practices in participants' lives. Responses were provided on a 4-point Likert scale, ranging from (1) *Not important at all* to (4) *Very important*.

Data Analysis

Data were analyzed using the Statistical Package for the Social Sciences (SPSS version 22, IBM Corp., Armonk, NY, USA) and the PROCESS macro version 4.3. The primary aim of this study was to determine whether expectations about the future moderate the relationship between exposure to violence and both minor and severe delinquency (Hayes, 2017; see Fig. 1). Descriptive statistics and correlation analyses were first performed to examine the central tendencies and interrelationships among the variables. The delinquency variables exhibited positive skewness, a common characteristic of non-clinical populations where only a subset of participants engage in delinquent behaviors. To address non-normality and improve the distribution of the delinquency variables, a square-root transformation was applied.

Hierarchical linear regression analysis was then employed to test the hypothesized moderating effect. The analysis was conducted in two steps. In Step 1, the primary variables (exposure to violence and expectations about the future) and all covariates were entered to assess their direct associations with adolescent delinquency. In Step 2, the interaction term between exposure to violence and expectations about the future was included to examine the moderating effect of expectations about the future on the exposure to violence–delinquency relationship. Continuous variables (e.g., expectations about the future) were centered on their means prior to analysis to reduce multicollinearity (Jaccard et al., 1990). Simple slope analyses were conducted (Aiken et al., 1991) using low (1 SD below the mean), moderate (at the mean), and high (1 SD above the mean) levels of expectations about the future to interpret significant interaction effects.

Missing data, accounting for less than 25% of the dataset, were handled using the expectation maximization (EM) algorithm. This approach is efficient when missing data

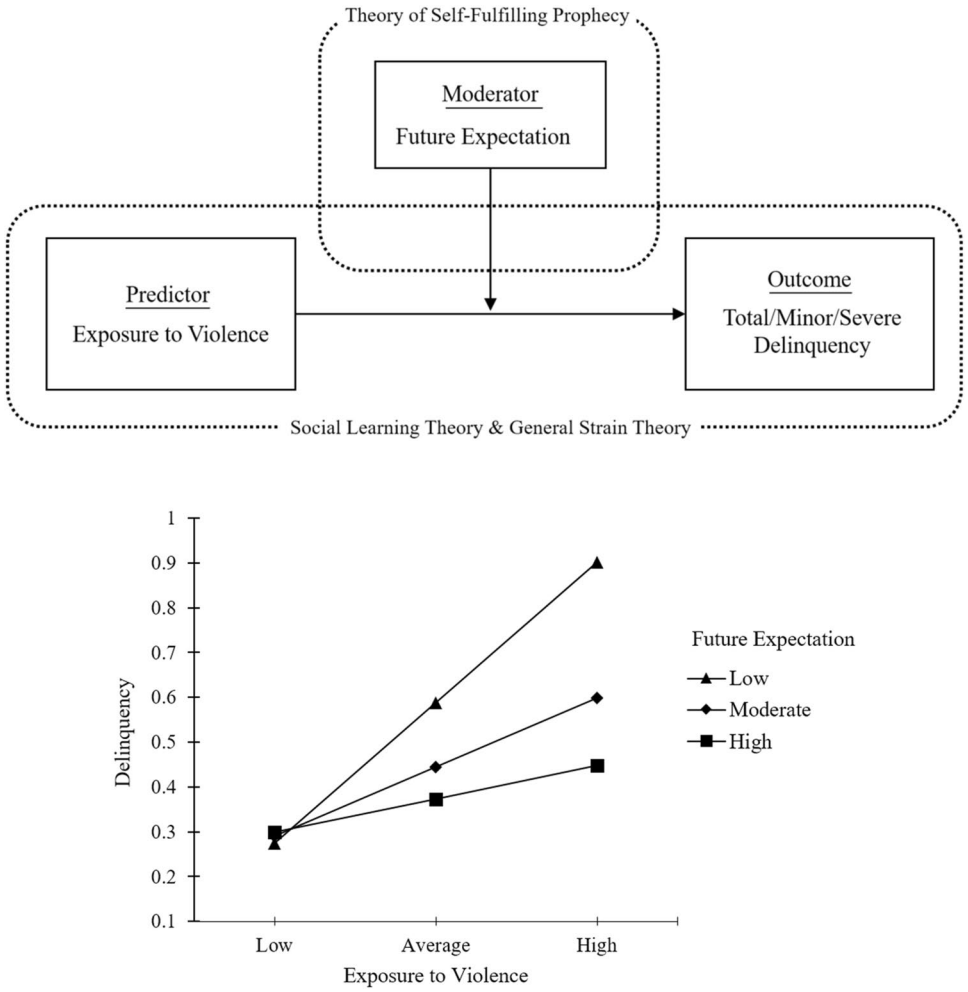


Fig. 1 Theoretical Model of the Study. Future Expectation Dampens the Impact of Violence Exposure on Total Delinquency. Note: Low = mean minus 1 SD, Average = mean, High = mean plus 1 SD

exceed 10% due to respondents' inability or unwillingness to respond, especially for sensitive questions such as delinquency and exposure to violence (Reinecke & Weins, 2013). EM is well known to yield less biased results compared to traditional procedures such as listwise deletion and mean imputation (Schminkey et al., 2016). In this study, EM was implemented over 25 iterations to ensure convergence.

Results

Descriptive Statistics

Table 1 presents the descriptive statistics for all variables included in the analysis, including frequency, mean, standard deviation, range, skewness, and kurtosis. The mean score for exposure to violence was 1.18 (SD = 0.17), while the mean scores for minor and severe delinquency were 0.38 (SD = 0.60) and 0.16 (SD = 0.39), respectively. The mean score for expectations about the future was 4.35 (SD = 0.72). Regarding demographic covariates, the average participant age was 14.44 (SD = 1.68). The sample consisted of 600 females (49.5%) and 612 males (50.5%). In terms of racial demographics, 589 participants (57.8%) identified as White, and 430 (42.2%) identified as Non-White, including individuals from Hispanic/Latino, Black, Asian, and other backgrounds. Regarding household income, most participants (n = 470) reported an income of less than $20,000 ($n$ = 470), while roughly a quarter of participants (n = 163) reported an income between $30,000 and $39,999. The mean scores for parental monitoring, caregiver–child relationships, peer relationships, school engagement, depression, and religiousness were 4.20 (SD = 0.73), 3.32 (SD = 0.61), 4.23 (SD = 0.67), 2.38 (SD = 0.28), and 1.24 (SD = 0.26), respectively. The distribution of each variable was assessed using skewness and kurtosis statistics. Following established guidelines (Kline, 2016), all variables exhibited acceptable skewness (ranging from −1.53 to 2.12) and kurtosis (ranging from −2.00 to 2.74), except for depression, which had a value of 5.66.

Table 1 Descriptive Statistics (n = 1,272).

		Freq	Mean	SD	Skewness	Kurtosis
Main Variables						
1. Violence Exposure		-	1.18	0.17	1.56	2.73
2. Delinquency		1137	0.47	0.70	1.29	0.93
3. Minor Delinquency		1145	0.38	0.60	1.22	0.17
4. Severe Delinquency		1147	0.16	0.39	2.12	2.74
5. Future Expectation		-	4.35	0.72	-1.53	2.51
Covariates						
6. Age	12	233	14.44	1.68	0.01	-1.220
	13	201				
	14	225				
	15	225				
	16	217				
	17	181				
7. Gender	Male (0)	612	0.50	0.50	0.02	-2.00
	Female (1)	600				
8. Race	White (0)	589	0.42	0.49	0.32	-1.90
	Non-White (1)	430				
9. Family income	0–19,999	470	2.30	1.25	0.28	-1.55
	20,000–29,999	233				
	30,000–39,999	163				
	40,000 and greater	333				
10. Parental Monitoring		-	4.20	0.73	-1.03	0.79
11. Relationship with Caregivers		-	3.32	0.61	−0.91	0.49
12. Relationship with Peers		-	4.23	0.67	-1.23	1.55
13. School Engagement		-	2.38	0.28	0.11	0.97
14. Depression		-	1.24	0.26	1.943	5.66
12. Religious Belief		-	3.16	0.95	-0.96	-0.04

Correlation Analysis

Correlation analyses were conducted to examine the associations among the study variables (see Table 2). The analysis revealed statistically significant positive associations between exposure to violence and overall delinquency (r = 0.301, p < 0.001), minor delinquency (r = 0.279, p < 0.001), and severe delinquency (r = 0.219, p < 0.001). These findings suggest that higher levels of exposure to violence are associated with an increased likelihood of engaging in delinquent behaviors. In contrast, there was a statistically significant negative association between exposure to violence and expectations about the future (r = −0.102, p < 0.01). Delinquency displayed strong, positive correlations with minor delinquency (r = 0.923, p < 0.001) and severe delinquency (r = 0.703, p < 0.001). In contrast, delinquency was negatively associated with expectations about the future (r = −0.226, p < 0.001), indicating that higher levels of delinquency are associated with reduced optimism about one's future.

Regarding the covariates, the results showed that violence exposure was higher among males than females (r = −0.085, p < 0.01), and significantly and negatively associated with parental monitoring (r = −0.163, p < 0.001), caregiver–child relationships (r = −0.368, p < 0.001), and peer relationships (r = −0.146, p < 0.001). Conversely, exposure to violence was significantly and positively associated with depression (r = 0.341, p < 0.001). Future expectations were higher for males (r = −0.066, p < 0.05) and positively associated with family income (r = 0.063, p < 0.05), parental monitoring (r = 0.274, p < 0.001), caregiver–child relationships (r = 0.205, p < 0.001), peer relationships (r = 0.333, p < 0.001), and religiousness (r = 0.145, p < 0.001). To address concerns about multicollinearity, variance inflation factors were calculated for each variable, with scores ranging from 1.021 to 1.202, indicating no serious multicollinearity.

Testing Main and Moderating Effects

Table 3 presents the three regression models used to assess moderating effects: Model 1 for total delinquency, Model 2 for minor delinquency, and Model 3 for severe delinquency. Each model is structured in three sequential steps. Step 1 includes control variables: age, race, gender, family income, parental monitoring, caregiver–child relationships, peer relationships, school engagement, and religiousness. Step 2 adds the primary independent variables—exposure to violence and expectations about the future—resulting in

Table 2 Correlation Analysis.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Main Variables															
1. Violence Exposure	1														
2. Delinquency	0.301***	1													
3. Minor Delinquency	0.279***	0.923***	1												
4. Severe Delinquency	0.219***	0.703***	0.413***	1											
5. Future Expectation	−0.102**	−0.226***	−0.185***	−0.192***	1										
Covariates															
6. Age	0.022	0.119***	0.174***	−0.032	−0.028	1									
7. Race (1 = Non-White)	−0.049	0.057	0.047	0.053	−0.005	0.038	1								
8. Gender (1 = Female)	−0.085**	0.041	0.009	0.074*	−0.066*	0.003	0.061	1							
9. Family Income	−0.015	−0.047	−0.048	−0.044	0.063*	−0.024	−0.127***	0.042	1						
10. Parental Monitoring	−0.163***	−0.311***	−0.273***	−0.266***	0.274***	−0.057	−0.075*	−0.248***	0.044	1					
11. Caregiver relationship	−0.368***	−0.276***	−0.258***	−0.207***	0.205***	−0.067*	−0.036	−0.011	0.015	0.274***	1				
12. Peer Relationships	−0.146***	−0.083**	−0.060	−0.114***	0.333***	0.076*	0.044	0.000	0.013	0.164***	0.205***	1			
13. School engagement	−0.007	0.019	0.019	0.030	−0.057	−0.113***	0.009	−0.016	−0.023	−0.059	0.021	−0.110***	1		
14. Depression	0.341***	0.261***	0.253***	0.162***	−0.346***	−0.020	0.049	−0.100**	−0.112***	−0.234***	−0.349***	−0.422***	0.100**	1	
15. Religious Belief	−0.026	−0.115***	−0.116***	−0.062*	0.145***	−0.070*	0.169***	−0.117***	0.002	0.205***	0.066*	0.102**	0.061*	−0.078**	1

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

Table 3 Delinquency Models

	Total Delinquency			Minor Delinquency			Severe Delinquency		
	Model 3			Model 3			Model 3		
	β	S.E	t	β	S.E	t	β	S.E	t
Control Variables									
Age	0.12	0.04	3.371***	0.16	0.04	4.361***	−0.01	0.01	−0.953
Race (1 = Non-White)	0.07	0.03	2.090*	0.05	0.03	1.467	0.03	0.01	1.844
Gender (1 = Female)	−0.03	0.03	−0.953	−0.04	0.04	-1.055	0.00	0.01	0.158
Family Income	−0.04	0.03	-1.227	−0.06	0.03	-1.657	−0.01	0.01	−0.388
Peer Relationships	0.06	0.04	1.477	0.058	0.04	1.477	−0.00	0.02	−0.030
Parental Monitoring	−0.18	0.04	-4.700***	−0.17	0.04	-4.317***	−0.05	0.02	-2.753**
Caregiver relationship	−0.52	0.20	-2.517*	−0.56	0.21	-2.659**	−0.08	0.08	−0.944
School engagement	0.38	0.39	0.966	0.33	0.41	0.814	0.07	0.16	0.422
Depression	−0.12	0.51	−0.225	−0.51	0.53	−0.968	0.08	0.21	0.359
Religious Belief	−0.12	0.03	-3.381***	−0.14	0.04	-3.732**	−0.02	0.01	-1.227
Independent Variable									
Violence Exposure	0.23	0.03	6.338***	0.21	0.04	5.655***	0.07	0.01	4.566***
Future Expectations	−0.15	0.04	-3.652***	−0.12	0.04	-2.819**	−0.04	0.02	-2.512*
Interaction Term									
Violence Exposure * Future Expectation	−0.17	0.04	-3.994***	−0.15	0.04	-3.441***	−0.06	0.02	-3.678***
Adjusted R^2	0.221			0.207			0.102		
F	14.249***			13.154***			5.673***		

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

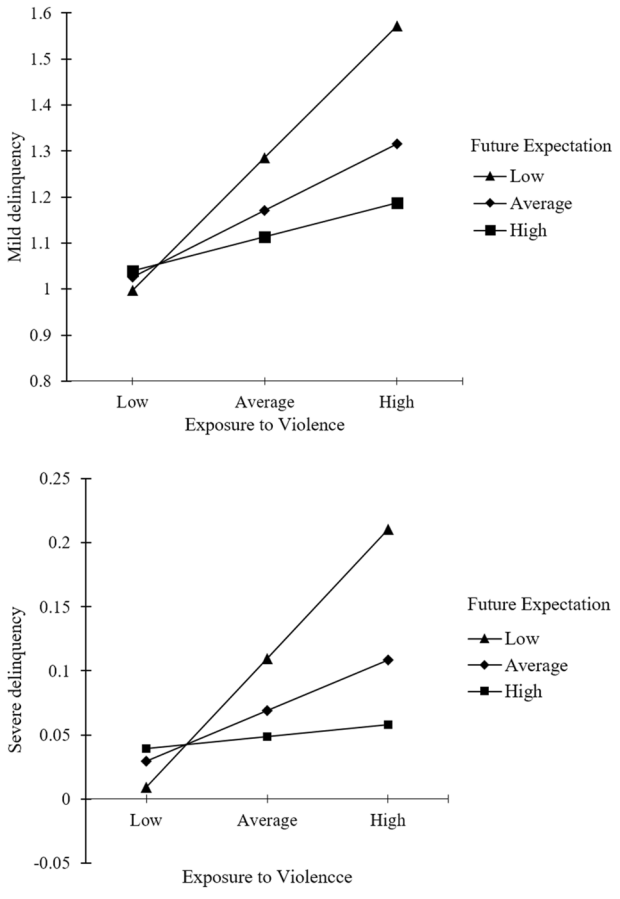


Fig. 2 Future Expectation Dampens the Impact of Violence Exposure on Minor and Severe Delinquency. Note: Average = mean, High = mean plus 1 SD, Low = mean minus 1 SD

a significant improvement in model fit (ΔR square = 0.184, $p < 0.001$). Step 3 employs the PROCESS tool developed by Hayes (2017) to evaluate the moderating effects of expectations about the future on the relationship between exposure to violence and adolescent delinquency.

In Step 3, a significant moderating effect was identified in Model 1 regarding the interaction between exposure to violence and expectations about the future ($\beta = -0.17$, $p < 0.001$), indicating that the impact of exposure to violence on adolescent delinquency varies with expectations about the future. To further explore this interaction, we conducted two follow-up analyses: the pick-a-point approach (analysis of simple slopes) and the Johnson–Neyman technique (Hayes, 2017). Figure 1 illustrates the results of the pick-a-point approach, showing the conditional effects of expectations about the future on total delinquency at different levels (low = mean minus one standard deviation, moderate = mean, high = mean plus one standard deviation). The findings reveal that expectations about the future significantly mitigate the negative relationship between exposure to violence and total delinquency across low and moderate levels (see Fig. 1). Specifically, significant moderation effects were observed for low (conditional effect = 0.313, $p < 0.001$) and moderate (conditional effect = 0.154, $p < 0.001$) expectations about the future.

We applied the same methodological framework to Models 2 and 3 to assess the robustness of our findings and to examine whether the moderating effects varied by delinquency severity (minor vs. severe) as dependent variables (see Table 3; Fig. 2). The results reaffirmed our primary

conclusion that exposure to violence significantly predicts increases in both minor and severe delinquent behaviors among adolescents, consistent with the findings from the linear model. Notably, exposure to violence showed a statistically significant positive association with both forms of delinquency, while expectations about the future negatively influenced both.

The analysis indicated that the moderating effect of expectations about the future does not vary significantly across delinquency severity categories, contrary to Hypothesis 4. The parameter estimates for expectations about the future were significant for both minor and severe delinquency, reinforcing the core finding that expectations about the future consistently mitigate the adverse impact of exposure to violence on adolescent delinquency. This finding suggests that the protective effects of positive expectations about the future apply to both minor and severe delinquent behaviors. As demonstrated in Fig. 2, higher expectations about the future significantly reduce the positive association between exposure to violence and adolescent delinquency, underscoring the importance of cultivating positive expectations about the future to buffer the adverse effects of exposure to violence on adolescent delinquency.

Discussion

Our study investigates the moderating role of positive expectations about the future within a causal framework linking exposure to violence and delinquent behaviors in adolescents. We also examine whether the moderating effects of expectations about the future differ by delinquency severity, especially between minor and severe forms.

Our findings confirm that exposure to violence in domestic settings significantly increases the likelihood of adolescents engaging in delinquent behaviors. These results are consistent with established theories such as SLT and GST. According to these frameworks, adolescents may adopt risky behaviors by observing and internalizing their parents' violent actions (Gottfredson & Hirschi, 1990; Steketee et al., 2021; Shao & Wang, 2019) or using such behaviors as coping mechanisms for stressors (Dorsey et al., 2017; Steketee et al., 2021). Moreover, the present study underscores the substantial moderating effect of expectations about the future, demonstrating that a positive outlook can significantly mitigate the adverse effects of exposure to violence on delinquent behaviors. This finding emphasizes the importance of fostering positive expectations about the future as a proactive measure against adolescent delinquency, even in contexts marked by domestic violence (Cui et al., 2020; So et al., 2018).

Although we hypothesized that these moderating effects differed by delinquency severity, the effects of expectations about the future were observed consistently across various analytical models regardless of severity forms. In other words, adolescents with positive, self-fulfilling expectations about the future are more likely to refrain from delinquency, regardless of its severity. Our results suggest that maintaining an optimistic view of the future helps adolescents manage adverse circumstances more effectively.

In line with these findings, interventions that support a forward-looking perspective in education, career development, and family life are critical. Practitioners in educational settings can adopt a strengths-based approach focusing on adolescents' strengths and resources. Creating opportunities for reflective thinking and self-efficacy—such as through academic support and leadership roles—may further build positive expectations about the future. Programs such as counseling, mentoring services, and exposure to varied role models can help young people envision multiple futures (Mapp et al., 2019). Internship programs can also broaden career and educational aspirations through collaboration with college students and professionals across various fields. These exposures can help young people handle challenges more efficiently (Doom et al., 2023).

By building on prior intervention models such as FFT, MST, and CBT—which have demonstrated efficacy in addressing behavioral concerns among high-risk adolescents—our findings highlight the potential to integrate cognitive protective assets (e.g., positive expectations about the future) into these established frameworks. Specifically, CBT-based approaches that foster future-oriented problem-solving and self-regulation may benefit from placing greater emphasis on cultivating adolescents' long-term aspirations and goal-setting abilities. This approach can enhance existing efforts to reduce recidivism and promote resilience, particularly among youth exposed to domestic violence.

While this study offers significant insights into adolescent delinquency prevention by promoting expectations about the future, several limitations and directions for future research warrant discussion. First, reliance on self-reported data may introduce biases such as underreporting or inaccurate recall. Second, the cross-sectional design limits our ability to draw causal inferences, even though the consistency of our findings with prior research supports the validity of our measures (Chen et al., 2016; Manzoni & Schwarzenegger, 2019). Although our analytic approach allowed us to examine associations and moderation effects, longitudinal or experimental research is needed to test the temporal and causal pathways linking the variables examined in this study. In particular, expectations about the future may themselves be shaped by other factors such as academic achievement, cognitive resources, or school engagement.

Thus, future studies should consider these upstream influences to elucidate the developmental pathways that lead to protective cognitive assets.

Third, more robust assessment tools are needed to measure expectations about the future and to address concerns about reliability. Refining item wording to be culturally inclusive and adding dimensions such as emotional well-being and social relationships could improve both reliability and validity. A mixed-method approach—combining qualitative interviews with quantitative scales—may also offer insight into how adolescents form expectations about the future and how these are shaped by contextual and individual-level factors (Verdugo et al., 2018; Fornell et al., 2023; Schmidt et al., 2016). As well-established developmental factors, peer relationships and parental monitoring may either moderate or mediate the association between exposure to violence and adolescent delinquency. Future studies should examine the roles of these variables.

Our findings underscore the protective role of positive expectations about the future in preventing delinquency among violence-exposed adolescents. We suggest that by focusing on adolescents' strengths and providing opportunities for positive engagement, interventions can foster optimism, reduce delinquent behaviors, and support resilience among high-risk youth.

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Data Availability The data that support the findings of this study are available on request from the corresponding author.

Declarations

Conflict of interest The authors have no competing interest that could have appeared to influence the work reported in this paper. The submitted research paper is our original work and no part of it has been published anywhere else.

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