# Childhood Adversity and Mental Health Status of Young Adults: A Cross-Sectional Study at the Universities of Islamabad and Rawalpindi, Pakistan

Ayesha Fazal, Seemi Tanvir, Siham Sikander*, Ayesha Naseem, Mariam Babar

Margalla Institute of Health Sciences, Islamabad Pakistan, *Health Services Academy, Islamabad Pakistan

## ABSTRACT

*Objective:* To determine the frequency of childhood adversities among the university students of Islamabad and Rawalpindi and compare those adversities with their current mental health by measuring depression and anxiety.

*Study Design:* Cross-sectional study.

*Place and Duration of Study:* Quaid-e-Azam University (QAU), Islamabad and ARID Agricultural University, Rawalpindi Pakistan from May to Aug 2019.

*Methodology:* Survey data of 388 students between 19-25 years of age group was collected from 2 universities in the twin cities using a simple random sampling method for data collection in the form of questionnaires. First, frequencies of adverse childhood experiences (ACE) were determined, followed by a comparison of ACE with common mental disorders, i.e., depression using Patient Health Questionnaire-9 (PHQ-9) and anxiety using Generalized Anxiety Disorder-7 (GAD-7) using the chi-squared test.

*Results:* The frequency of adverse childhood experiences (ACE) was found to be highest among those students who had an ACE score of 1-3 (74.7%), followed by those with an ACE score of 4-6 (24.7%). Overall, females had more ACE (66.8%) than males (33.2%). Strong association of ACEs with depression (*p*-value <0.05) and anxiety (*p*-value <0.005) was found.

*Conclusion:* Childhood adversity has adverse results not only on the affected individual's life but also on the people around that individual. For example, early life trauma in children of different age groups results in depression for a lifetime, anxiety disorders, cognitive dysfunctions, and lack of effective communication.

**Keywords:** Adverse childhood experiences (ACE), Anxiety, Childhood adversity, Common mental disorders, Depression.

## INTRODUCTION

Adversity is derived from 'adverse', which means 'unfavourable'. There are ten types of childhood adversities in total. Five are personal, while the other five are related to other family members. Personal adversities include abuse and neglect. Abuse can be physical, verbal or sexual, while neglect can be physical or emotional. The other five are related to the family members, which include an alcoholic parent, a mother who had been facing domestic violence, a family member who had been in jail, a family member who had been diagnosed with any mental disorder, or disappearance of a parent through divorce, death or abandonment.[1] According to a WHO report, 1 out of 4 adults reported being physically abused in their childhood and 12% of the children reported being abused sexually in the last year.[2] Moreover, between the years 1990 and 2010, mental disorders along with substance use were found to be increased up to 41%. Childhood adversities are of public health consequences in young adults because

they are not only associated with mental health issues like depression and anxiety but also with various other non-communicable diseases (NCDs) such as hypertension, diabetes and cardiovascular diseases. Mental disorders are more likely to occur in young adults of less than 20 age group, while NCDs are more common in adults greater than 20 years. Since NCDs are diseases which progress with age.[3] Apart from the increasing burden of non-communicable diseases (NCDs), only 1.5% of international aid for NCDs has been endowed yet. At the same time, mental health acquired only 0.4%. Hence, there is a big gap in the field of mental health.[4] Overall, 1 in 3 children suffers from adverse childhood experiences (ACE). In higherincome countries, 1 in 4 children suffers from ACE.[5] Individuals with a history of childhood adversity tend to have high risks for suicidal thoughts, and at some time in their lives, they might have tried to get rid of their lives.[6] Cumulative adversities, when combined, are meant for the increase in suicidal rate among young adults. An increase in childhood adversity is directly related to early maturation and development. Thus, impairing the normal growth and development of the child. This

**Correspondence: Dr Seemi Tanvir,** Margalla Institute of Health Sciences, Islamabad-Pakistan

will adversely affect the child's mental health in later life.[7] About half of the population of women who were physically or emotionally abused during their pregnancy were found to have higher risks of depression and its effects on their children. They had less social support, meaning their families were not supportive during their pregnancy period. Men who were found to be responsible for this behaviour experienced this in their childhood either by noticing their parents' fight or they had a history of losing any of their parents. Hence, if children had any history of childhood adversity, they were found to impact their lives negatively.[8] Moreover, it has been seen that childhood adversity is linked with poor academic performance, social disturbance, lack of communication skills and aggressive behaviour.[9]

The rationale of the study is to assess the effects of adverse childhood experiences on the present mental health status of young adults.

## METHODOLOGY

The study was conducted after the approval of an Ethical Review Committee of Health Services Academy, Islamabad (issued on: May 9, 2020). It was a cross-sectional study conducted at the two universities in the twin cities, i.e., Quaid-e-Azam University (QAU), Islamabad and ARID Agricultural University, Rawalpindi Pakistan, for four months from May to August 2019. The research committees of both universities signed a permit letter. The students enrolled in the city mainly belonged to the twin cities, while some were from other cities too (such as Chakwal and Wah Cantt). A simple random sampling technique included three hundred and eighty-eight young adults (both males and females) using the lottery method to select the two universities. Sample size was calculated by using Cochran's formula: $n_0 = Z^2 PQ/e^2$ (Z=z-testing, P=prevalence/proportion of any disease, e2=precision between true and estimated value (true=standard value). Initially, the sample size was calcu-lated as 422 using this formula, while the prevalence was assumed to be 50% in the study.[10] 34 participants were excluded from the study since they had a history of previous life events in the past year. Hence, the total number of participants enrolled in the study was 388.

**Inclusion Criteria:** All the university students were enrolled in the study regardless of their total years of education and marital status.

**Exclusion Criteria:** Students who had some adverse life event in the past year, e.g., parental death, had some serious accident, life-threatening illness or injury, or those with a pre-existing diagnosed mental disorder, e.g., bipolar disorders, dementia, or those study participants who were undergoing treatment for any of the conditions as mentioned earlier assault were excluded from the study.

The questionnaire was widely accepted and validated, so no pretesting of the data tool was required. The questionnaire comprised of four parts. Socio-demographic factors: age, gender, area of residency, number of siblings, number among siblings. Patient health questionnaire (PHQ-9): to assess the levels of depression. There were nine items, providing a 0 to 27 severity score, ranging from 0: no depression, 1-4: minimal depression, 5-9: mild, 10-14: moderate, 15-19: moderately severe, 20-27: severe depression. The general anxiety scale (GAD-7) was used to measure general anxiety. There were seven items, providing a severity score of 0 to 21 ranging between 0: no anxiety, 1-5: mild anxiety, 6-10: moderate, 11-15: moderately severe, and 15-21: severe anxiety. ACE questionnaire: It is a 10- Item measured self-report with closed-ended questions. A score of 3 means that three questions are answered as 'Yes'. The ACE scoring was divided into 1-3, 4-6: moderate, and 7-10: severe ACE.

All the results of the study may be generalized to other contexts or settings across the world. Therefore, there was no need for pretesting in the present study. "The internal reliability of PHQ-9 was excellent with the Cronbach's alpha to be 0.86. Test-retest reliability was 0.89, which was again excellent".[10] "Good internal consistency for GAD-7 was seen (α=0.92) and interclass relation of 0.83".[11] "Also that, ACE had adequate consistency (Cronbach's alpha=0.88)".[12]

The questionnaires were distributed, and data analysis was done using software SPSS version 21 (Statistical Package for Social Sciences, Chicago, USA). Firstly, the frequencies with percentages of socio-demographic factors (gender, education, residence and number of siblings) and ACE has been determined, followed by a comparison of ACE with common mental disorders (depression and anxiety). For this purpose, a chi-squared test was applied for the two sets of categorical variables. The *p*-value of ≤0.05 was considered significant.

## RESULTS

Three hundred and eighty-eight participants, out of which 129 (33.2%) males and 259 (66.8%) females between the 19-25 year age group with the mean ± SD

of age 23 ± 1.5, were included in the study and assessed for their years of education and number of siblings. Descriptive analysis of socio-demographic factors (including gender, residence, education and number of siblings) with ACE was shown in the Table-I.

**Table-I: Socio- demographic factors.**

| Socio- Demographic Factors | n (%) |
|---|---|
| **Gender** | |
| Males | 129 (33.2%) |
| Females | 259 (66.8%) |
| **Age** | |
| 19-21 | 73 (18.8%) |
| 21-23 | 229 (59%) |
| 23-25 | 86 (22.2%) |
| **Residence** | |
| Islamabad | 162 (41.8%) |
| Rawalpindi | 192 (49.5%) |
| Others (Chakwal, Wah Cantt) | 34 (8.7%) |
| **Education** | |
| BSc/BS | 191 (49.2%) |
| MSc/MS | 186 (47.9%) |
| MPhill | 2 (0.6%) |
| MBA | 3 (0.8%) |
| Others | 6 (1.5%) |
| **Number of Siblings** | |
| 1-3 | 62 (16%) |
| 4-6 | 247 (63.7%) |
| 7 or above | 79 (20.3%) |

Out of 388 participants, 290 had 1-3 items on ACE and resided in category 1, i.e. mild ACE. Ninety-six adults had moderate ACE ranging between the score of 4-6, while two individuals had 7-10 items on ACE. It was found that 290 individuals (74.7%) had scores of 1-3, 96 individuals (24.7%) had scores of 4-6, while 2 (0.5%) resided in the category of 7-20 (Table-II).

**Table-II:Frequency of adverse childhood experiences (ACE) in young adults.**

| ACE Scoring | Frequency n (%) |
|---|---|
| 1-3 | 290 (74.7 %) |
| 4-6 | 96 (24.7%) |
| 7-10 | 2 (0.6%) |
| Total | 388 (100%) |

A strong relationship between depression and ACE was observed. The highest levels of depression were seen in patients with ACE scores of 1-3, followed by those with a score of 4-6. The association between depression and ACE was strongly significant (Table-III).

Similarly, the relation between GAD and ACE was assessed and found to be most prevalent in pa-

tients with ACE scores of 4-6. Association between GAD and ACE was found to be strongly significant, i.e., *p*-value <0.001. Hence, there was a strong relationship between anxiety and adverse childhood experiences (Table-IV).

**Table-III: Association between depression and adverse childhood experiences (ACE).**

| Levels of Depression | Mild ACE n (%) | Moderate ACE n (%) | Severe ACE n (%) | *p*-value |
|---|---|---|---|---|
| Minimal | 23 (7.9%) | - | - | |
| Mild | 48 (16.6%) | 11 (11.5%) | - | |
| Moderate | 173 (59.7%) | 29 (30.2%) | 2 (100%) | <0.001 |
| Moderately Severe | 39 (13.4%) | 33 (34.4%) | - | |
| Severe | 7 (2.4%) | 23 (24.0%) | - | |
| Total | 290 (100%) | 96 (100%) | 2 (100%) | |

**Table-IV: Association between generalized anxiety disorders (GAD-7) and adverse childhood experiences (ACE).**

| Levels of GAD | Mild ACE n (%) | Moderate ACE n (%) | Severe ACE n (%) | *p*-value |
|---|---|---|---|---|
| Mild | 42 (14.5%) | - | - | |
| Moderate | 87 (30.0%) | 33 (34.4%) | 1 (50.0%) | |
| Moderately Severe | 141 (48.6%) | 36 (37.5%) | 1 (50.0%) | <0.001 |
| Severe | 20 (6.9%) | 27 (28.1%) | - | |
| Total | 290 (100%) | 96 (100%) | 2 (100%) | |

## DISCUSSION

Any childhood adversity has a negative impact on the health of that individual in later years. The prevalence of adverse childhood experiences was found to be more in females than in males, which previous studies have supported. Although community violence should also be considered childhood adversity, it is not included in the category. It was found that males had experienced more social adversities than females. Similarly, high smoking trends were seen in males more than females. Males tend to initiate smoking at an early age than that females. In the previous studies, socio-demographic factors considered were age, sex, and socio-economic status; in this study, five socio-demographic factors, including residence, number of siblings and education, which might act as confounding factors, were also considered. The age limit used in the previous studies was 12- 24 years, while in this study, the age limit was 19-24.[13,14]

This study concluded that the occurrence of ACE would lead to an increase in common mental disorders like depression and anxiety later in the life of those individuals, which is supported by the literature available.[3]

The *p*-value for the relationship between ACE and depression was less than 0.001, indicating a strong relationship between ACE and depression. Individuals with a history of ACE are more likely to have depression in the future than those with no such history. Similarly, the *p*-value for ACE and anxiety was 0.001. Individuals with a history of ACE also tend to have higher levels of anxiety than those who do not have any such history. It means a strong association between ACE and common mental disorders (depression and anxiety) existed, which is also supported by the previous literature. More the ACE score, more adverse effects will occur later in life. The ACE score is affected by several reasons, like early victimization, any form of childhood maltreatment (any form of abuse or neglect), early life toxic stress and many other reasons.[15-17]

Moreover, ACE had a strong relationship with gender. Overall, it was found that the occurrence of ACE was more in females than in males, which is supported by previous studies.[18] Early childhood adversities and maltreatment affect the facial expressions of those adults affected in childhood, and they have a greater tendency to perceive facial expressions emotionally.[19]

## CONCLUSION

Childhood adversity has adverse results not only on the affected individual's life but also on the people around that individual. For example, early life trauma in children of different age groups results in depression for a lifetime, anxiety disorders, cognitive dysfunctions, and lack of effec-tive communication.

**Conflict of Interest:** None.

**Conflict of Interest**

AF: Concept, data collection, manuscript writing, ST: Data analysis and manuscript writing, SS: Fianl approval, AN: Data collection and manuscript writing, MB: Data analysis.

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