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Original Article

Relationships Between Childhood Adversity, Emotion Regulation Strategies, and Risk-Taking Behaviors in Young Adults: A Cross-Sectional Correlational Study.

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Abstract

Background:

Adverse Childhood Experiences (ACEs) encompass early-life adversities such as abuse, neglect, and household dysfunction, all of which are strongly associated with emotional dysregulation and maladaptive behavioral outcomes later in life. Emerging evidence suggests that childhood adversity may impair regulatory processes and increase vulnerability to risk-taking behaviors during adolescence and young adulthood. This study aimed to examine the associations between ACE exposure, emotion regulation strategies, and risk-taking behaviors among young adults.

Methodology:

A cross-sectional analytical study was conducted with 353 young adults recruited through convenience sampling. Data were collected using a demographic form, the Adverse Childhood Experiences Questionnaire, the Emotion Regulation Questionnaire, and the Domain-Specific Risk-Taking Scale. Descriptive statistics summarized participant characteristics, while independent t-tests and Pearson correlations assessed group differences and associations among ACEs, emotion regulation strategies, and risk-taking domains. Ethical approval was obtained, and all participants provided written informed consent.

Results:

Emotional abuse (35.1%) and emotional neglect (23.5%) were the most commonly reported ACEs. ACE scores demonstrated significant positive correlations with cognitive reappraisal ($r = 0.58$, $p < 0.01$) and expressive suppression ($r = 0.15$, $p < 0.01$). Higher ACE exposure was also associated with increased social ($r = 0.56$), recreational ($r = 0.45$), ethical ($r = 0.61$), and financial ($r = 0.50$) risk-taking behaviors (all $p < 0.01$). Females reported higher social risk-taking, while participants from joint families demonstrated greater financial and health/safety risk-taking.

Conclusion:

Greater exposure to childhood adversity is linked to increased reliance on both adaptive and maladaptive emotion regulation strategies, alongside heightened engagement in several types of risk-taking behaviors. These findings underscore the lasting influence of early adverse experiences on emotional functioning and behavioral tendencies in young adulthood.

Keywords:

Adverse Childhood Experiences, Emotion Regulation, Risk-Taking Behaviors, Young Adults

Introduction

Adverse Childhood Experiences (ACEs) include a variety of stressful and potentially traumatic events occurring before the age of 18, such as abuse, neglect, and household dysfunction [1]. Extensive research has demonstrated that ACEs are strongly associated with long-term negative health and behavioral outcomes, including mental illness, chronic disease, substance misuse, and engagement in high-risk activities [2–3]. These early adversities can disrupt neurobiological development, stress-response mechanisms, and emotional processing systems, laying the foundation for maladaptive behavioral patterns across the lifespan [4–5].

Emotion regulation—the ability to modulate emotional experiences in adaptive ways—is one of the key psychological processes affected by childhood adversity [6]. Individuals exposed to ACEs often exhibit difficulties in regulating emotions, characterized by greater reliance on maladaptive strategies, such as expressive suppression, and reduced use of cognitive reappraisal [7]. These deficits in emotional regulation have been linked to an increased likelihood of engaging in risk-taking behaviors, including substance use, unsafe driving, impulsive decision-making, and risky sexual activities [8–9].

Young adulthood, typically between the late teens and mid-twenties, is a critical developmental period marked by identity formation, increasing autonomy, and heightened vulnerability to risky behavior [10]. Poor emotional regulation during this phase has been associated with impulsivity, sensation seeking, and reduced behavioral control, especially among individuals with a history of early adverse experiences [11–12]. Understanding how ACEs relate to emotion regulation and risk-taking in this age group is essential, given the long-term implications for psychological well-being, academic performance, and social functioning [13].

Despite growing international evidence, limited research exists within non-Western or collectivist cultural contexts, where family structure, social norms, and caregiving patterns may differently influence the expression of adversity and its consequences [14]. Furthermore, potential moderators such as gender and family structure remain underexplored in South Asian populations [15].

This study aims to address these gaps by examining the relationships between ACEs, emotion regulation strategies, and risk-taking behaviors in young adults. By exploring these associations within a culturally diverse population, the study contributes to a more nuanced understanding of how early adversity shapes emotional and behavioral development, and provides insights that may inform interventions designed to support at-risk youth.

Methodology

Study Design

This research utilized a cross-sectional analytical study design to explore the associations between Adverse Childhood Experiences (ACEs), emotion regulation strategies, and risk-taking behaviors among young adults. The design enabled the simultaneous collection of psychological and behavioral data, allowing comparative analyses across demographic groups and the assessment of correlations among primary study variables.

Ethics

Ethical approval for this study was obtained from the institutional review board prior to participant recruitment. All participants were informed about the study purpose, voluntary participation,

anonymity, and their right to withdraw at any stage without consequences. Written informed consent was obtained, ensuring compliance with ethical standards for human-subject research.

Setting

Data were collected over a three-month period from undergraduate and postgraduate students enrolled in universities and academic institutions across Karachi. The study setting included classroom environments, campus common areas, and student activity spaces where participants could complete the survey booklet privately.

Participants

A total of 353 young adults aged 18–25 years were recruited using convenience sampling. Inclusion criteria included: (a) age between 18–25 years, (b) enrollment in undergraduate or postgraduate studies, (c) ability to read and understand English, and (d) absence of self-reported psychiatric or psychological diagnoses or ongoing treatment. Exclusion criteria included: (a) age outside the defined range, (b) incomplete or inconsistent questionnaires, and (c) any current psychotherapy or psychopharmacological treatment. Of the participants, 118 were males and 235 were females.

Variables

The primary variables included Adverse Childhood Experiences (independent variable), emotion regulation strategies cognitive reappraisal and expressive suppression and risk-taking behaviors across social, recreational, ethical, financial, and health/safety domains (dependent variables). Demographic variables such as age, gender, family structure, education, and number of siblings were also collected for descriptive and comparative analyses.

Data Sources and Measurement

Data were collected using a structured booklet consisting of a demographic form and standardized instruments. ACEs were measured using the original 10-item CDC/Kaiser Adverse Childhood Experiences Questionnaire, assessing abuse, neglect, and household dysfunction. Emotion regulation was assessed using the Emotion Regulation Questionnaire (ERQ), measuring cognitive reappraisal (6 items) and expressive suppression (4 items).

Risk-taking behaviors were measured using the Domain-Specific Risk-Taking Scale (DOSPERT), comprising five subscales. All instruments were administered in their original format, and internal consistencies ranged from acceptable to good ($\alpha = 0.60–0.83$). Scoring for each scale followed the respective manuals.

Bias

To minimize selection bias, participants were approached across multiple academic settings and asked to complete the survey independently. Response bias was reduced by ensuring anonymity and emphasizing honest reporting. Incomplete, inconsistent, or patterned responses were removed during the data-cleaning phase to reduce measurement bias. Recall bias, inherent in ACE reporting, was acknowledged and mitigated through clear instructions and standardized items.

Study Size

The final sample of 353 participants was based on an estimated ACE prevalence of 35.2% reported in comparable student populations, ensuring adequate statistical power ($\geq 80\%$) to detect meaningful associations among variables. The sample size was slightly increased to account for potential non-responses or unusable data.

Quantitative Variables

Quantitative variables included ACE scores (0–10), ERQ subscale scores (range 1–7 per item), and DOSPERT subscale totals. All quantitative variables were treated as continuous for analysis. Demographic quantitative variables, such as age, number of siblings, and household size, were summarized using means and standard deviations.

Statistical Methods

Data analysis was performed using IBM SPSS version 23. Descriptive statistics (frequencies, percentages, means, and standard deviations) summarized demographic and psychological variables. Prior to inferential testing, normality and homogeneity of variance were assessed using the Shapiro–Wilk test and Levene’s test, respectively. Independent sample t-tests were used to compare gender and family-structure differences. Pearson correlation coefficients examined associations between ACEs, emotion regulation strategies, and risk-taking domains. Pearson correlation coefficients with 95% confidence intervals were reported as measures of effect size for associations between continuous variables.

Results

Participants

A total of 353 young adults participated in the study, comprising 118 males (33.4%) and 235 females (66.6%), all aged between 18 and 25 years (mean age 22.03 ± 1.86 years). Most participants were undergraduate students, while a smaller proportion were enrolled in graduate or postgraduate programs. The majority were single and residing with biological parents. Participants represented both nuclear and joint family structures, allowing for between-group comparisons. After screening, all included questionnaires were complete and met inclusion criteria, yielding a final dataset free from missing or inconsistent responses.

Descriptive Data

Descriptive characteristics of the sample are summarized to illustrate the demographic and psychosocial profile of participants. Students were, on average, in their 2.67 ± 1.13 academic semester and lived with approximately 7.24 ± 2.16 family members. Emotional abuse (35.1%), physical abuse (25.5%), and emotional neglect (23.5%) emerged as the most prevalent ACE categories, while sexual abuse

(17.3%) and physical neglect (14.2%) were less frequently endorsed. The mean overall ACE score was 1.65 ± 2.08 , indicating exposure to at least one adverse experience in early life for a substantial proportion of the sample. Cognitive reappraisal scores averaged 26.35 ± 7.51 , whereas expressive suppression averaged 16.92 ± 5.37 . Among the risk-taking domains, social and recreational risk-taking showed the highest mean scores (23.83 ± 7.96 and 21.44 ± 8.84 , respectively), while ethical, financial, and health/safety risk-taking had comparatively lower averages.

Outcome Data

Gender comparisons demonstrated that females reported significantly higher social risk-taking than males ($p < 0.001$), while no significant gender differences were found for emotion regulation strategies or other risk-taking domains. Comparisons between nuclear and joint family participants revealed no differences in ACEs or emotion regulation; however, individuals from joint families showed significantly higher financial ($p = 0.001$) and health/safety risk-taking ($p = 0.004$). Internal consistency analyses showed acceptable reliability across most scales, with Cronbach’s alpha values ranging from 0.60 to 0.83. These results ensured that outcome variables, including ACEs, ERQ subscales, and DOSPERT domains, were psychometrically sound for further analysis.

Main Results

The main findings demonstrated clear associations between Adverse Childhood Experiences, emotion regulation strategies, and risk-taking behaviors. ACE scores were significantly and positively correlated with cognitive reappraisal ($r = 0.58$, $p < 0.01$) and expressive suppression ($r = 0.15$, $p < 0.01$), suggesting that individuals exposed to childhood adversity tend to rely on both adaptive and maladaptive emotion regulation strategies. ACEs also showed significant positive correlations with multiple risk-taking domains, including social ($r = 0.56$), recreational ($r = 0.45$), ethical ($r = 0.61$), and financial ($r = 0.50$) behaviors (all $p < 0.01$). These relationships indicate that higher levels of early adversity are associated with elevated tendencies toward risk-taking across several life domains. Significant differences by family structure further highlight how contextual factors may shape behavioral outcomes. Collectively, the results emphasize that young adults with greater ACE exposure demonstrate distinct patterns of emotional regulation and an increased propensity for risk-taking behaviors.

Table 1: Demographic characteristics of the study population (N=353).

Variables		N(%)
Age (years); Mean $\pm$ SD		22.03 $\pm$ 1.86
	0–2	72(20.4%)
No of Siblings	3–4	143(40.5%)
	≥ 5	138(39.1%)
	≤ 5	98(27.8%)
No of Family Members Living with you	6–8	147(41.6%)
	≥ 9	108(30.6%)
	1	124(35.1%)
Total Earning Members	2	132(37.4%)
	≥ 3	97(27.5%)
Gender	Male	118(33.4%)
	Female	235(66.6%)
Qualification	Post Graduate	34(9.6%)
	Graduate	15(4.2%)
	Undergraduate	304(86.1%)
Employment Status	Student	233(66.0%)
	Self-Employed	33(9.3%)

	Full Time	11(3.1%)
	Part Time	11(3.1%)
	Employed	39(11.2%)
	Internship	21(6.0%)
Marital Status	Single	342(96.9%)
	Married	9(2.5%)
	In Relationship	2(0.6%)
Family Structure	Nuclear	132(37.4%)
	Joint	96(27.2%)
	First Born	82(23.2%)
Birth Order	Second Born	75(21.2%)
	Middle Child	75(21.2%)
	Last Born	50(14.2%)
Currently Living with	Only Child	5(1.4%)
	Biological Parents	322(91.2%)
	Others	20(5.7%)

Table 2: Cronbach Alpha of the Scales.

Variables	Items	α
ACE	10	-
Emotion Regulation		
ER_REP	6	0.77
ER_SUP	4	0.62
Risk-taking Behavior		
RTB-S	6	0.72
RTB-R	6	0.80
RBT-E	6	0.68
RTB-F	6	0.67
RTB-HS	6	0.60

ACE=Adverse Childhood Experiences, ER-REP=Emotional Regulation Reappraisal

Table 3: Descriptive analysis of Adverse Childhood Experiences and risk-taking behaviors.

Variables	N (%)
Emotional Abuse	124(35.1%)
Physical Abuse	90(25.5%)
Sexual Abuse	61(17.3%)
Emotional Neglect	83(23.5%)
Physical Neglect	50(14.2%)
Disappearance of Parents	33(9.3%)
Domestic Violence	38(10.8%)
Alcoholic Parents	32(9.1%)
Family Member Diagnosed with Mental Illness	48(13.6%)
Family Member in Prison	25(7.1%)
Adverse Childhood Experiences; Mean $\pm$ SD	1.65 $\pm$ 2.08
ERQ – Cognitive Reappraisal; Mean $\pm$ SD	26.35 $\pm$ 7.51
ERQ – Expressive Suppression; Mean $\pm$ SD	16.92 $\pm$ 5.37
RTB-Social	23.83 $\pm$ 7.96
RTB-Recreational	21.44 $\pm$ 8.84
RTB-Ethical	15.98 $\pm$ 6.87
RTB-Financial	19.04 $\pm$ 7.14
RTB-Health/Safety	17.31 $\pm$ 6.92

Table 4: Gender based differences in adverse childhood experiences, subscales of emotion regulation and subscales of risk-taking behavior.

Variables	Male Mean $\pm$ SD	Female Mean $\pm$ SD	p-value
Adverse Childhood Experiences	1.51 $\pm$ 2.38	1.72 $\pm$ 1.92	0.382

ERQ – Cognitive Reappraisal	25.52±8.41	26.77±7.0	0.140
ERQ – Expressive Suppression	16.72±5.28	17.02±5.42	0.620
RTB-Social	20.97±8.92	25.26±7.02	<0.001*
RTB-Recreational	20.40±9.41	21.96±8.51	0.119
RTB-Ethical	16.33±7.23	15.81±6.70	0.499
RTB-Financial	18.70±6.98	19.22±7.23	0.521
RTB-Health/Safety	17.72±7.33	17.11±6.70	0.436

*p<0.05 is considered significant.

Table 5: Stratification of adverse childhood experiences, subscales of emotion regulation and subscales of risk-taking behavior with respect to family structure.

Variables	Nuclear Mean ± SD	Joint Mean ± SD	p-value
Adverse Childhood Experiences	1.90±2.37	1.56±1.84	0.246
ERQ – Cognitive Reappraisal	27.31±6.25	27.54±6.10	0.786
ERQ – Expressive Suppression	17.50±5.14	17.41±4.36	0.889
RTB-Social	26.21±6.14	26.03±5.74	0.814
RTB-Recreational	22.40±8.64	23.95±7.05	0.136
RTB-Ethical	15.93±6.37	17.54±6.99	0.074
RTB-Financial	19.26±6.61	22.29±6.55	0.001*
RTB-Health/Safety	17.25±6.35	19.82±6.84	0.004*

*p<0.05 is considered significant.

Table 6: Correlations between adverse childhood experiences, emotion regulation, and risk-taking domains.

Variables	r	95% CI (LL–UL)	p-value
ERQ – Cognitive Reappraisal	0.58	0.50 – 0.65	<0.001*
ERQ – Expressive Suppression	0.15	0.05 – 0.25	<0.001*
RTB – Social	0.56	0.48 – 0.63	<0.001*
RTB – Recreational	0.45	0.36 – 0.53	<0.001*
RTB – Ethical	0.61	0.53 – 0.68	<0.001*
RTB – Financial	0.50	0.41 – 0.58	<0.001*
RTB – Health/Safety	0.38	0.28 – 0.47	<0.001*

ERQ = Emotion Regulation Questionnaire; RTB = Risk-Taking Behavior; CI = Confidence Interval; LL = Lower Limit; UL = Upper Limit.

*p<0.05 is considered significant.

Discussion

The present study examined the associations between Adverse Childhood Experiences (ACEs), emotion regulation strategies, and risk-taking behaviors in young adults, offering insights into how early adversity continues to influence emotional and behavioral functioning. Consistent with previous literature, emotional abuse and emotional neglect emerged as the most commonly reported ACEs, highlighting the prevalence of non-physical forms of adversity in community samples, particularly within collectivist cultural contexts [17–18]. Research suggests that emotional maltreatment, although often underrecognized, has substantial long-term developmental effects, including heightened emotional sensitivity and behavioral dysregulation [18].

A central finding of this study was the significant positive association between ACE exposure and both cognitive reappraisal and expressive suppression. While previous studies have documented that ACEs often lead to impaired emotion regulation and greater reliance on maladaptive strategies [7,19], the concurrent increase in both adaptive (reappraisal) and maladaptive (suppression) strategies suggests a compensatory pattern. Young adults with higher ACE scores may adopt multiple regulatory approaches—some adaptive, some not—as a means of managing the psychological impact of early adversity. This aligns with frameworks suggesting that trauma may disrupt consistent emotion regulation patterns while simultaneously

prompting individuals to experiment with diverse coping strategies [20].

The positive associations observed between ACEs and multiple risk-taking domains—social, recreational, ethical, and financial—are consistent with prior evidence linking childhood adversity to impulsivity, sensation seeking, and behavioral risk-taking in adolescence and adulthood [1–3,23–24]. Neurobiological models propose that early-life stress alters the development of neural circuits involved in reward processing and executive control, particularly in the amygdala and prefrontal cortex [21–22]. These alterations may predispose individuals to pursue high-risk behaviors as a means of coping with emotional distress or seeking stimulation.

Gender differences in the sample revealed that females reported significantly higher social risk-taking, a deviation from earlier literature showing males typically engaging more in risk behaviors [27]. This shift may reflect evolving sociocultural roles, increased autonomy among young women, or changing perceptions of risk within contemporary youth populations [28]. Similarly, participants from joint families demonstrated substantially higher financial and health/safety risk-taking behaviors. While joint families are traditionally assumed to provide greater socioemotional support, some studies suggest that shared decision-making and diffused responsibility may inadvertently encourage risk-taking in specific contexts [29].

The findings underscore the ongoing psychological impact of childhood adversity on the emotional and behavioral functioning of young adults. They highlight the need for early prevention, trauma-informed care, and emotion regulation training within educational and clinical settings. Understanding how ACEs shape developmental trajectories can guide intervention strategies aimed at reducing maladaptive risk-taking and strengthening adaptive emotional coping mechanisms.

Limitations

This study has several limitations that should be considered when interpreting the findings. First, its cross-sectional design prevents the establishment of causal relationships among ACEs, emotion regulation, and risk-taking behaviors. Longitudinal studies are needed to determine how these relationships evolve over time. Second, all data were collected through self-report measures, which may be influenced by recall bias, especially concerning childhood experiences, and social desirability bias in reporting emotional and behavioral tendencies. Third, the sample consisted exclusively of university students from Karachi, which limits the generalizability of the findings to non-student populations or individuals from different socioeconomic or cultural backgrounds. Fourth, although reliability indices for most scales were acceptable, the health/safety risk-taking subscale exhibited relatively lower internal consistency, warranting cautious interpretation. Finally, convenience sampling may have introduced selection bias, as individuals who agreed to participate may differ systematically from those who did not. Despite these limitations, the study contributes meaningful insights into the impact of early adversity on emotional and behavioral functioning in young adults and provides a foundation for future research and intervention development.

Conclusion

This study provides compelling evidence that exposure to Adverse Childhood Experiences is associated with increased reliance on both adaptive and maladaptive emotion regulation strategies and a greater propensity toward risk-taking behavior across several life domains in young adulthood. The findings emphasize that early adversity exerts enduring effects on neurodevelopment, emotional functioning, and decision-making. By identifying these associations within a young adult population, the study underscores the importance of trauma-informed approaches, early psychological screening, and interventions focused on enhancing emotion regulation skills. Strengthening supportive environments within families, academic institutions, and communities may reduce the long-term behavioral consequences of childhood adversity and promote healthier developmental outcomes.

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