CAPITAL UNIVERSITY OF SCIENCE AND TECHNOLOGY, ISLAMABAD

The Mediating Role of Resilience between Adverse Childhood Experiences and Emotional Intelligence among Undergraduates

by

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I dedicate this thesis to my papa, whose passing has left an irreplaceable void in my heart. His love, sacrifices and prayers continue to live within me and will remain my guiding light forever. To my dearest mother, whose unwavering support and strength have been the backbone of my journey. To my brother, who always believed in me and reminded me of my abilities when I needed it the most. I am deeply grateful to my supervisor for her belief in me and for her consistent guidance in helping me shape this work and making this journey possible. To my besties, whose presence brightened my world and lightened even the heaviest days, making this journey less lonely. Lastly, to the version of myself who kept going despite the doubts...Maria this is for you.

CERTIFICATE OF APPROVAL

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Abstract

Adverse Childhood Experiences (ACE) significantly impact emotional development and wellbeing, particularly during emerging adulthood. However, research indicates resilience can buffer this impact. The study aimed to examine the mediating role of resilience in the relationship between ACE and Emotional Intelligence (EI) among undergraduate students. A cross-sectional design was employed. Data were collected from undergraduate students through convenience sampling from Rawalpindi and Islamabad universities. Google Form links were shared online and in classroom settings to collect data. Adverse Childhood Experiences Questionnaire (ACE-Q), the Brief Resilience Scale (BRS), and the Schutte Self-Report Emotional Intelligence Test (SSEIT) were used. Statistical analyses were conducted in SPSS-21 and Mplus version 7 on 502 undergraduates. Structural Equation Modelling (SEM) was used to analyse the hypothesized mediation model. Results revealed that ACE had a significant negative relationship with both resilience and emotional intelligence. Resilience showed a significant negative relationship with EI and partially mediated the relationship between ACE and EI. These findings suggest that resilience plays a complex role in shaping EI. Males reported significantly higher resilience than females. Emotional abuse (32.7%), emotional neglect (28.9%), physical abuse (23.9%), and sexual abuse (15.1%) were reported as the most frequently ACE among undergraduates.Building resilience and enhancing emotional intelligence in survivors of adverse childhood experiences can improve clinical outcomes for those dealing with the lasting effects of childhood maltreatment.

Keywords: Adverse Childhood Experiences, Emotional Intelligence, Resilience, Undergraduates.

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Abbreviations

ACE	Adverse Childhood Experiences
BRS	Brief Resilience Scale
CDC	Center for Disease Control and Prevention
CI	Confidence Interval
df	Degrees of Freedom
EI	Emotional Intelligence
M	Mean
MOE	Managing Others' Emotions
MOW	Managing Own Emotions
PE	Perception of Emotions
p-value	Probability Value (Statistical Significance)
r	Pearson's Correlation Coefficient
RMSEA	Root Mean Square Error of Approximation
SD	Standard Deviation
SEM	Structural Equation Modeling
SES	Socioeconomic Status
SPSS	Statistical Package for the Social Sciences
SSEIT	Schutte Self-Report Emotional Intelligence Test
UE	Utilization of Emotions

Chapter 1

Introduction

Adverse Childhood Experiences (ACE) are increasingly acknowledged as a significant global public health challenge due to their enduring impact on both mental and physical health across the lifespan (1; 2; 3). Childhood experiences play a significant role in wellbeing and development, particularly among emerging adults (4). These experiences are also known to have an interaction with resilience (5).

ACE are the traumatic events (abuse and neglect) during childhood which have significant impact later on in individuals' life (6; 7). The evidence from reports of Centers for Disease Control and Prevention (CDC) suggest that 61% of adults experience at least one adverse childhood experience (ACE), and 16% had four or more types (8). In 2022, over 4,000 cases of severe child abuse were reported in Pakistan, representing only a fraction of the actual prevalence of such incidents (9). Despite the growing global attention to ACE, research on ACE in Pakistan remains limited and fragmented (10; 11; 12).

According to the United Nations (13), the global youth population is approximately 1.8 billion, which represents 16% of the world's total population. In Pakistan, around 29% of the population consists of youth aged 15 to 29 years (14). Emerging adulthood is typically considered between ages 18 and 25 years. This age group is particularly crucial as emerging adulthood marks a period of significant change and challenges. During this time, young individuals navigate the

transition from adolescence to adulthood (15). It is important for developing emotional skills, as emerging adults learn how to manage their emotions and handle life challenges (16).

For university students, this time is especially challenging as they cope with social dynamics, establishing a sense of belonging, adjusting to diverse cultures and building new friendships (17). The university environment plays a key role in academic and personal growth, fostering independence and the development of lifelong skills (18). A study reported that 52.6% of medical students in Lahore had experienced at least one ACE, with verbal (34.5%), physical (22%), and sexual (15.5%) abuse being most frequently reported. In another study conducted in Karachi, emotional (50%) and physical (49%) maltreatment were highly prevalent among children aged 11–17 years (19). Another study showed that university students who experienced ACE significantly correlated with poorer mental wellbeing. In this study, 98% experienced at least one ACE and 82.4% experienced three or more. Higher ACE exposure was associated with poor mental wellbeing (10).

University life, characterized by social, academic, and personal transitions, may intensify the interpersonal expression of unresolved anger in students with a history of childhood maltreatment (20). During this period, students often face stressors such as academic demands, peer pressure, and identity formation. For individuals with a background of abuse, these stressors can heighten emotional sensitivity and vulnerability (21). Childhood abuse, which includes physical, emotional, and sexual maltreatment, has been consistently linked to long-term impairments in mental and emotional regulation (22). ACE disrupt psychological development, often resulting in persistent difficulties with emotional dysregulation, particularly anger (23). These emotional challenges can negatively influence various life domains, including academic performance, interpersonal relationships, and overall quality of life (24).

Emotional intelligence (EI) is the ability to process information about your own emotions and other people. It is also the ability to use this information for guiding

your thoughts and behavior (25). McLellan and colleagues (26) showed that resilience positively correlated with self-awareness and emotional regulation, which are fundamental aspects of emotional intelligence. These findings suggest that resilience plays a significant role in facilitating the development of emotional intelligence, even in individuals who have experienced significant childhood adversity.

Emotional intelligence is associated with resilience. Individuals with higher emotional intelligence tend to cope more effectively in stressful situations (27). A study conducted in 2018 by Sarrionandia and his colleagues revealed that resilience is a mediator of the relationship between EI and perceived stress (28). High resilience leads to more effective interpersonal communication and better conflict resolution abilities, which are essential aspects of EI (29). Research indicates that individuals with higher resilience are better equipped to cope with the negative impacts of ACE, leading to improved emotional regulation and psychological wellbeing (30).

Moreover, a study found that those individuals with ACE had less impact on emotional dysregulation who have a higher level of resilience (31). The existing evidence also highlighted a significant relationship between ACE and resilience (32). Another research study concluded that EI is significantly predicted by individual resilience (33). Emotional Intelligence (EI) is crucial for effective interpersonal functioning and psychological wellbeing. High EI enables individuals to navigate social complexities, manage stress, and make informed decisions. Recent studies show that there is a significant relationship between ACE, EI, and resilience (34; 35).

Resilience is the ability to bounce back from adversities, and people who are more resilient tend to manage their emotions better, even after going through tough situations (36). The impact of ACE on wellbeing can be mitigated by protective factors such as resilience and supportive environments (37). Many factors help to explain why some people do not show serious psychological effects even after experiencing childhood trauma (38; 39). Resilience helps to develop positive coping skills, confidence, optimism, purpose, and emotional balance which support their

ability to handle trauma in a healthy way (40; 41). Studies show that resilience gives individuals the strength to face difficult experiences, protecting them from depression or other long-term mental health problems (42; 43). Considering the importance of resilience in understanding the relationship of ACE with EI, this study focused on the mediating role of resilience between adverse childhood experiences and emotional intelligence among undergraduates.

1.1 Theoretical Framework

The theory of Emotional Intelligence (EI) by (44) provides a framework to explore the relationship between adverse childhood experiences (ACE), resilience, and emotional intelligence. It defines EI as the ability to accurately perceive, effectively use, comprehend, and regulate emotions. This theory emphasizes four essential components of EI: perceiving emotions, using emotions, understanding emotions, and managing emotions. These components are crucial for navigating emotional challenges and fostering healthy interpersonal relationships.

ACE can disrupt emotional and cognitive development, impairing an individual's ability to develop EI (45). Individuals with ACE may struggle with EI components such as perceiving emotions, using emotions, and understanding emotions. However, resilience serves as a protective factor that mediates the relationship between ACE and EI (36). Resilience enables individuals to process and overcome the emotional challenges posed by ACE (46; 47). It supports emotional self-regulation, which directly aligns with Salovey and Mayer's emphasis on managing emotions as a core aspect of EI. Studies show that resilience mitigates the negative effects of ACE on emotional outcomes, enabling individuals to develop and enhance emotional intelligence (48; 49).

The hypothesized pathway suggests that while ACE may directly lower EI, resilience can mediate this effect by providing individuals with the tools to cope and

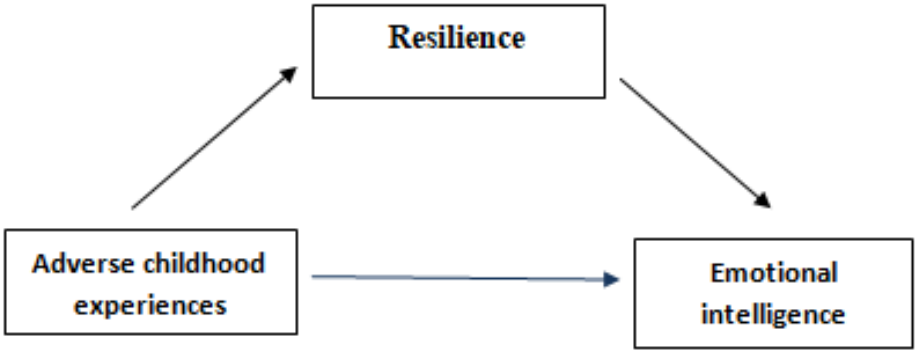

FIGURE 1.1: Theoretical Framework

adapt emotionally (45; 47).ACE have a direct relationship with EI, and an indirect relationship through resilience, which functions as a partial mediator.The model suggests that individuals who experience ACE do not develop stronger emotional intelligence, possibly because they struggle to face and adapt to emotional challenges.

At the same time, ACE influence the development of resilience to recover from difficulties and maintain psychological functioning. Resilience contributes to the development of emotional intelligence by enhancing emotional regulation, self-awareness, and interpersonal skills. Therefore, ACE directly affect emotional intelligence, and resilience explains part of this effect, showing partial mediation. This framework helps in understanding how early-life challenges may contribute to emotional growth, especially in culturally collectivist contexts like Pakistan.

1.2 Rationale

According to the World Risk Index 2024 report, Pakistan is among the 23 countries with the highest exposure to conflict (50). It is also listed among the 15 nations with the highest disaster risk (50). In terms of conflict exposure, Pakistan ranks third globally (50). Many individuals in Pakistan encounter adverse childhood experiences due to domestic conflict, socioeconomic hardships, and emotional neglect (10). According to the Center for Disease Control and Prevention, (8) 61%

of adults had at least one ACE, and 16% had four or more types of ACE.

Exposure to conflict in childhood and adolescence can lead to PTSD, anxiety, and depression in adulthood (51). It affects emotional regulation, decision-making, and problem-solving skills (52; 53). Emerging adults may struggle with trust issues, aggression, or antisocial behavior (54; 55). Furthermore, economic inflation leads to disrupted education and instability, which further leads to lower financial stability and career opportunities for emerging adults (56). Thus, considering the current socioeconomic landscape of Pakistan, emerging adults are at increased risk of experiencing ACE and their adverse consequences.

Child maltreatment in Pakistan represents a critical public health and human rights concern. Many children experience multiple forms of violence throughout their early years. It is estimated that over 12 cases of child abuse are reported daily in Pakistan. In the first half of 2023, one child was sexually abused every two hours, with 54% of victims being girls (57). A high-profile case highlighting the severity of the problem was the Kasur child sexual abuse scandal, where between 280 to 300 children were victims of organized sexual exploitation between 2006 and 2014 (58). Furthermore, data from the first hospital-based Child Protection Unit in Pakistan, located in Lahore, revealed that from 2009 to 2018, 70.5% of 1,654 confirmed cases involved severe neglect, and 66.1% of the abusers were immediate family members (59). However, underreporting remains a significant barrier to understanding the true extent of abuse and neglect.

Despite these challenges, Pakistani society is rooted in collectivist values where the family system and cultural traditions act as strong social buffers (60). Individuals who experience ACE are often able to access resilience through joint family support and culturally grounded coping mechanisms (61; 62). Many factors help explain why some people do not show serious psychological adverse effects even after experiencing childhood adversities (38; 39). Resilience emerges as a protective factor helping individuals cope with and adapt to adversity (36). As discussed in the literature review, emotional intelligence (EI) plays a pivotal role

in shaping an individual's personal and professional life. It refers to the ability to perceive, understand, regulate, and express emotions effectively, which is necessary for maintaining healthy interpersonal relationships, adaptive coping, conflict resolution, and overall psychological wellbeing (36; 63). However, ACE can disrupt the development of emotional and social competencies, making individuals more vulnerable to emotional dysregulation, interpersonal difficulties, and mental health challenges (64). In this way, resilience serves as a buffering bridge between early adversity and the development of EI. Existing research studies show that there is a significant relationship between ACE, EI, and resilience (64; 63; 33).

Mental health issues that arise from childhood adversities often remain unaddressed in Pakistan due to lack of awareness and stigma (65). This creates a gap in understanding how resilience can mitigate ACE and improve EI. This study has significance in understanding how Pakistani emerging adults navigate the interplay between past childhood adversities and present emotional intelligence. Therefore, this study will contribute to the development of indigenous therapeutic interventions aimed at enhancing resilience in individuals with a history of ACE. Such interventions not only reduce the risk of psychological disorders in emerging adults but also foster the development of EI, which is essential for improving interpersonal relationships, emotional regulation, and overall mental wellbeing.

1.3 Research Questions

Following are the research questions of the present study:

Research Question 1

What is the relationship between ACE and resilience among undergraduates?

Research Question 2

What is the relationship between ACE and EI among undergraduates?

Research Question 3

Does resilience mediate the relationship between ACE and EI among undergraduates?

Research Question 4

Are there significant differences in ACE, resilience and EI across gender and socioeconomic status (SES) among undergraduates?

1.4 Research Objectives for the Study

Following are the objectives of the present study:

Research objective 1

To investigate the relationship between ACE and resilience among undergraduates.

Research objective 2

To investigate the relationship between ACE and EI among undergraduates

Research objective 3

To investigate whether resilience mediates the relationship between ACE and EI among undergraduates.

Research objective 4

To explore demographic differences in ACE based on gender and socioeconomic status (SES) among undergraduates

1.5 Hypotheses

Following are the hypotheses of this study:

H1: There will be a relationship between ACE with resilience among undergraduates.

H2: There will be a relationship between ACE with EI among undergraduates.

H3: The relationship between adverse ACE and EI will be mediated by resilience.

H4: There will be significant difference in ACE, resilience and EI across gender and socioeconomic status (SES) among undergraduates.

Chapter 2

Literature Review

This chapter presents a narrative discussion of literature on ACE, Resilience, and EI is presented. The literature reviewed highlights their individual significance, neurological and psychological underpinnings, and their interrelationships. Additionally, this section explores the relationship of these constructs with various demographic attributes of the sample including age, gender, and socioeconomic status.

2.1 Origin and Impact of ACE

The ACE study was conducted in 1997 by Felitti and Anda as a joined effort between Kaiser Permanente's Health Appraisal Clinic in San Diego, California and the Centers for Disease Control and Prevention (CDC). (66; 67). ACE was a longitudinal study aimed at examining the long-term effects of childhood adversity. The study evaluated participants during chhildhood experienced with different forms of abuse, neglect, and family.

More than 17,000 individuals were recruited between 1995 and 1997 from Kaiser Permanente's Health Maintenance Organization (HMO) network, and they provided detailed self-reports on their childhood experiences (67). Since the initial publication of its findings in 1998, the ACE study has received significant attention from researchers and has served as a foundational framework for exploring the connection between ACE and mental health outcomes (67).

ACE are widely recognized as having a significant impact on adult health outcomes. As a result, they have become a central focus for researchers, healthcare professionals, psychologists, sociologists, public health practitioners, and health advocates (68). ACE have a long-term effect on individual mental and physical health (69). ACE increase the risk of chronic illnesses, behavioral problems, violence, victimization, and decreased life expectancy (6; 70; 71).

2.2 ACE and Health Outcomes Across the Lifespan

ACE have long been identified as significant predictors of negative developmental outcomes in adults (6; 72). Childhood adversities increase the risk of experiencing poor outcomes in adulthood. Childhood adversities and forms of toxic stress have been associated with impaired physiological processes, including dysregulated stress responses (73; 74). This dysregulation can result in overall impairment in mental health. Moreover, exposure to ACE is linked to developmental and behavioral delays, attention-deficit/hyperactivity disorder (75), and mental health disorders (76).

The relationship between ACE and behavioral risk factors also leads to maladaptive coping strategies such as smoking, alcohol consumption, and substance abuse (77; 78; 79). These substances are often used to alleviate the negative mood states caused by ACE. Furthermore, individuals with a history of childhood adversity are more likely to develop nicotine dependence (80). A cumulative effect is also observed, where a higher number of ACE is correlated with an elevated risk of alcohol-related problems (81) and smoking (82).

2.3 ACE in Pakistani Context

A study on Pakistani adults found that 58% had experienced at least one ACE, with physical and emotional abuse being the most common (83). Moreover, ACE

significantly increased the risk of anxiety among adolescents, with exposure heightening this risk by 5.58 times (84).

Research in rural Pakistan further revealed that maternal ACE negatively influenced children's growth and development, with emotional abuse, physical abuse, and emotional neglect being the most prevalent forms (85). (86) found that physical abuse and bullying victimization were associated with poor academic performance in young adolescents. Recent findings show that childhood abuse is a significant predictor of anger and psychological wellbeing among university students (87).

2.4 Neurobiological Effects of ACE

Studies have found that specific types of ACE can affect the parts of the brain responsible for sensing and processing the trauma (88). Parental verbal abuse has been linked to changes in the arcuate fasciculus, a brain pathway that connects Broca's and Wernicke's areas, which are essential for language processing (89).

Witnessing domestic violence impacts the inferior longitudinal fasciculus, connecting vision-related areas with emotion-processing systems, and has been associated with reduced gray matter in the visual cortex and right lingual gyrus (90). Emotional abuse and neglect have been shown to increase amygdala size in affected individuals (91).Additionally, the insula is overly active in individuals who have experienced ACE, particularly when exposed to emotional stimuli (92). The anterior insula is critical for detecting emotional cues and helps shift attention effectively in emotionally charged situations (93).

A meta-analysis of 20 studies found hyperactivity in the amygdala, insula, superior temporal gyrus, and parahippocampal gyrus in individuals with a history of maltreatment (94). These alterations in brain structure and function due to ACE can impair the development EI later in life (95; 96).

2.5 The Role of Resilience in Coping with ACE

Resilience involves several key neurological mechanisms including the prefrontal cortex (PFC), which contributes to emotion regulation and decision-making. Enhanced activity in the dorsolateral and ventromedial PFC facilitates adaptive coping strategies (97), while lower amygdala hyperactivity is linked to better emotional regulation (98). The hippocampus is also associated with resilience, as it contextualizes emotional experiences. Larger hippocampal volume and stronger PFC associations are linked to improved stress regulation (99).

Additionally, resilience involves the hypothalamic-pituitary-adrenal (HPA) axis, which controls stress responses. Efficient HPA functioning results in balanced cortisol levels and faster recovery after stress (100).Neurotransmitters such as serotonin, dopamine, and GABA also support resilience by enhancing mood, motivation, and reducing stress (101). BDNF promotes neuroplasticity, enabling recovery from stress (99).

2.6 Protective Factors and Longitudinal Resilience Outcomes

Despite childhood adversity, not all individuals develop psychological disorders in adulthood. DuMont and colleagues found that nearly half of the abused and neglected children in their sample showed resilience in adolescence and young adulthood (102). A longitudinal reported followed individuals from age 9 to 46 and found that 48% of abused participants did not meet psychiatric criteria in adulthood, and 38% had no record of substance abuse (103).

Factors contributing to resilience include having at least one very caring parent, strong adolescent peer relationships, adult friendships, and stable romantic partnerships. Other factors include genetics, cognitive traits (e.g., self-esteem, self-efficacy), and effective coping strategies. (104) found that resilient individuals

tend to restore emotional balance, maintain strong relationships, and persist in goal-directed behaviors despite adversity.

2.7 Concept and Components of Emotional Intelligence

The concept of emotional intelligence (EI) can be traced to Charles Darwin's work on emotional expression (105), though it gained popularity after Goleman's publication (95). Goleman emphasized the critical role of emotions in behavior and adaptation, proposing EI as encompassing self-awareness, emotional regulation, empathy, and interpersonal skills.

According to (106), understanding and managing emotions are essential for success in life. EI helps individuals navigate relationships, reflect on emotions, and maintain emotional wellbeing. Emotions such as fear, anger, and disgust trigger instinctive physiological responses like fight, flight, or freeze, which serve as protective mechanisms (95). In traumatic situations like sexual abuse, victims may freeze or dissociate as a defense (107).

2.8 EI as a Buffer Against Psychological Distress

EI plays a significant role in resilience, as it helps individuals regulate emotions, resolve conflicts, and build supportive relationships (95; 108; 109). Martins and colleagues conducted a meta-analysis of 80 studies and found moderate correlations between EI and mental health ($r = .36$), psychosomatic health ($r = .33$), and physical health ($r = .27$) (110)

Low emotional regulation contributes to anxiety and depression, especially among those with ACE histories. In contrast, individuals with high EI often exhibit empathy and form strong social connections which serve as buffers against psychological distress (111; 112).

Another study found that various forms of abuse and neglect affect attachment to caregivers (113). According to Bowlby's Attachment Theory (1988), early caregiver relationships influence adult emotional regulation and interpersonal functioning. Insecure attachment can lead to emotional withdrawal, poor self-regulation, and cognitive difficulties (114; 115), all of which contribute to lower emotional intelligence.

2.9 Socioeconomic Status, ACE, Resilience, and Emotional Intelligence in Pakistan

Socioeconomic status (SES) is strongly associated with the risk of ACE and emotional development. A study conducted among emerging adults in Rawalpindi found that nearly all participants had experienced at least one ACE, and those with lower household income, limited parental education, and enrollment in public-sector institutions were more likely to report poor mental wellbeing (116).

Similarly, another study reported that low household assets, food insecurity, and debt were closely related to higher levels of prenatal depression in rural Pakistan (117).In terms of resilience, individuals from lower-income families often lack access to stable support systems, quality caregiving, and emotionally nurturing environments. These limitations reduce the opportunity to build strong coping skills and adaptive responses to stress, which are essential components of resilience (118).

Similarly, SES may influence the development of emotional intelligence. Children raised in economically disadvantaged households often face chronic stress and fewer emotionally responsive interactions, which may hinder the development of emotional awareness, regulation, and social competence (119).

Therefore, studies reflect that socioeconomic hardships create environments that not only expose individuals to early adversity but also limit their emotional growth and coping capacity.

2.10 Gender, ACE, Resilience, and Emotional Intelligence in Pakistan

Gender differences in emotional intelligence (EI) and resilience have been explored in university students across Pakistan. A study of 500 students in Balochistan found that EI strongly predicted both psychological adjustment and resilience, with no significant differences between male and female participants (120). Similarly, a sample of 300 university students in a gender-based comparison showed that female students scored higher in emotional intelligence and university adjustment, whereas resilience levels remained comparable across genders (121).

In contrast, a study on 600 adolescents found no gender-based variation in trait emotional intelligence (122). Furthermore, study on academic discipline found no significant difference in resilience levels between psychology and engineering students, suggesting that resilience may be shaped by individual or contextual factors beyond academic background (123). Although direct data on gender-specific ACE exposure in Pakistan is limited, these findings highlight that while emotional intelligence may vary between genders, resilience appears more stable across different groups. This suggests that cultural norms and socialization may shape emotional expression and awareness more than one's ability to recover from adversity.

Research shows that experiencing adverse events in childhood can affect emotional development, mental health, and behavior later in life. However, some individuals are able to recover and function well despite these hardships due to protective factors like resilience and emotional intelligence (EI). "Resilience enables individuals to cope with stress and recover from challenges, while emotional intelligence (EI) enhances the capacity to understand and manage emotions in oneself and relationship with others.

Several studies also show that factors like low socioeconomic status and gender differences can increase the chances of facing ACE and may also affect how resilience

and EI develop over time. In the context of Pakistan, although some studies have examined these variables separately, no study has yet explored the relationship between ACE, resilience, and EI within a single framework. The present study aims to fill this gap by examining how resilience mediates the relationship between ACE and EI among undergraduates.

Chapter 3

Research Methodology

3.1 Study Design and Procedures

The design and procedures of the present study are described in this chapter. Age-appropriate and culturally relevant self-report measures were used to assess adverse childhood experiences, resilience, and emotional intelligence among undergraduate students. Data were collected through online forms distributed to students from various universities in their classrooms. Detailed descriptions of the instruments and their psychometric properties were provided. Statistical procedures were applied in SPSS and Mplus.

3.1.1 Study Design and Procedures

This study used a cross-sectional design. The sample consisted of 508 undergraduate students. Both males and females were included. Participants were between the ages of 18 and 25 years. Data were collected from universities located in Rawalpindi and Islamabad.

3.1.2 Ethical Considerations

This research was approved by the ethics committee of the Faculty of Management and Social Sciences at Capital University of Science and Technology. Informed consent was obtained both verbally and in writing from the participants. Participants

were assured that the information they provided would remain confidential and anonymous and would be used solely for reserch purposes. They were informed that they had the right to withdraw from the study at any time. In case of distress while filling the questionnaire, helpline contact information was provided for assistance. Additionally, all scales used in the study were utilized with prior permission from the respective authors. The informed consent form and questionnaires were attached as Appendix A.

3.1.3 Study Setting

These twin cities were purposefully chosen due to their high concentration of higher education institutions and diverse student populations. Data were collected from a total of 10 universities, of which 3 were public and 7 were private institutions. The universities included: Foundation University, International Islamic University Islamabad (IIUI), National University of Sciences and Technology (NUST), University of Rawalpindi, National University of Modern Languages (NUML), Riphah International University, Sarhad University Islamabad, Pir Mehr Ali Shah Arid Agriculture University Rawalpindi, Preston University Islamabad, and Air University. Data collection was carried out from 14th April 2025 to 21st May 2025. Undergraduate students enrolled in different academic programs were approached to participate.

3.1.4 Sampling

Participants were recruited using a convenience sampling technique. Data were collected from both public and private universities located in Rawalpindi and Islamabad. Although the informed consent form and questionnaires were prepared using Google Forms, data were collected through online and classroom visits. The link to the online form was shared during the visit and students filled it out on their devices.

Inclusion Criteria

1. The participants should be between 18 and 25 years of age.

2. Participants who voluntarily agree to take part in the study.

Exclusion Criteria

1. Participants with any physical and mental disability which hinder their participation in study will be excluded.

3.1.5 Sampling Size

Structural Equation Modeling (SEM) is widely recognized as a large-sample technique. Scholars such as (124; 125) have recommended a minimum sample size of 200 for SEM analyses. The sample size should be five to ten times the number of observed indicators or items in the model (126). In the present study, a total of 502 participants were included, with 49 indicators used across the measurement instruments. This meets the recommended thresholds, satisfying both the minimum sample size requirement and the 5:1 to 10:1 indicator-to-sample ratio guideline.

Although it remains difficult to develop generalized rules for SEM sample size requirements (127), several heuristics have been suggested. These include (a) a minimum sample size of 100 to 200 (128; 129), (b) five to ten observations per estimated parameter (130; 131), and (c) ten cases per variable (132). However, such rules are often criticized for being overly simplistic and for failing to account for specific model characteristics. (127) emphasized that factors such as communality levels, model complexity, and factor determinacy substantially influence estimation accuracy and model fit. Therefore, researchers have been advised to evaluate sample size adequacy in light of these considerations (133). The current study's sample size of 502 is considered robust and appropriate for SEM.

3.1.6 Study Procedure

On the day of data collection, participants were approached and given clear instructions regarding the study. Those who agreed to participate were given a written informed consent form via Google Form. They were informed about the purpose of the research and their right to voluntarily participate or withdraw at

any time. Participants were encouraged to ask questions. They were encouraged to respond honestly and informed that there were no right or wrong answers. Also, any queries raised were answered promptly.

The study involved multiple sections. Participants first completed a demographic questionnaire, which included information about themselves and their family background. Following this, they completed the various scales used in the study, including the Adverse Childhood Experiences questionnaire, Brief Resilience Scale, and Schutte Self-Report Emotional Intelligence Test. The total time required to complete the questionnaire ranged from 10 to 15 minutes.

Participants were instructed to complete all questionnaires in one sitting to ensure consistency and reduce variability. Participants were not allowed to make any changes or reattempt the statements once the questionnaires were filled. After completing the questionnaires, participants were thanked for their time and cooperation.

3.2 Instruments

The standardized measures used in this study were selected to serve as indicators of the latent variable which include adverse childhood experiences, resilience, and emotional intelligence. These measures were chosen based on strong theoretical foundations, empirical evidence, and practical considerations such as the length of the questionnaires, accessibility, and permissions taken from the authors.

3.2.1 Measures

The self-report measures used in this study include assessments of demographics, adverse childhood experiences, resilience, and emotional intelligence.

3.2.1.1 Demographics

Demographic information collected from the participants included gender, age, semester, department, institution, and sector (public or private). Additionally,

participants were asked about their socioeconomic status (SES), number of siblings, parent's occupation, whether their parents were alive or deceased, and the relationship status of their parents.

3.2.1.2 Adverse Childhood Experiences Questionnaire

ACE was used to assess participants' exposure to potentially traumatic events before the age of 18 (67). The Adverse Childhood Experiences (ACE) scale consists of 10 items that assess three key domains: childhood abuse (emotional, physical, and sexual), neglect (emotional and physical), and household dysfunction (such as domestic violence, parental separation or divorce, substance abuse, mental illness, and incarceration). Each item is scored in a binary format (Yes = 1, No = 0). The total score is calculated by summing all "Yes" responses, producing a cumulative score ranging from 0 to 10. Higher scores reflect greater exposure to adverse experiences during childhood.

Studies have reported internal consistency for the ACE questionnaire with Cronbach's alpha ranging from .70 to .88 (67; 134; 135). Previous research has shown strong associations between ACE and a range of physical and mental health problems in adulthood which supports the scale's concurrent validity (136; 137).

3.2.1.3 Brief Resilience Scale

BRS was used to assess the ability of individuals to recover from stress and adversity (138). The Brief Resilience Scale (BRS) is a self-report measure consisting of six items developed to assess resilience, defined as the ability to recover from difficult experiences. Responses are rated on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Items 2, 4, and 6 are reverse scored. The total score is calculated by summing all item responses and dividing by the number of items. Scores between 4.31 and 5.00 reflect high resilience, scores between 3.10 and 4.30 indicate moderate resilience, and scores from 1.00 to 2.99 represent low resilience. The BRS has shown strong internal consistency, with Cronbach's alpha values reported between 0.80 and 0.91 across different samples (138). It has also shown concurrent validity (139) and construct validity (140).

3.2.1.4 Schutte Self-Report Emotional Intelligence Test

SSEIT is a 33-item scale designed to assess emotional intelligence based on Salovey and Mayer's model (141). The Schutte Self-Report Emotional Intelligence Test (SSEIT) is rated on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). It is divided into four subscales: **Perception of Emotion**, **Managing Own Emotions**, **Managing Others' Emotions**, and **Utilization of Emotion**. Items corresponding to perception of emotion include 5, 9, 15, 18, 19, 22, 25, 29, 32, and 33; managing own emotions includes 2, 3, 10, 12, 14, 21, 23, 28, and 31; managing others' emotions includes 1, 4, 11, 13, 16, 24, 26, and 30; and utilization of emotion includes 6, 7, 8, 17, 20, and 27. Items 5, 28, and 33 are reverse scored. Higher overall scores reflect greater levels of emotional intelligence. The SSEIT has demonstrated good internal consistency with a Cronbach's alpha typically ranging from .87 to .90 and shows strong concurrent validity with related constructs such as empathy, emotional regulation, and social skills (141).

3.2.2 Pre-Testing

A pre-test was conducted on a sample of 50 undergraduate students to evaluate the clarity, reliability, and functionality of the scales. The average completion time was approximately 15 minutes. Some participants initially faced difficulty using the Google Form; therefore, guidance was provided to ensure accurate responses. Descriptive analyses and reliability testing were performed. The Adverse Childhood Experiences Questionnaire had a mean score of 2.96, a standard deviation of 2.26, a skewness of 1.49, and a kurtosis of 2.10. ACE showed acceptable internal consistency with a Cronbach's alpha of $\alpha = .711$. The Brief Resilience Scale had a mean score of 18.78, a standard deviation of 3.75, a skewness of 0.11, and a kurtosis of 1.63 and showed lower reliability coefficient ($\alpha = .516$). Schutte Self-Report Emotional Intelligence Test mean score was 118.78, standard deviation 17.24, skewness -0.21, and kurtosis 0.48 with excellent reliability ($\alpha = .910$). Subscale reliabilities for SSEIT were also strong: Perception of Emotions ($\alpha = .796$), Managing One's Own Emotions ($\alpha = .773$), Managing Others' Emotions ($\alpha = .671$), and Utilization of Emotions ($\alpha = .751$). No missing data were reported.

3.2.3 Reliabilities of Scales in Terms of Cronbach's Alpha

To determine the pre-test reliabilities of administered scales, Cronbach's alpha reliability test (α) was used.

TABLE 3.1: Cronbach's Alpha Reliability of Scales and Subscales of ACE, BRS, and SSEIT ($N = 50$)

Scales and Subscales	***N***	***M***	***SD***	**α**	**Potential Range**	**Actual Range**	**Skewness**	**Kurtosis**
ACE	10	1.49	1.83	.71	0–10	1–10	1.52	2.64
BRS	6	18.78	3.75	.51	6–30	9–30	0.11	1.63
SSEIT	33	118.78	17.24	.91	33–165	70–157	-0.21	0.48
PE	10	35.48	5.84	.79	10–50	16–50	-2.97	0.42
MOW	9	32.53	5.15	.77	9–45	12–45	-0.46	0.54
MOE	8	28.00	4.32	.67	8–40	9–39	-0.51	-0.96
UE	6	22.17	3.59	.75	6–30	6–29	-7.93	1.69

Note: M = Mean, SD = Standard deviation, α = Cronbach's alpha, ACE = Adverse Childhood Experiences, BRS = Brief Resilience Scale, SSEIT = Schutte Self-Report Emotional Intelligence Test, PE = Perception of Emotions, MOW = Managing Own Emotions, MOE = Managing Others Emotions, UE = Utilization of Emotions.

3.3 Analyses

The *Statistical Package for the Social Sciences* (*SPSS*, Version 21) was used to clean, process, and analyze the data. There were no missing values. The distribution of the data was examined using descriptive statistics. For categorical variables, frequencies and percentages were calculated, while for continuous variables, the mean, mode, median, standard deviation, skewness, and kurtosis were computed. To assess the normality of the data, the Kolmogorov-Smirnov (K-S) test was applied.

Inferential statistics were used to evaluate the reliability of the scales by calculating Cronbach's alpha (α). Pearson correlation analysis was conducted to assess the relationships between the computed variables. An independent samples t-test

was used to examine gender differences, and One-Way ANOVA was employed to explore differences in socioeconomic status (SES) among high, middle, and lower classes.

Partial mediation analysis was conducted using *Mplus* software version 7 to examine whether resilience mediated the relationship between adverse childhood experiences and emotional intelligence. To assess the hypothesized relationships among variables and to test for mediation, Structural Equation Modeling (SEM) was conducted. Initially, models were built to test the hypothesized relationships in the structural model.

During the measurement phase of Structural Equation Modeling (SEM), observed indicators were specified to load exclusively onto their theoretically defined latent constructs, with all cross-loadings were set to zero. In models comprising multiple latent variables, all constructs were allowed to correlate by default within *Mplus*. Residuals of the observed indicators were assumed to be uncorrelated, and standardized regression coefficients were used to represent factor loadings. A significance level of 0.05 was adopted to assess (1) the statistical significance of factor loadings on latent variables, (2) the proportion of variance explained by the indicators (R^2), and (3) the structural paths among observed and latent constructs. Paths or indicators that did not meet this threshold were excluded from the final model.

For continuous variables, model fit was evaluated using the Maximum Likelihood Mean-adjusted (MLM) estimator, while the Weighted Least Squares Mean and Variance-adjusted (WLSMV) estimator was applied to categorical variables. It is important to highlight that *Mplus* version 7 does not provide chi-square significance values for MLM and WLSMV estimators when working with multiply imputed (MI) data. Therefore, the chi-square test could not be used to evaluate model fit. Instead, the Root Mean Square Error of Approximation (RMSEA) was utilized, as it is less influenced by sample size and violations of normality.
Unlike the chi-square test which tends to yield statistically significant results in

large samples even when model fit is acceptable RMSEA offers a more robust and stable criterion for assessing model adequacy under such conditions.

Model fit was further assessed using two widely accepted indices: the Comparative Fit Index (CFI) and RMSEA. The CFI, which evaluates the proposed model against a null model (142), ranges from 0 to 1, with values of 0.90 and above indicating acceptable fit (143). RMSEA was used to assess how well the model approximates the data. Since *Mplus* does not report confidence intervals for MI data, fixed cutoff values were applied: RMSEA ≤ 0.01 indicates excellent fit, RMSEA ≤ 0.05 indicates good fit, and RMSEA ≤ 0.08 reflects mediocre fit (144).

When initial models failed to achieve satisfactory CFI and RMSEA values, or when modification indices suggested theoretically justifiable revisions, model modifications were implemented. These changes were informed by theoretical considerations, modification indices, and factor loading patterns. As *Mplus* does not compute modification indices for pooled MI datasets, one imputed dataset was selected to generate the modification indices and guide revisions, which were then applied to the pooled SEM model.

Chapter 4

Results

The present study was conducted to examine the relationship between Adverse Childhood Experiences (ACE) and Emotional Intelligence (EI), with Resilience serving as a mediator, among university students. Data were collected from a total of 508 undergraduate students using a convenient sampling method.

After screening, 502 participants were included in the final analysis, while six were excluded due to issues related to age, typographical errors, and regional discrepancies.

This chapter presents the findings of the study, including descriptive statistics, correlation analyses, and Structural Equation Modeling (SEM).

4.0.1 Demographic Characteristics of the Sample

In the current study, data were collected from 502 undergraduate students. Of these, 184 were male (36.7%) and 318 were female (63.3%). The participants were drawn from both public and private universities.

The age range of the sample was from 18 to 25 years. The mean age of the participants was 21.02 years ($SD = 1.72$), with both the median and mode being 21 years. The distribution of age was approximately normal. 21. The values for skewness, kurtosis and standard deviation were .25, -.40 and 1.72, respectively. The histogram of age presented in the preceding figure and the values of skewness

and kurtosis show that the distribution of participants' age is nearly close to a normal distribution.

TABLE 4.1: Frequencies and Percentages of Demographic Characteristics of the Participants ($N = 502$)

Demographic		f	%
Gender	Male	184	36.7
	Female	318	63.3
Sector	Private	325	64.7
	Public	177	35.3
Semester	1st	38	7.6
	2nd	105	20.9
	3rd	7	1.4
	4th	103	20.5
	5th	60	12.0
	6th	104	20.7
	7th	42	8.4
	8th	43	8.6
Socioeconomic Status	High	79	15.7
	Middle	416	82.9
	Low	7	1.4

Note: f = frequency, % = percentage.

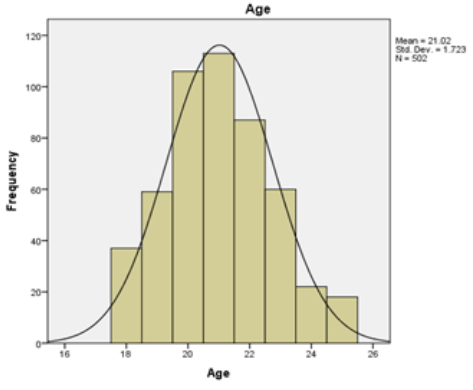

FIGURE 4.1: Distribution of participant's ages (N=502)

The majority of participants in this study (325 out of 502) were studying in private sector universities, whereas 177 participants were enrolled in public sector universities. Out of the total 502 participants, 184 were male and 318 were female, indicating a higher representation of females in the sample. In terms of gender distribution, 318 participants (63.3%) were female, and 184 (36.7%) were male, indicating a greater representation of females in the sample. Regarding the sector of education, 325 students (64.7%) were enrolled in private universities, while 177 (35.3%) were from public institutions.

TABLE 4.2: Frequency and Percentage of ACE ($N = 502$)

ACE Items	***f***	**%**
1. Emotional Abuse	164	32.7
2. Physical Abuse	120	23.9
3. Sexual Abuse	76	15.1
4. Emotional Neglect	145	28.9
5. Physical Neglect	45	9.0
6. Parental Separation	31	6.2
7. Domestic Violence	45	9.0
8. Substance Abuse	26	5.2
9. Mental Illness	67	13.3
10. Family Incarceration	27	5.4

Note: f = frequency, % = percentage.

Students from all semesters participated in the study. The highest proportions were from the 2nd semester (20.9%), 6th semester (20.7%), and 4th semester (20.5%) respectively. With respect to socioeconomic status, a majority of participants (82.9%) reported belonging to the middle socioeconomic class, followed by 15.7% from a high socioeconomic background, and only 1.4% from a low socioeconomic background.

Out of a total of 502 participants, the most commonly reported ACE was Item 1: emotional abuse, reported by 164 participants (32.7%). Item 4: emotional neglect was reported by 145 participants (28.9%), followed by Item 2: physical abuse, reported by 120 participants (23.9%). Item 3: sexual abuse was reported by 76 participants (15.1%).

Furthermore, less frequently reported experiences included living with a mentally ill or suicidal household member (13.3%), witnessing domestic violence (9.0%), physical neglect (9.0%), parental separation or divorce (6.2%), living with someone who used substances (5.2%), and having a household member who went to prison (5.4%).Many participants reported experiencing more than one ACE. However, 235 participants (46.8%) reported no exposure to any ACE, indicating that they belonged to the low-risk group.

4.1 Reliabilities of Scales in Term of Cronbach's Alpha Reliability

TABLE 4.3: Cronbach's Alpha Reliability (α) of Scales and Subscales of ACE, BRS, and SSEIT ($N = 502$)

Scales and Subscales	***N***	***M***	***SD***	***α***	**Potential Range**	**Actual Range**	**Skewness**	**Kurtosis**
ACE	10	1.49	1.83	.72	0–10	0–10	1.52	2.64
BRS	6	18.00	3.53	.56	6–30	6–30	-0.20	1.22
SSEIT	33	118.10	15.39	.89	33–165	48–157	-0.71	1.64
PE	10	35.08	5.44	.76	10–50	16–50	-2.97	0.62
MOW	9	32.51	5.15	.75	9–45	13–45	-0.46	0.54
MOE	8	28.23	4.35	.65	8–40	10–39	-0.61	-0.96
UE	6	22.27	3.59	.73	6–30	6–30	-8.93	1.69

Note: M = Mean, SD = Standard Deviation, α = Cronbach's alpha reliability, ACE = Adverse Childhood Experiences, BRS = Brief Resilience Scale, SSEIT = Schutte Self-Report Emotional Intelligence Test, PE = Perception of Emotions, MOW = Managing Own Emotions, MOE = Managing Others Emotions, UE = Utilization of Emotions.

To determine the pre-test reliabilities of administered scales, Cronbach's alpha reliability test (α) was used. The findings of the present study indicate moderate reliability for the ACE scale with a Cronbach's alpha coefficient of $\alpha = .72$. The Brief Resilience Scale (BRS) exhibited low reliability with a Cronbach's alpha coefficient of $\alpha = .56$, indicating limited internal consistency within this measure. The Schutte Self-Report Emotional Intelligence Test (SSEIT) showed high reliability, with a Cronbach's alpha of $\alpha = .89$, suggesting strong internal consistency across the 33 items. Subscales of the SSEIT further revealed that the Perception of Emotions (PE) subscale demonstrated high reliability ($\alpha = .76$), while the Managing Own Emotions (MOE) subscale also indicated high reliability ($\alpha = .75$). The Utilization of Emotions (UE) subscale showed moderate reliability ($\alpha = .73$), whereas the Managing Others' Emotions (MOE) subscale reflected moderate reliability as well ($\alpha = .65$). Overall, the reliability coefficients of the scales and subscales utilized in this study ranged from low to high.

4.2 Descriptive Statistics

This section presents descriptive statistics of the scales administered in the study. On the basis of skewness, kurtosis, normality test, and the shape of the distribution curve, the variables in the present study were treated as normally distributed for the purposes of correlation analysis.

The mean score of Adverse Childhood Experiences (ACE) was 1.49, the median was 1, and the mode was 0. The obtained values of standard deviation, skewness, and kurtosis were 1.83, 1.52, and 2.64, respectively. Kolmogorov–Smirnov (K-S) test value was .23 ($p < .001$).

The mean score of the Brief Resilience Scale (BRS) was 18.30, the median was 18.30, and the mode was 18. The standard deviation was 3.53, with skewness and kurtosis values of –.20 and 1.22, respectively. The K-S test value was .10 ($p < .001$). The mean score of the Schutte Self-Report Emotional Intelligence Test (SSEIT) was 118.10, with a median of 120 and a mode of 126. The values for standard deviation, skewness, and kurtosis were 15.40, –.71, and 1.64, respectively.

TABLE 4.4: Descriptive Statistics for Scales and Subscales of ACE, BRS, and SSEIT ($N = 502$)

Scales and Sub-scales	***M***	***Mdn***	***Mode***	***SD***	**Skewness**	**Kurtosis**	***K-S***	***p***
ACE	1.49	1	0	1.83	1.52	2.64	.23	.00
BRS	18.30	18.30	18	3.53	-.20	1.22	.10	.00
SSEIT	118.10	120	126	15.40	-.71	1.64	.08	.00
PE	35.08	36	36	5.45	-.30	.62	.07	.00
MOW	32.51	33	34	5.15	-.46	.54	.09	.00
MOE	28.23	29	30	4.35	-.61	.96	.08	.00
UE	22.28	23	24	3.59	-.89	1.69	.13	.00

Note: ACE = Adverse Childhood Experiences, BRS = Brief Resilience Scale, SSEIT = Schutte Self-Report Emotional Intelligence Test, PE = Perception of Emotions, MOW = Managing Own Emotions, MOE = Managing Others Emotions, UE = Utilization of Emotions, M = Mean, Mdn = Median, SD = Standard Deviation, K-S = Kolmogorov–Smirnov Test Statistic. All p-values are $< .001$.

The K-S test value was .08 ($p < .001$).

The following figure shows distribution of ACE:

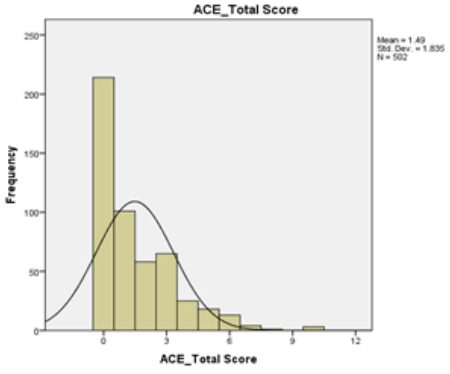

FIGURE 4.2: Distribution of scores for ACE ($N = 502$)

The following figure, figure 4.3 shows the distribution of Brief Resilience Scale (BRS)

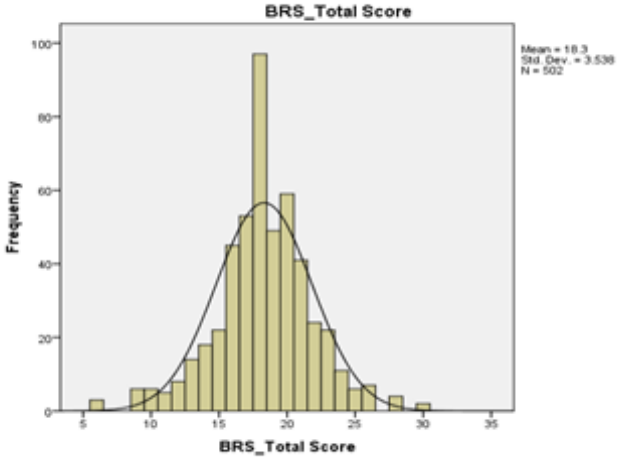

FIGURE 4.3: Distribution of scores for BRS ($N = 502$)

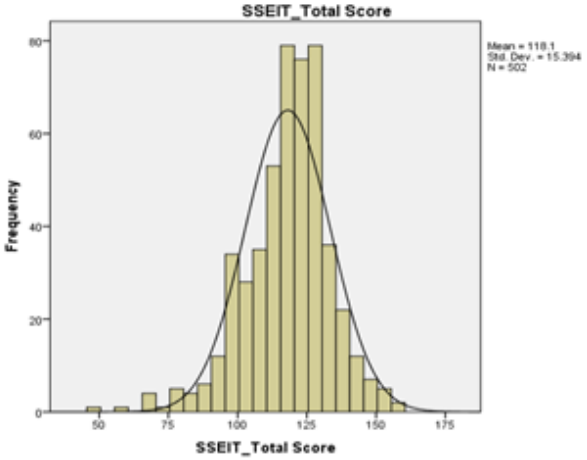

FIGURE 4.4: Distribution of scores for SSEIT ($N = 502$)

The Perception of Emotions (PE) subscale had a mean of 35.08, a median of 36, and a mode of 36. The standard deviation was 5.45, while skewness and kurtosis were –.30 and .62, respectively. The K-S test value was .07 ($p < .001$).The Managing Own Emotions (MOW) subscale had a mean of 32.51, median of 33, and mode of 34. The standard deviation was 5.15, skewness was –.46, and kurtosis was .54. The K-S test value was .09 ($p < .001$).For the Managing Others' Emotions

(MOE) subscale, the mean was 28.23, median 29, and mode 30. The standard deviation was 4.35, with skewness at –.61 and kurtosis at .96. The K-S test value was .08 ($p < .001$).The Utilization of Emotions (UE) subscale had a mean of 22.28, median of 23, and mode of 24. The values for standard deviation, skewness, and kurtosis were 3.59, –.89, and 1.69, respectively. The K-S test value was .13 ($p < .001$).

Following are the figures illustrating graphically the distribution of scores on SSEIT and its subscales.

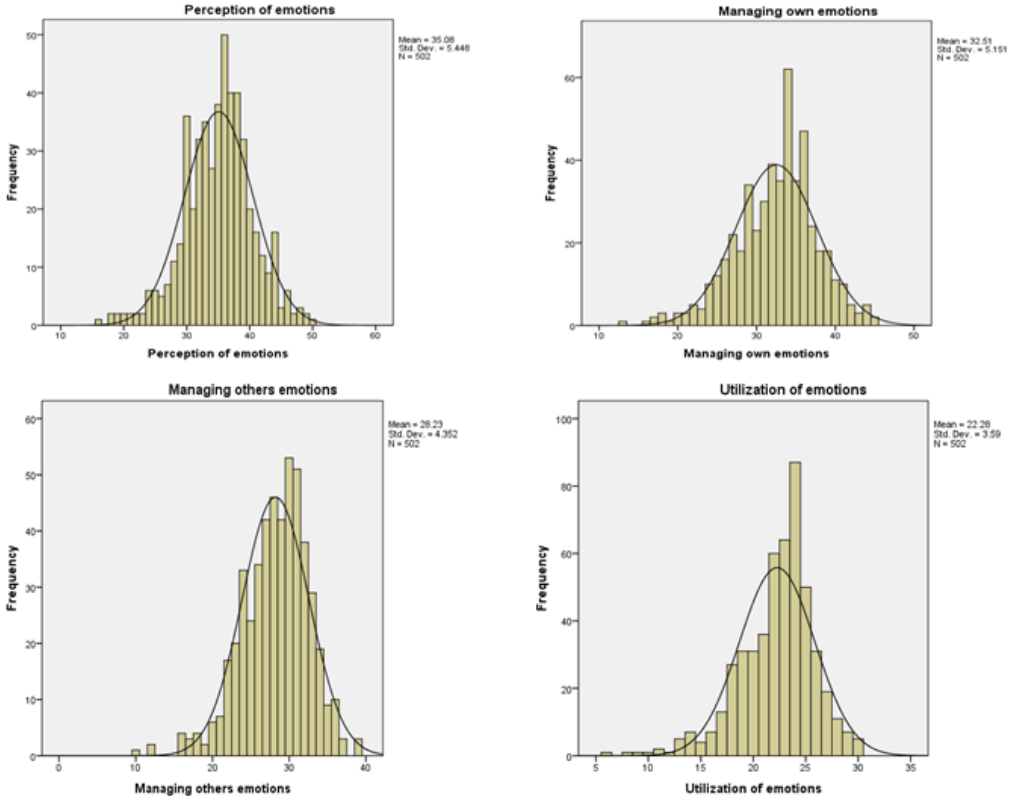

FIGURE 4.5: Distribution of scores for Subscales of SSEIT ($N = 502$)

4.3 Hypothesis I

There is a relationship between ACE and resilience among undergraduates.

The table below shows the relationship between adverse childhood experiences and resilience among university students. Table 5 shows that adverse childhood experiences have a weak, negative significant relationship

with resilience ($r = -.13$, $p < .01$).

TABLE 4.5: Relationship between ACE and BRS Among Undergraduates ($N = 502$)

Variables	***N***	***M***	***SD***	**1**	**2**
1. ACE	502	1.49	1.83	–	
2. BRS	502	18.30	3.53	-.13**	–

Note: ACE = Adverse Childhood Experiences, BRS = Brief Resilience Scale. $p < .01$

4.4 Hypothesis II

There is a relationship between ACE and EI among undergraduates.

The table below shows the relationship between adverse childhood experiences and emotional intelligence among undergraduates.

TABLE 4.6: Relationship Between ACE and SSEIT ($N = 502$)

Variables	***N***	***M***	***SD***	**1**	**2**	**3**	**4**
1. ACE	502	1.49	1.83	–			
2. SSEIT	502	118.10	15.39	-.12**	–		
3. PE	502	35.08	5.45	-.06	.82**	–	
4. MOW	502	32.51	5.15	-.20**	.85**	.57**	–
5. MOE	502	28.23	4.35	-.04	.81**	.54**	.59**
6. UE	502	22.28	3.59	-.07	.82**	.55**	.65**

Note: ACE = Adverse Childhood Experiences, SSEIT = Schutte Self-Report Emotional Intelligence Test, PE = Perception of Emotions, MOW = Managing Own Emotions, MOE = Managing Others Emotions, UE = Utilization of Emotions. **$p < .01$

Table 6 shows that adverse childhood experiences have a weak, negative, and significant relationship with overall emotional intelligence ($r = -.12$, $p < .01$).

ACE also showed a significant negative relationship with managing own emotions ($r = -.20$, $p < .01$).

However, its relationship with perception of emotions ($r = -.06$), managing others' emotions ($r = -.04$), and utilization of emotions ($r = -.07$) was negative but not statistically significant.

4.5 Hypothesis III

The relationship between ACE and EI will be mediated by resilience.

4.5.1 Factor Analyses of the Scales

4.5.1.1 Factor Analysis of Adverse Childhood Experiences

ACE were measured using 10 items. Factor analysis was used to explore the structure of the ACE items. As a result, all 10 items were loaded onto a single latent variable, treating ACE as a unidimensional construct for further analysis.

The hypothesized model representing a single-factor structure is presented in the following figure 9.6.

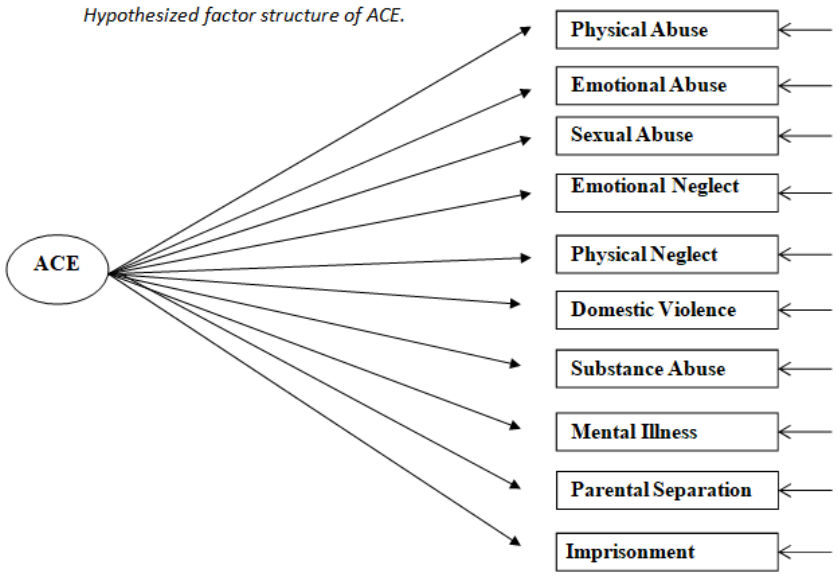

FIGURE 4.6: Hypothesized factor structure of ACE

The hypothesized one-factor model was evaluated using a first-order exploratory factor analysis conducted with 10 indicators used to ACE.

4.5.1.2 Hypothesized Model

The overall model showed a mean $\chi^2 = 119.6$ with $df = 35$. Furthermore, the mean Comparative Fit Index (CFI) was 0.78 and the mean Root Mean Square Error of Approximation (RMSEA) was 0.07. This indicates a poor fit to the data.

4.5.1.3 Final Model

The final model demonstrated a good fit to the data ($\chi^2 = 52$, $df = 33$; CFI = 0.95; RMSEA = 0.03). It included 10 observed indicators, one latent variable, and 32 freely estimated parameters. All standardized factor loadings were statistically significant ($p < .001$), ranging from 0.329 (ACE10) to 0.541 (ACE7), reflecting moderate to strong contributions of the indicators to the underlying latent construct. Among the indicators, ACE10 (family incarceration) had the smallest standardized estimate ($\beta = 0.329$, $p < .001$), while ACE7 (substance abuse in the household) showed the strongest loading ($\beta = 0.541$, $p < .001$). Family incarceration was significantly correlated with substance abuse ($r = 0.378$, $p < .001$). Similarly, emotional abuse correlated with physical abuse ($r = 0.375$, $p < .001$). All estimates were statistically significant ($p < .001$), and the standardized loadings suggest that the ACE latent construct is adequately represented by the 10 indicators.

The results of the factor analysis provided evidence supporting one-factor model for representing ACE. However, the initially hypothesized model showed a poor fit to the data ($\chi^2 = 119.6$, $df = 35$; CFI = 0.78; RMSEA = 0.07), indicating that it did not sufficiently capture the underlying structure of the data. However, after modifications, the final model demonstrated a good fit ($\chi^2 = 52$, $df = 33$; CFI = 0.95; RMSEA = 0.03), supporting the suitability of a one-factor solution.

All ten indicators had statistically significant standardized factor loadings ($p < .001$), ranging from 0.329 to 0.541. ACE10 (family incarceration) had the weakest loading, while ACE7 (household substance abuse) had the strongest. These findings indicate that while all items contribute to the overall construct of ACE, some indicators have a stronger relationship with the latent variable than others.

The final model including standardized factor loadings and relationships among indicators is diagrammatically represented in the figure below.

Obtained factor structure of ACE.

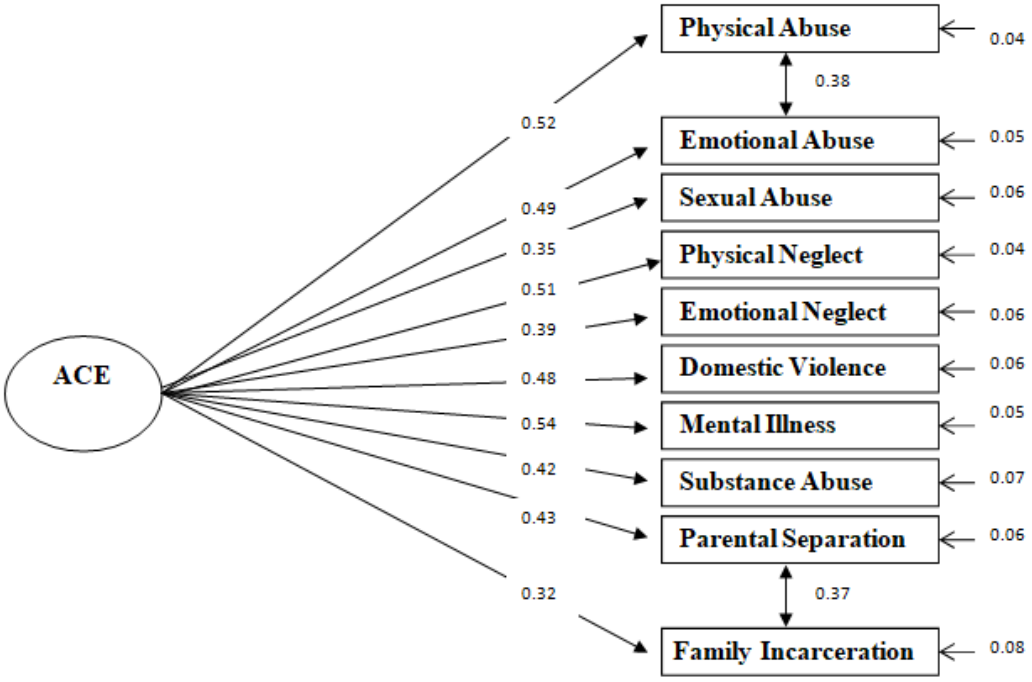

FIGURE 4.7: Obtained factor structure of ACE

Moreover, significant correlations between certain indicators, such as between family incarceration and household substance abuse ($r = 0.378$, $p < .001$), and between emotional and physical abuse ($r = 0.375$, $p < .001$), highlight the co-occurrence of adverse experiences. This supports the idea that ACE often occur together rather than in isolation.

Overall, the results support the measurement of ACE as a single underlying factor using the selected ten indicators. This structure can be useful for understanding

the cumulative impact of childhood adversity in research and applied settings. Future research may explore this model further with different populations to check for consistency and cultural relevance.

4.5.2 Factor Analysis of Brief Resilience Scale

Resilience was measured using the Brief Resilience Scale (BRS), which includes six items. Based on the original validation by Smith et al. (2008), a one-factor model was tested to assess whether all items reflected a single underlying construct of resilience. All six items were loaded onto a single latent variable representing resilience.

The hypothesized one-factor model is presented in the following figure.

Hypothesized factor structure of BRS.

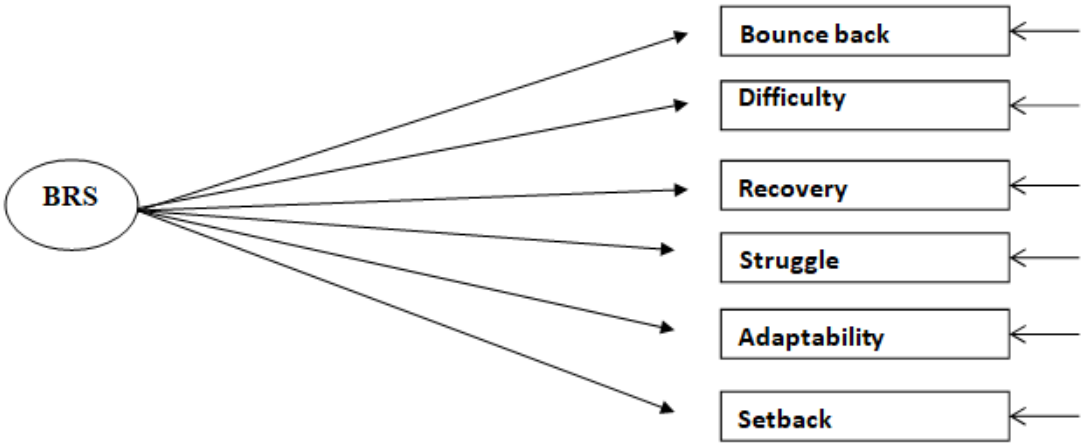

FIGURE 4.8: Hypothesized factor structure of BRS

The hypothesized one-factor model was evaluated using a first-order exploratory factor analysis conducted with 6 indicators from the BRS.

4.5.2.1 Hypothesized Model

BRS model showed the mean $\chi^2 = 99.6$ with $df = 9$. Moreover, the mean Comparative Fit Index (CFI) was 0.76 and the mean RMSEA was 0.12 which indicated a poor fit to the data.

4.5.2.2 Final Model

The final model ($\chi^2 = 23.635$, $df = 6$; CFI = 0.954; RMSEA = 0.077) showed a good fit to the data. It consisted of 6 indicators, one latent variable, and 21 free parameters. All standardized factor loadings were statistically significant ($p < .01$), ranging from 1.13 (BRS5) to 3.52 (BRS6), indicating weak to strong contributions of the observed variables to the latent construct.

Among the indicators, BRS5 had the smallest standardized estimate ($\beta = 1.00$, $p < .001$), while BRS6 showed the strongest loading ($\beta = 3.52$, $p < .001$).

Significant correlations were also observed among certain indicators. BRS5 was positively correlated with BRS1 ($r = 0.30$, $p < .001$) and BRS3 ($r = 0.241$, $p < .001$), while BRS3 also showed a significant correlation with BRS1 ($r = 0.262$, $p < .001$). All estimates were statistically significant ($p < .001$), and the standardized loadings suggest that the resilience latent construct is adequately represented by the 6 indicators of the Brief Resilience Scale.

The diagrammatic representation of the final model, along with standardized factor loadings and indicator relationships, is presented in the following figure 9.9.

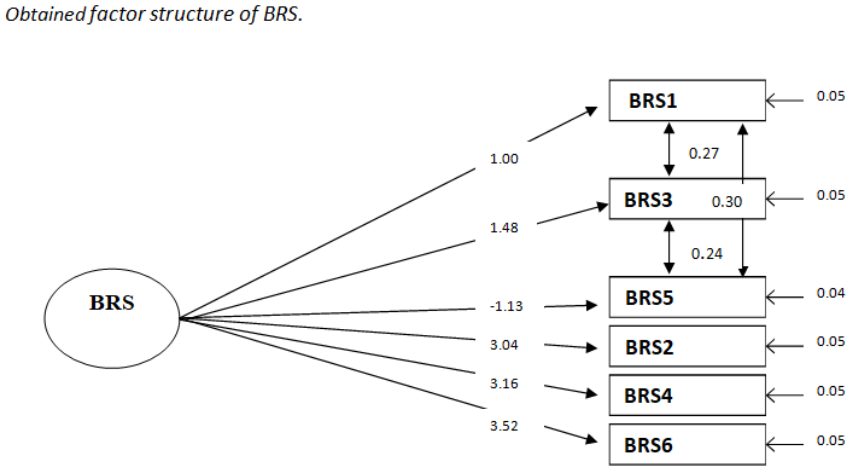

FIGURE 4.9: Obtained factor structure of BRS

The factor analysis supported a one-factor model for the Brief Resilience Scale (BRS), with a good model fit ($\chi^2 = 23.635$, $df = 6$; CFI = 0.954; RMSEA = 0.077). All six items had significant standardized loadings ($p < .001$), ranging

from -0.247 (BRS5) to 0.744 (BRS6R), indicating varying contributions to the resilience construct.

Significant correlations among BRS1, BRS3, and BRS5 (ranging from $r = 0.241$ to $r = 0.306$, $p < .001$) suggest internal consistency within the scale.

Overall, the model supports measuring resilience as a single factor using the BRS. Further validation across diverse populations is recommended to ensure generalizability.

4.5.3 Factor Analysis of Schutte Self-Report Emotional Intelligence Test

Emotional intelligence (EI) was measured using the Schutte Self-Report Emotional Intelligence Test (SSEIT), which consists of 33 items. Based on the original structure suggested by Schutte et al. (1998), a one-factor model of emotional intelligence was tested.

Although some studies have supported multi-factor solutions, the current analysis focused on testing a unidimensional structure. All 33 items were loaded onto a single latent factor representing overall emotional intelligence.

The hypothesized one-factor model was evaluated using a first-order exploratory factor analysis conducted with 33 indicators used to SSEIT.

4.5.3.1 Hypothesized Model

The SSEIT model demonstrated a mean $\chi^2 = 1156.04$ with $df = 491$. Additionally, the mean CFI was 0.80, and the mean RMSEA was 0.05. These values suggest that the model exhibited a poor fit to the data.

4.5.3.2 Final Model

The final model ($\chi^2 = 714.314$, $df = 392$, CFI = 0.900, RMSEA = 0.040) demonstrated an acceptable fit to the data. It consisted of 30 indicators, five latent variables, and 103 free parameters.

All standardized factor loadings were statistically significant ($p < .05$), with values ranging from 0.172 (EIS11) to 0.777 (EIS29), indicating varying contributions of the items to their respective latent constructs.

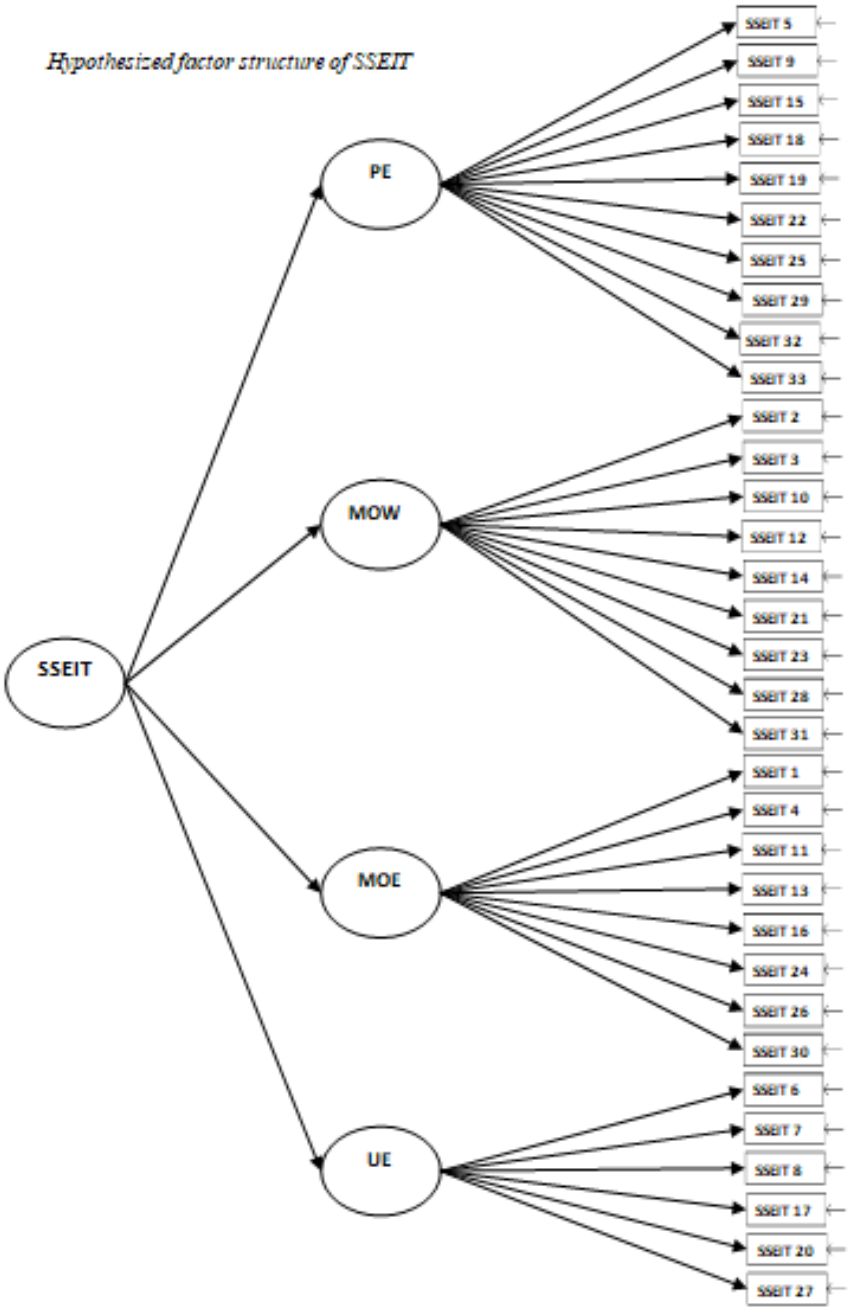

FIGURE 4.10: Hypothesized factor structure of SSEIT

During the analysis, reverse-coded items were excluded from the final model due to their statistically non-significant loadings and overall poor contribution to model fit. Reverse-coded items are frequently associated with measurement issues in self-report instruments, as they may introduce cognitive confusion,

response inconsistency, and method variance, ultimately compromising the scale's psychometric integrity (145). Their exclusion contributed to a more coherent factor structure and improved overall model fit. Overall, the results support a refined five-factor model of emotional intelligence using the SSEIT. The diagrammatic representation of the final model, including standardized factor loadings and inter-factor

relationships, is presented in the following figure 9.11.

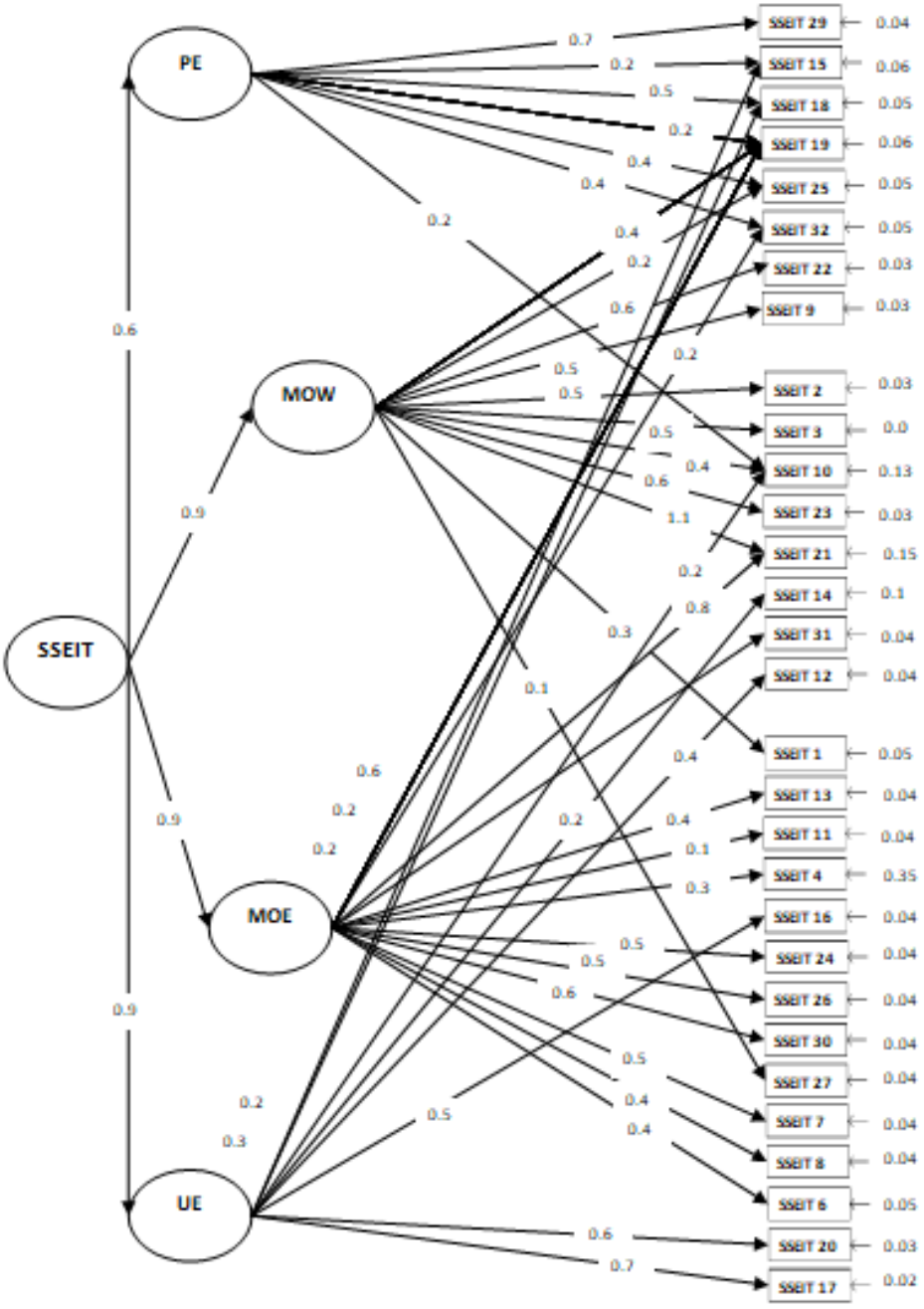

FIGURE 4.11: Obtained factor structure of SSEIT

Among the 30 indicators, EIS29 (Perception of Emotions) had the highest loading (0.777, $p < .001$), while EIS11 showed the lowest (0.172, $p < .001$).

In Managing One's Own Emotions (EIS_MOW), Managing Others' Emotions (EIS_MOE), Use of Emotions (EIS_UE) and Perception of Emotions (EIS_PE) significantly contributed to the overall emotional intelligence factor, with the strongest path emerging from Managing One's Own Emotions ($\beta = 0.935$, $p < .001$).

4.5.4 Structural Equation Model

Based on the theoretical foundations and empirical findings discussed in the literature review, it was hypothesized that ACE would predict emotional intelligence both directly and indirectly through resilience. It was expected that higher levels of ACE would be associated with lower emotional intelligence; however, resilience was proposed as a mediating variable that could buffer this relationship, such that individuals with high resilience may exhibit greater emotional intelligence even with high ACE exposure.

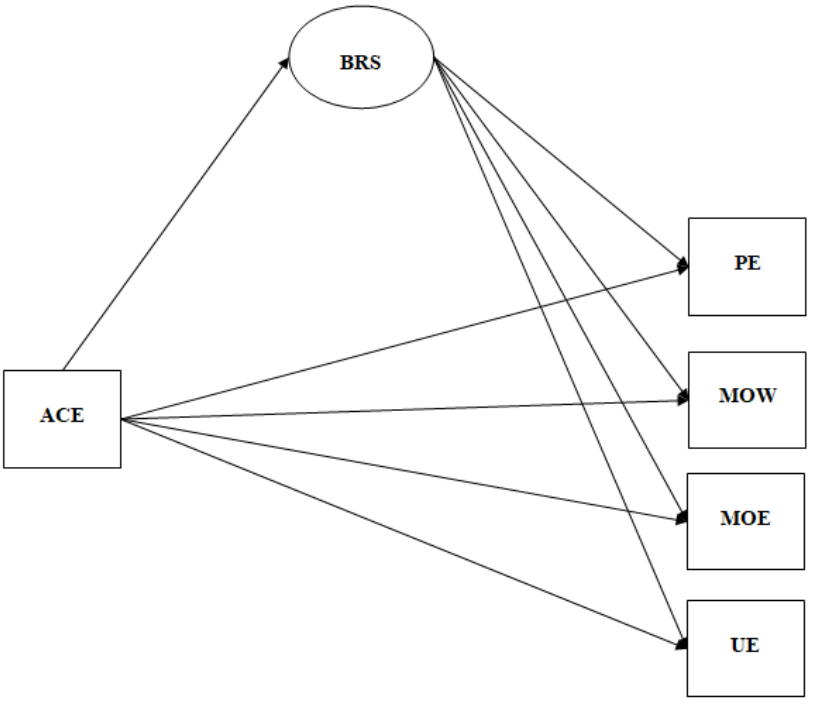

FIGURE 4.12: Hypothesized factor structure of Model

4.5.4.1 Hypothesized Model

The model included one observed predictor (ACE), one mediating latent construct (Resilience), and one outcome latent variable (Emotional Intelligence).

A total of six latent variables were included in the final model, with 180 free parameters.The hypothesized model showed good fit to the data ($\chi^2 = 1415.655$, $df = 947$; CFI = 0.902; RMSEA = 0.031). The path from ACE to Emotional Intelligence was significant, and resilience was found to partially mediate this relationship.

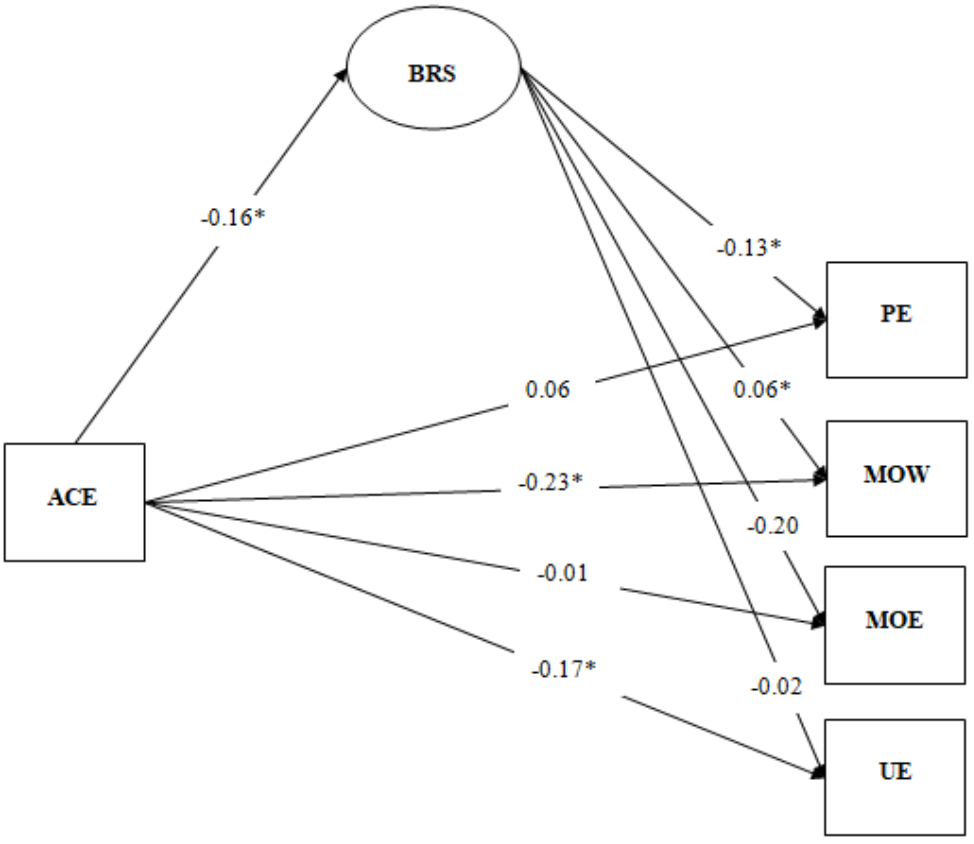

FIGURE 4.13: Obtained factor structure of Model

4.5.4.2 Changes Made in the Model

Changes were made to the hypothesized model by systematically removing insignificant pathways one at a time to enhance model fit.

Initially, all direct and indirect paths from ACE to EI through Resilience

were included. Upon examination, several direct and indirect paths from ACE to SSEIT subscales were found to be statistically insignificant.

Therefore, insignificant pathways leading from SSEIT were removed. Following these revisions, the model includes only the significant paths.

4.5.4.3 Final Model

The final structural model comprised one latent predictor (ACE), one latent mediator (Resilience), and four latent outcomes: Managing Own Emotions (MOW), Managing Others' Emotions (MOE), Perception of Emotions (PE), and Utilization of Emotions (UE), with a total of 176 free parameters. The model showed acceptable fit with $\chi^2 = 1426.76$ (df = 951), CFI = 0.900, and RMSEA = 0.032. To clearly present the significant pathways, only the structural part of the SEM is shown in the following figure.

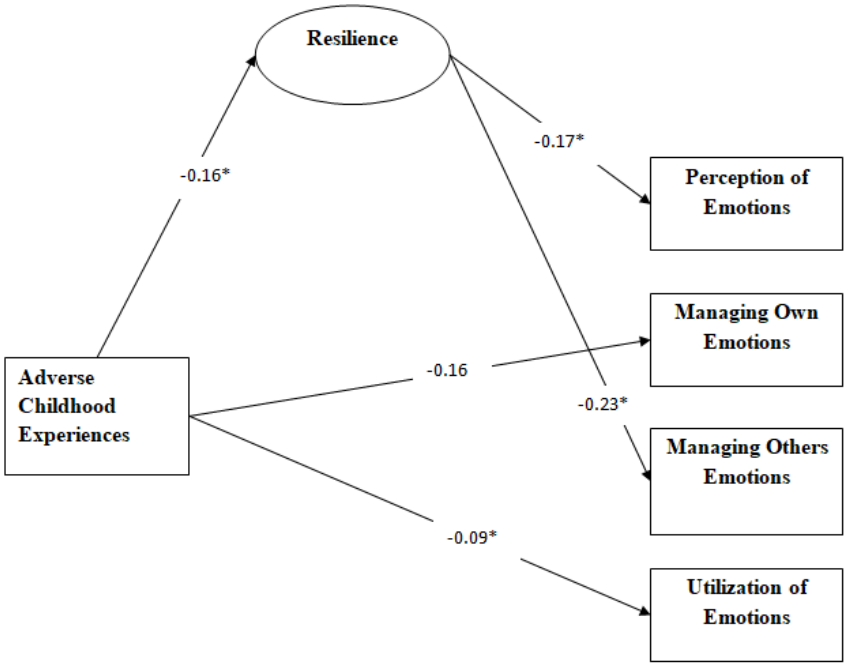

FIGURE 4.14: Obtained factor structure of Final Model

Two pathways emerged. In the first, ACE negatively predicted Resilience ($\beta = -0.166$, $p < .01$), indicating that individuals with greater childhood adversity exhibited lower resilience.

Resilience negatively predicted Perception of Emotions (PE) ($\beta = -0.178$, $p < .001$) and Managing Others' Emotions (MOE) ($\beta = -0.232$, $p < .001$). In the second pathway, ACE directly negatively predicted Managing Own Emotions (MOW) ($\beta = -0.168$, $p < .001$) and Utilization of Emotions (UE) ($\beta = -0.096$, $p < .05$). The model represents the relationships retained after modifications, reflecting the significant direct and indirect effects between ACE, Resilience and EI.

4.6 Hypothesis IV

There will be significant difference in ACE, resilience and EI across gender and socioeconomic status (SES) among undergraduates. The table below shows gender differences and socioeconomic status across undergraduates with ACE, Resilience and EI.

TABLE 4.7: Gender Differences Across Undergraduates in ACE, BRS, and SSEIT Scores (N = 502)

Variable	**Male**		**Female**		***t*(500)**	***Cohen's d***
	M	***SD***	**M**	***SD***		
ACE	1.55	1.79	1.45	1.86	0.58	0.05
BRS	19.16	3.41	17.81	3.52	4.18	0.39
SSEIT	117.73	16.61	118.32	14.67	-0.41	-0.04
PE	35.11	5.64	35.07	5.34	0.10	0.01
MOW	32.43	5.46	32.56	4.97	-0.26	-0.02
MOE	28.04	4.89	28.33	4.01	-0.71	-0.06
UE	22.14	3.73	22.36	3.50	-0.68	-0.06

Note: M = Mean, SD = Standard Deviation, *Cohen's d* = Standardized Mean Difference, t = t-test value, ACE = Adverse Childhood Experiences, BRS = Brief Resilience Scale, SSEIT = Schutte Self-Report Emotional Intelligence Test, PE = Perception of Emotions, MOW = Managing Own Emotions, MOE = Managing Others Emotions, UE = Utilization of Emotions.

Independent sample t-test was used to assess gender differences. Table 9.7 shows that there was a significant gender difference in resilience scores. Males ($M = 19.16$, $SD = 3.41$) scored significantly higher than females ($M = 17.81$, $SD = 3.52$), $t(500) = 4.19$, $p < .001$.

However, there was no significant difference in emotional intelligence scores between males (M = 117.73, SD = 16.61) and females (M = 118.32, SD = 14.67), $t(500)$ = –0.41, p = .68. Furthermore, no significant gender differences were observed across the emotional intelligence subscales.

Table 4.8: Socioeconomic Differences Across Undergraduates on ACE, BRS, and SSEIT Scores (N = 502)

Variables	**High Class**		**Middle Class**		**Lower Class**		***f***	**p**
	M	SD	M	SD	M	SD		
ACE	1.63	2.26	1.44	1.72	2.43	2.69	1.23	.27
BRS	18.25	3.57	18.29	3.54	19.43	3.30	0.36	.69
SSEIT	118.42	18.34	117.91	14.70	125.86	15.81	0.93	.39
PE	35.77	6.22	34.93	5.28	36.57	5.85	1.06	.35
MOW	32.63	5.86	32.45	4.98	35.14	6.77	0.97	.38
MOE	27.95	4.73	28.25	4.29	29.86	2.85	0.66	.51
UE	22.06	4.37	22.29	3.43	24.29	2.62	1.23	.29

Note:= Mean, SD = Standard Deviation, p = P-score, ACE = Adverse Childhood Experiences, BRS = Brief Resilience Scale, SSEIT = Schutte Self-Report Emotional Intelligence Test, PE = Perception of Emotions, MOW = Managing Own Emotions, MOE = Managing Others' Emotions, UE = Utilization of Emotions $p < .01$, df = 500

Socioeconomic status was not found to be significant across ACE, BRS, and SSEIT scores. Additionally, no significant differences were observed in the emotional intelligence subscales. Among the three groups, individuals from the lower socioeconomic class scored slightly higher on ACE (M = 2.43, SD = 2.69), resilience (M = 19.43, SD = 3.30), and overall emotional intelligence (M = 125.86, SD = 15.81), particularly in perception of emotions (M = 36.57, SD = 5.85) and managing own emotions (M = 35.14, SD = 6.77).

Chapter 5

Discussion and Conclusion

5.1 Discussion

This chapter provides a comprehensive discussion of the reliability of scales, demographics of respondents and results. The present cross-sectional quantitative research was conducted to examine the mediating role of resilience between adverse childhood experiences and emotional intelligence among undergraduate. The sample consisted of 502 undergraduate students, aged between 18 and 25 years. Participants were recruited using a convenience sampling technique. Data were collected from both public and private universities located in Rawalpindi and Islamabad. Although the questionnaire was prepared using Google Forms, data were collected through classroom visits. The link to the online form was shared during the visit, and students filled it out on their devices. This study was grounded in the growing global recognition of childhood trauma as a major public health concern, with long-lasting effects on emotional, cognitive, and psychological development (67). While extensive research has been conducted in Western contexts, limited evidence exists in South Asian countries, particularly Pakistan, where cultural norms, family dynamics, and systemic issues significantly shape childhood experiences and emotional functioning (146).

The Cronbach's alpha reliability of ACE obtained in the present study was 0.72. This value aligns closely with $\alpha = 0.73$ reported by Merrick and his colleagues

in a nationally representative adult sample in the United States. Values indicate acceptable internal consistency of the ACE, which supports its reliability for use with emerging adults (147). The Cronbach's alpha reliability of the Brief Resilience Scale obtained in the present study was 0.56. This comparatively low internal consistency may be attributed to cultural and contextual differences, as the scale was originally developed in a Western setting (138). The Cronbach's alpha reliability of the SSEIT in the present study was 0.89, indicating excellent internal consistency. This is consistent with the $\alpha = 0.87$ reliability reported during the scale's initial development by (148). Similarly, a study conducted in Pakistan by (146) also reported a Cronbach's alpha of 0.89.

The present study included 502 undergraduate students. In terms of gender distribution there is higher representation of females in the sample. The sample distribution reflects a wide academic range, with most students representing early to mid stages of their undergraduate studies. The demographic profile indicates that the majority of participants came from middle-class backgrounds.

However, another finding suggests that there is a difference in resilience levels between males and females. Males reported higher resilience than females. This may be because males use different ways to cope with stress. This finding is supported by (149), who suggest that men tend to use more problem-focused coping strategies which are positively associated with resilience. However, there were no significant gender differences in ACE or emotional intelligence scores. Prior literature often suggests that females score higher on interpersonal aspects of EI (150). Similarly, socioeconomic status (SES) showed no significant overall association with ACE, resilience, or emotional intelligence. However, descriptive statistics revealed that participants from lower socioeconomic backgrounds reported slightly higher ACE scores (M = 2.43, SD = 2.69), as well as high levels of resilience (M = 19.43, SD = 3.30) and emotional intelligence (M = 125.86, SD = 15.81). These individuals particularly scored higher in perception of emotions (M = 36.57, SD = 5.85) and managing their own emotions (M = 35.14, SD = 6.77), suggesting that despite facing adversity, they may have developed adaptive emotional coping skills.

The findings of the Structural Equation Modeling (SEM) revealed several significant direct and indirect relationships that enhance the understanding of how early life adversity may influence emotional functioning later in life. The analysis demonstrated that ACE had a significant negative direct effect on resilience ($\beta = -0.15$, $p < .05$). This indicates that individuals with a higher number of adverse experiences in childhood are more likely to report lower levels of resilience in adulthood and vice versa. This supports existing literature suggesting that early traumatic experiences can compromise an individual's ability to adapt, cope with stress and face of life challenges (37; 151). The justification for including resilience as a mediator stems from its conceptualization as a protective factor in trauma and stress models, which emphasize its role in helping individuals recover from adversity and build emotional strength (48). Additionally, ACE were found to significantly and negatively predict managing one's own emotions ($\beta = -0.29$, $p < .05$) and utilization of emotions ($\beta = -0.25$, $p < .05$), suggesting that individuals exposed to childhood adversity may face difficulties in regulating their own emotions and applying emotional knowledge effectively in decision making or goal-oriented behaviors. These findings are consistent with prior studies indicating that trauma can impair cognitive-emotional integration and emotion regulation (152). However, ACE were shown to be insignificant with perception of emotions and managing other emotions.

Resilience also played a significant mediating role across several emotional intelligence dimensions. Resilience negatively predicted perception of emotions ($\beta = -0.17$, $p < .05$), which appears unexpected as previously discussed in literature that resilience is typically associated with greater emotional intelligence. However, in collectivist societies such as Pakistan, individuals may suppress emotional expression as a culturally adaptive strategy, particularly when facing adversity (153; 154). High resilience may not necessarily indicate strong emotional sensitivity. Instead, it may reflect a tendency to control and suppress emotional expressions in order to maintain positive relationships and fulfill expected family roles (155). Therefore, individuals with higher resilience might place less emphasis on perceiving emotions and more on regulating them.

Moreover, emotional suppression is often seen as a valued trait within collectivist norms, especially among emerging adults dealing with familial and societal expectations (156).

More importantly, resilience was found to significantly and negatively predict managing others emotions ($\beta = -0.23$, $p < .05$). These findings support the understanding of resilience as an adaptive quality that helps individuals cope and recover from stress. However, it may also limit emotional openness, which plays an important role in handling both personal and social emotional interactions (157). For instance, among individuals affected by trauma, emotional resilience may be reduced emotional openness, potentially resulting in restricted emotional expression or challenges in responding to others with emotional sensitivity (158). These findings are further supported by (159), who found that young Chinese children with higher levels of resilience still exhibited significant emotional difficulties, suggesting that resilience may serve to suppress or mask deeper emotional challenges rather than effectively addressing them. Thus, highly resilient individuals might prioritize emotional suppression and self-reliance over emotional sharing and emotional processing, especially in cultural contexts that promote the suppression of emotional expression.

The results supported a partial mediation model, particularly for managing one's own emotions. ACE had both direct negative effects and indirect effects through reduced resilience on these aspects of emotional intelligence. This suggests that while resilience offers a buffering effect, it does not fully mitigate the long lasting emotional disruption caused by ACE. This partial mediation aligns with previous research that highlights the multidimensional effects of early trauma often impact emotional development across various domains (152). Additionally, the unexplored influence of other mediators such as attachment patterns and perceived social support should be considered in future studies (160; 161).

Overall, the findings add to the existing literature by highlighting the complex relationship between ACE, resilience, and EI. The negative association found between

resilience and certain aspects of emotional intelligence challenges the common belief that resilience always enhances emotional functioning. In collectivist cultures, emotional suppression is often encouraged to maintain social cohesion (153). While this may help individuals cope with difficulties, it can limit emotional openness and reduce the ability to express and manage emotions effectively (162).

Future research should examine how cultural norms about expressing emotions, individual experience of adversity, and collective identity influence emotional development. Using qualitative or mixed-method approaches in such cultural contexts may offer deeper insights.

The findings emphasize the need to educate young individuals, families, and communities about the psychological impact of adverse childhood experiences and their long-term influence on emotional functioning. Public awareness campaigns, university-based seminars, and school-level mental health programs can help normalize conversations around emotional expression, trauma, and coping.

In culturally collectivist societies like Pakistan, where suppressing emotions is often viewed as a sign of strength. It is important to promote emotional intelligence as a life skill rather than a personal vulnerability. Incorporating culturally acceptable methods such as storytelling, religious discussions, or peer sharing circles can help reduce stigma and enhance emotional understanding in ways that align with cultural values and social norms.

Also, the findings help to understand the importance of adopting trauma-informed approaches in psychological assessment and intervention. Mental health professionals should consider that individuals with high resilience may still struggle with emotional awareness, regulation, or interpersonal connection due to learned suppression or avoidance. Therapy should therefore focus not only on building coping strategies but also on enhancing emotional insight and communication. Furthermore, routine screening for ACE in clinical settings can improve early identification and provide tailored support for emerging adults affected by childhood adversity.

5.2 Conclusion

Childhood emotional experiences, especially adverse ones, leave a lasting impression. They continue to shape how individuals feel, think, and function well into adulthood. Individuals with greater exposure to early adversity may struggle more with regulating their emotional responses and applying emotional skills effectively. These limitations can influence academic performance, decision-making, and interpersonal relationships during emerging adulthood.

A central contribution of this study is the identification of resilience as a partial mediator. While resilience did reduce the strength of the relationship between ACE but did not fully eliminate the impact of early trauma. This indicates that although resilience offers protective benefits, it may not be sufficient on its own.

Gender and socioeconomic comparisons provided additional context. No significant gender differences were observed in emotional intelligence scores, although males showed slightly higher resilience. Similarly, no major differences emerged across socioeconomic groups. These findings suggest that the emotional effects of childhood adversity may be consistently experienced across gender and social class within this sample.

Since many students enter higher education while still coping with unresolved emotional wounds from childhood, providing support in these domains is essential for both personal wellbeing and academic success.

This study reinforces the idea that adverse childhood experiences can have a lasting impact on emotional intelligence. Emotional intelligence is not fixed; it can be nurtured and strengthened through supportive environments and targeted interventions. This research highlights the need for institutions, educators, and mental health professionals to prioritize emotional wellbeing, ensuring that students are not only academically successful but also emotionally equipped to thrive in personal and professional life.

5.3 Implications

Following are the implications of the study.

1. The study highlights the lasting impact of childhood adversity on emotional functioning, reinforcing the need for early psychological screening and support in academic settings.
2. Building resilience and enhancing emotional intelligence in survivors of adverse childhood experiences can improve clinical outcomes for those dealing with the lasting effects of childhood maltreatment.
3. The study will provide a basis for future research on the longitudinal effects and intervention strategies for individuals with ACE exposure.
4. The study highlights the importance of developing trauma informed emotional intelligence programs aimed at improving students self-regulation and practical use of emotional competencies.

5.4 Limitations

Following are the limitations of the study.

1. Scales were self-reported, which creates biases like social desirability and recall errors that can affect data accuracy.
2. This study does not account for potential confounding variables, such as genetic predispositions, personality traits, and parent mental health.
3. The sample was skewed towards middle-class university students, limiting the ability to examine socioeconomic variability.
4. This study used a cross-sectional design, which limits the ability to make cause and effect conclusions between ACE, resilience, and emotional intelligence.
5. Cultural taboos and stigma surrounding childhood adversity in Pakistan might have led to underreporting of ACE.

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Appendix A

Informed Consent Form

You are invited to participate in this research study titled "The Mediating Role of Resilience Between Adverse Childhood Experiences and Emotional Intelligence Among Undergraduates". This study is being conducted by Maria Munawar post-graduate student from Capital University of Science and Technology (CUST) under the supervision of Dr. Sabahat Haqqani (Associate Professor). The purpose of this study is to examine the relationship between Adverse Childhood Experiences (ACEs), resilience and emotional intelligence among undergraduate students. Your participation in this study is entirely voluntary. You have the right to withdraw from the study at any time without any consequences. If you decide to participate, you will be asked to fill out a questionnaire that will take approximately 15 minutes to complete. Participant age should be in between 18-25 years. All responses will remain confidential and anonymous.

While completing the questionnaires, if at any point you feel distressed or overwhelmed, feel free to inform the researcher or withdraw from the study. Remember that recalling a distressing event can sometimes make feel overwhelmed, so just in case you need to seek help you can contact on following helpline wbc@cust.edu.pk (05111155566 ext 296) or contact me on mariamunawwar@yahoo.com or Dr Sabahat Haqqani on sabahat.haqqani@cust.edu.pk.

By clicking **"Agree"**, you are giving your consent to participate in the study. If you have any questions or concerns, feel free to ask before agreeing to participate.

Part I: Demographic Information

Age: _____

Gender: ☐ Male ☐ Female

☐ Other (Please specify: _____)

Semester: _____

Department: _____

Institution: _____

Sector: ☐ Private ☐ Public

Socioeconomic Status (SES): ☐ High ☐ Middle ☐ Low

Number of Siblings: _____

Father: ☐ Alive ☐ Deceased

Mother: ☐ Alive ☐ Deceased

Father's Occupation: _____

Mother's Occupation: _____

Living with: ☐ Parents ☐ Guardians

☐ Other (Please specify: _____)

Tell me about yourself:

(Please provide a brief description of yourself, including interests, experiences, and anything you'd like to share.)

_____

_____

_____

Part II: Adverse Childhood Experiences (ACEs)

Instructions: When you were growing up, during the first 18 years of your life, please answer the following:

No.	Statement	Yes	No
1	Did a parent or other adult in the household often swear at you, insult you, put you down, or humiliate you? Or act in a way that made you afraid that you might be physically hurt?	☐	☐
2	Did a parent or other adult in the household often push, grab, slap, or throw something at you? Or ever hit you so hard that you had marks or were injured?	☐	☐
3	Did an adult or person at least 5 years older than you ever touch or fondle you or have you touch their body in a sexual way? Or try to or actually have oral, anal, or vaginal sex with you?	☐	☐
4	Did you often feel that no one in your family loved you or thought you were important or special? Or your family didn't look out for each other, feel close to each other, or support each other?	☐	☐
5	Did you often feel that you didn't have enough to eat, had to wear dirty clothes, and had no one to protect you? Or your parents were too drunk or high to take care of you or take you to the doctor if you needed it?	☐	☐
6	Were your parents ever separated or divorced?	☐	☐
7	Was your mother or stepmother often pushed, grabbed, slapped, or had something thrown at her? Or sometimes or often kicked, bitten, hit with a fist, or hit with something hard? Or ever repeatedly hit over at least a few minutes or threatened with a gun or knife?	☐	☐

8	Did you live with anyone who was a problem drinker or alcoholic, or who used street drugs?	☐	☐
9	Was a household member depressed or mentally ill, or did a household member attempt suicide?	☐	☐
10	Did a household member go to prison?	☐	☐

Resilience Scale

Instructions: Below are statements about your ability to bounce back or recover from stress or adversity. Please indicate the extent to which you agree or disagree with each statement using the following scale:

Scale: 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree

No.	**Statement**	**1** Strongly Disagree	**2** Disagree	**3** Neutral	**4** Agree	**5** Strongly Agree
1	I tend to bounce back quickly after hard times.	☐	☐	☐	☐	☐
2	I have a hard time making it through stressful events.	☐	☐	☐	☐	☐
3	It does not take me long to recover from a stressful event.	☐	☐	☐	☐	☐
4	It is hard for me to snap back when something bad happens.	☐	☐	☐	☐	☐
5	I usually come through difficult times with little trouble.	☐	☐	☐	☐	☐
6	I tend to take a long time to get over setbacks in my life.	☐	☐	☐	☐	☐

Emotional Intelligence Scale

Instructions: Each of the following items asks you about your emotions or reactions associated with emotions. After deciding whether a statement is generally true for you, use the 5-point scale to respond. **Scale:** 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree

No.	**Statement**	**1** Strongly Disagree	**2** Disagree	**3** Neutral	**4** Agree	**5** Strongly Agree
1	I know when to speak about my personal problems to others.	☐	☐	☐	☐	☐
2	When I am faced with obstacles, I remember times I faced similar obstacles and overcame them.	☐	☐	☐	☐	☐
3	I expect that I will do well on most things I try.	☐	☐	☐	☐	☐
4	Other people find it easy to confide in me.	☐	☐	☐	☐	☐
5	I find it hard to understand the nonverbal messages of other people.	☐	☐	☐	☐	☐
6	Some major events of my life have led me to re-evaluate what is important and not important.	☐	☐	☐	☐	☐
7	When my mood changes, I see new possibilities.	☐	☐	☐	☐	☐
8	Emotions are one of the things that make my life worth living.	☐	☐	☐	☐	☐
9	I am aware of my emotions as I experience them.	☐	☐	☐	☐	☐
10	I expect good things to happen.	☐	☐	☐	☐	☐
11	I like to share my emotions with others.	☐	☐	☐	☐	☐
12	When I experience a positive emotion, I know how to make it last.	☐	☐	☐	☐	☐

13	I arrange events others enjoy.	☐	☐	☐	☐	☐
14	I seek out activities that make me happy.	☐	☐	☐	☐	☐
15	I am aware of the non-verbal messages I send to others.	☐	☐	☐	☐	☐
16	I present myself in a way that makes a good impression on others.	☐	☐	☐	☐	☐
17	When I am in a positive mood, solving problems is easy for me.	☐	☐	☐	☐	☐
18	By looking at facial expressions, I recognize emotions people are experiencing.	☐	☐	☐	☐	☐
19	I know why my emotions change.	☐	☐	☐	☐	☐
20	When I am in a positive mood, I can come up with new ideas.	☐	☐	☐	☐	☐
21	I have control over my emotions.	☐	☐	☐	☐	☐
22	I easily recognize my emotions as I experience them.	☐	☐	☐	☐	☐
23	I motivate myself by imagining a good outcome to tasks I take on.	☐	☐	☐	☐	☐
24	I compliment others when they have done something well.	☐	☐	☐	☐	☐
25	I am aware of the non-verbal messages other people send.	☐	☐	☐	☐	☐
26	When another person tells me about an important event, I almost feel as though I have experienced it myself.	☐	☐	☐	☐	☐
27	When I feel a change in emotions, I tend to come up with new ideas.	☐	☐	☐	☐	☐
28	When faced with a challenge, I give up because I believe I will fail.	☐	☐	☐	☐	☐
29	I know what other people are feeling just by looking at them.	☐	☐	☐	☐	☐

30	I help other people feel better when they are down.	☐	☐	☐	☐	☐
31	I use good moods to help myself keep trying in the face of obstacles.	☐	☐	☐	☐	☐
32	I can tell how people are feeling by listening to the tone of their voice.	☐	☐	☐	☐	☐
33	It is difficult for me to understand why people feel the way they do.	☐	☐	☐	☐	☐

Thank you for your time and effort in completing this questionnaire. Your responses are valuable to this research.

Appendix B

Capital University of Science & Technology
Your Journey Awaits

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Ref. CUST/IBD/PSY/Thesis-1460
March 26, 2025

SUBJECT: REQUEST FOR DATA COLLECTION

Capital University of Science and Technology (CUST) is a federally chartered university. The university is authorized by the Federal Government to award degrees at Bachelor's, Master's and Doctorate level for a wide variety of programs.

Ms. Maria Munawar, registration number **MSP231005** is a bona fide student in MS Psychology program at this University from Fall-2023 till date. In partial fulfillment of the degree, she is conducting research on "The Mediating Role of Resilience between Adverse Childhood Experiences and Emotional Intelligence among Undergraduates". In this continuation, the student is required to collect data from your institute.

Considering the forgoing, kindly allow the student to collect the requisite data from your institute. Your cooperation in this regard will be highly appreciated.

Please feel free to contact undersigned if you have any query in this regard.

Best Wishes,

Dr. Sabahat Haqqani
Head, Department of Psychology
Ph No. 111-555-666 Ext: 178
sabahat.haqqani@cust.edu.pk

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Your Journey Awaits

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Ref: CUST/FMSS/REC/2025-04

March 26, 2025

RESEARCH ETHICS COMMITTEE CERTIFICATE OF REVIEW AND SUPPORT

This is to certify that Project titled: ***"The Mediating Role of Resilience between Adverse Childhood Experiences and Emotional Intelligence among Undergraduates"*** submitted by Scholar: **Maria Munawar MSP231005** and supervised by: **Dr. Sabahat Haqqani** reviewed by the Research Ethics Committee of Faculty of Management and Social Science, meets the requirements of the American Psychological Association's Ethical guidelines for Human Research and is **REVIEWED** and **APPROVED** by Research Ethics Committee of Faculty of Management and Social Sciences.

It is the Scholar's responsibility to ensure that all researchers associated with this project are aware of the conditions of approval and which documents have been approved.

The Scholar is required to notify the Research Ethics Committee in case of any amendment in the project, specifically:

- Any significant change to the project and the reason for that change, including an indication of ethical implications (if any)
- Serious adverse effects on participants and the actions taken to address those effects
- Any other unforeseen events or unexpected developments that merit notification
- The inability of the Principal Investigator to continue in that role, or any other change in research personnel involved in the project
- A delay of more than 12 months in the commencement of the project; and,
- Termination or closure of the project.

Dr. Sabahat Haqqani

Convener, Research Ethics Committee
Faculty of Management and Social Sciences
Capital University of Science and Technology
Islamabad