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Association Between Adverse Childhood Experiences And Anxiety And Depression In Adolescents Aged 12–17 Years: A Cross-Sectional Study

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Abstract ***Objective:*** Adverse childhood experiences (ACEs) are increasingly recognized as important determinants of mental health. This study aimed to examine the relationship between ACE exposure and symptoms of anxiety and depression among adolescents. ***Methods:*** A cross-sectional study was conducted among 600 adolescents aged 12–17 years from school and community settings. ACEs were assessed using a standardized 10-item questionnaire. Anxiety and depression were evaluated using the Generalized Anxiety Disorder-7 (GAD-7) and Patient Health Questionnaire-9 (PHQ-9). Multivariable logistic regression was used to analyze associations. ***Results:*** A total of 62% of participants reported at least one ACE, while 28% experienced three or more. Anxiety and depression were identified in 31% and 27% of participants, respectively. Adolescents exposed to ≥3 ACEs had significantly greater odds of anxiety (aOR: 2.4; 95% CI: 1.8–3.2) and depression (aOR: 2.9; 95% CI: 2.1–3.8). Increasing ACE exposure corresponded with higher symptom prevalence. ***Conclusion:*** Exposure to childhood adversity is strongly linked to anxiety and depression during adolescence. Early screening and preventive strategies are essential.

Keywords: Adverse Childhood Experiences (ACEs),Adolescents,Anxiety Depression Mental Health

INTRODUCTION

Adverse childhood experiences encompass various forms of early-life stress, including maltreatment and household challenges. These exposures have been consistently linked to negative health outcomes later in life.[1] Research indicates that ACEs interfere with normal developmental processes and increase vulnerability to psychiatric conditions.[2,3]

The adolescent period is marked by substantial emotional and cognitive development, making individuals particularly sensitive to the effects of early adversity. Psychological disorders such as anxiety and depression often emerge during this stage.[4] The global burden of these conditions among adolescents highlights the importance of identifying modifiable risk factors.[5]

Stress-related biological changes, including dysregulation of the hypothalamic-pituitary-adrenal axis, are believed to play a key role in linking ACEs to mental health disorders.[6] Structural and functional brain changes have also been observed in individuals exposed to early adversity.[7]

This study investigates the association between ACE exposure and symptoms of anxiety and depression among adolescents aged 12–17 years.

Methods

Study Design and Participants

This observational cross-sectional study included 600 adolescents aged 12–17 years recruited from educational institutions and community settings.

Assessment Tools

Childhood adversity was measured using a validated 10-item ACE questionnaire. Mental health outcomes were assessed using GAD-7 for anxiety and PHQ-9 for depression.[8,9]

Analysis

Data were analyzed using descriptive statistics and logistic regression models. Adjustments were made for demographic variables including age, gender, and socioeconomic background.

RESULTS

Table 1. Demographic Characteristics (N = 600)

Variable	n (%)
Mean age	14.5 ± 1.7
Female	312 (52%)
Male	288 (48%)
Urban	360 (60%)

ACEs Distribution

Table 2. ACE Score Distribution

ACE Score	n (%)
0	228 (38%)
1–2	204 (34%)
≥3	168 (28%)

Mental Health Outcomes

Table 3. Prevalence of Anxiety and Depression

Outcome	n (%)
Anxiety	186 (31%)
Depression	162 (27%)

Association Between ACEs and Outcomes

Table 4. Adjusted Odds Ratios

ACE Score	Anxiety aOR (95% CI)	Depression aOR (95% CI)
0	1.0	1.0
1–2	1.6 (1.2–2.2)	1.9 (1.3–2.6)

≥3	2.4 (1.8–3.2)	2.9 (2.1–3.8)

DISCUSSION

The findings of this study reinforce the significant relationship between early-life adversity and mental health outcomes during adolescence. A cumulative effect was evident, with higher ACE exposure linked to increased likelihood of anxiety and depression. These findings are consistent with earlier research demonstrating similar dose-response patterns.[2,10] From a biological perspective, prolonged exposure to stress during childhood can disrupt regulatory systems involved in stress response. Alterations in cortisol levels and brain development may contribute to emotional dysregulation and increased vulnerability to psychiatric conditions.[6,7]

Psychologically, exposure to adversity may impair the development of adaptive coping strategies. Adolescents with such experiences may exhibit heightened emotional sensitivity and negative cognitive patterns, which increase the risk of internalizing disorders.[4]

Social context also plays a crucial role. Lack of supportive relationships and exposure to unstable environments can intensify the effects of ACEs. Conversely, positive experiences and supportive networks may help buffer these effects.[11]

The results emphasize the importance of early detection and intervention. Integrating ACE screening into routine pediatric care and school health programs could facilitate timely identification of at-risk individuals.[3] Trauma-informed approaches that prioritize safety and resilience-building are particularly relevant.[12]

Future research should focus on longitudinal designs to better understand causal relationships and identify protective factors that promote resilience.

CONCLUSION

Adverse childhood experiences are strongly associated with anxiety and depression among adolescents. The cumulative nature of these exposures highlights the need for early preventive and intervention strategies to improve mental health outcomes.

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