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The Mediating Role of Theory of Mind in the Relationship between Childhood Trauma and Adult Mental Health Outcomes

by

Esha Fatima

A thesis submitted in partial fulfillment for the degree of Master of Science

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(Esha Fatima)

Abstract

Childhood trauma is associated with an increased risk of mental health problems in adulthood. The present study explored association between childhood trauma, Theory of Mind (ToM) and adult mental health outcomes (depression, anxiety, stress) among young adults in Pakistan and hypothesized that Theory of Mind would mediate between childhood trauma and mental health outcomes. A cross-sectional research design was used. Convenience sampling was used and 550 young adults (18-35 years) were recruited from various localities in Pakistan. The following questionnaires were used to collect data: Childhood Trauma Questionnaire (CTQ), Theory of Mind Scale (ToMS), and Depression, Anxiety, and Stress Scale-21 (DASS-21). Data analysis included Spearman's rank order correlation, Mann–Whitney U test, Kruskal–Wallis H test and Hayes' PROCESS Macro (Model 4). The findings revealed that childhood trauma was significantly and positively associated with depression ($r = .22$, $p < .01$), anxiety ($r = .14$, $p < .01$), stress ($r = .21$, $p < .01$), and Theory of Mind ($r = .20$, $p < .01$). Theory of Mind was also significantly and positively associated with depression ($r = .18$, $p < .01$), anxiety ($r = .17$, $p < .01$), and stress ($r = .15$, $p < .01$). Mediation analyses showed that part of the associations between childhood trauma and depression, anxiety and stress were mediated by Theory of Mind. There were no significant gender differences for childhood trauma, Theory of Mind, depression, anxiety or stress. Age-group analysis revealed that mean ranks for depression ($H = 22.47$, $p < .001$), anxiety ($H = 16.08$, $p = .003$), and stress ($H = 11.61$, $p < .001$) were highest for age groups 18–25, while there was no significant age difference in childhood trauma or Theory of Mind. The results underscore that Theory of Mind is a psychological mechanism that has been identified as a link between childhood trauma and adult mental health outcomes, and that trauma informed and mentalization-based interventions are important for young adults in Pakistan.

Keywords: Childhood Trauma, Theory of Mind, Adult Mental Health, Mediation, Depression, Anxiety, Stress, Young Adults.

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Abbreviations

ACE	Adverse Childhood Experiences
AMH	Adult Mental Health
CTQ	Childhood Trauma Questionnaire
DASS-21	Depression Anxiety Stress Scale–21
DSM-5	Diagnostic and Statistical Manual of Mental Disorders (5th ed.)
HPA	Hypothalamic–Pituitary–Adrenal
MBT	Mentalization-Based Therapy
SPSS	Statistical Package for the Social Sciences
ToM	Theory of Mind

Chapter 1

Introduction

1.1 Background of the Study

Childhood trauma is a major public health and developmental issue because what happens to children during their development can have an impact on their psychological functioning long after. Childhood trauma can involve physical, emotional, or sexual abuse; neglect; domestic violence; and other types of dysfunction in the family. The landmark study on Adverse Childhood Experiences (ACEs) was able to show that exposure to adversity in childhood was a cumulative risk factor and had a graded relationship with later physical and psychological health issues; adverse childhood experiences were not just a one-time event, but a risk factor for subsequent health problems (Felitti et al., 1998). This relationship is duplicated in many studies among many populations in different cultures and settings, and is also linked with increased risks for depression, along with anxiety and other stress-related issues and mental health problems during adulthood and older age (Norman et al., 2012; Hughes et al., 2017).

Trauma from Childhood does not only cause psychological trauma. Early adverse experiences can affect individuals' emotions, cognitions, interpersonal, and behavioral development, thus affecting the way in which they respond to stress and also deal with future developmental issues. In developmental psychopathology, the influence of adversity can be seen across biology, psychology, and many other environmental processes over time (Cicchetti and Toth, 2005). Prolonged and intense

stress in childhood can also impact biological processes that regulate stress. One particular aspect of hypothalamic–pituitary–adrenal (HPA) axis functioning that has been linked to increased stress reactivity and problems with emotional regulation in early adversity-exposed individuals is the suppression of the hypothalamic function of the HPA axis (Heim et al., 2008; Teicher and Samson, 2016). Adversities in Childhood have a great influence on the development of one's brain systems that are connected with threat detection, regulation of emotions, and social information processing (McCrory et al., 2011). Hence, trauma from childhood can cause developmental vulnerabilities that also continue through the transition into the phases of adolescence and adulthood.

Furthermore, the psychological influence of child adversity can create an increase in exposure. In their systematic review and meta-analysis of adverse childhood experiences (ACEs) and health and psychological outcomes, Hughes et al. (2017) concluded that having multiple types of adversity exposure was significantly linked to worse health and psychological outcomes. Likewise, Norman et al. (2012) showed that many mental disorders, such as depression and anxiety, are consistently related to childhood abuse and neglect. In addition, prospective cohort studies have demonstrated that childhood maltreatment is a key factor in the emergence of adult depression and anxiety issues, and specific types of childhood maltreatment result in specific forms of psychopathology in adulthood (Infurna et al., 2016). The findings indicate that despite the traumatic experiences having occurred during childhood, the trauma can still have a psychological effect. Some children exposed to trauma do not develop psychopathology, however, suggesting a psychological and social role in the link between childhood trauma and adult psychopathology.

Such systems are important, particularly in the context of Pakistan. Childhood adversity, such as harsh parenting, physical punishment, domestic violence, emotional neglect, and other types of family adversity, is an important concern in the context of Pakistan. But the long-term psychological effects of these experiences have been studied to a lesser extent. However, studies have shown that in Pakistan, there is a meaningful relationship between childhood adverse events and later psychological functioning among young adults. In the study on adverse childhood experiences and depression and anxiety in university students of Rawalpindi

and Islamabad, Fazal et al. (2022) found significant correlations between adverse childhood experiences and depression and anxiety. In recent years, Mahmood and Fatmi (2025) have reported that adverse childhood experiences are associated with poor current mental health among young adults in Pakistan. The findings underscore the importance of childhood adversity in relation to psychological well-being in adulthood among the Pakistani population, and suggest that further research is needed to examine the psychological pathways that could mediate these relationships.

There are multiple mechanisms suggested for the association between childhood trauma and the psychological outcomes in adulthood. Early adversity has been suggested to impact subsequent psychopathology in several ways (Mikulincer and Shaver, 2012; Weissman et al., 2019), including emotional dysregulation, insecure attachment, maladaptive cognitive schemas, interpersonal difficulties, and differences in coping and resilience.

The World Mental Health Surveys (WMHS) have also shown that childhood adversities are linked to higher rates of lifetime mood and anxiety disorders, as well as to findings that such adverse exposures do not create a uniform outcome for everyone (Kessler et al., 2010). This variation implies that a more complete picture of the impact of childhood adversity on adult mental health could be gained by studying the psychological processes.

The social cognitive process is one process that may be important and is not as well studied. Social cognition is the way that people perceive, interpret, and react to the thoughts, feelings, intentions, and behaviors of others. These processes are crucial for interpersonal functioning as they help them to understand social situations, help them to interpret emotional information, help them to regulate interactions, and respond appropriately to others (Luyten et al., 2020).

Interpersonal difficulties and psychological distress are thus possible consequences of social cognition issues. In this general area, Theory of Mind (ToM) refers to an understanding that one's own and others' internal mental states, such as beliefs, intentions, thoughts, and feelings, exist (Premack and Woodruff, 1978).

Theory of Mind is relevant for the current study because mentalizing skills are shaped by social and interpersonal experiences, are increasingly complex throughout childhood, adolescence, and young adulthood (Wellman, 2014). Mentalization Theory also suggests that the ability to understand mental states is shaped by emotional communication, reflection, and understanding internal experiences in relationship with caregivers that provide opportunities to learn about mental states (Fonagy and Target, 1997). Effective mentalizing may then be fostered by more supportive and secure caregiving settings, while negative or disrupted interpersonal settings can hinder the development of effective mentalizing. In this light, childhood trauma could not only impact emotional health but also alter one's perception of his or her own and another's mental states.

Empirical evidence is available that supports this possibility. According to the meta-analysis of 23 studies with 3,910 children, Yang and Huang (2024) stated that mentalizing capacity was negatively correlated with maltreatment in childhood. Their results state that there is a connection between childhood maltreatment experiences and poor mentalizing skills, though this connection can differ depending on individual factors that can be gender, their status of mental health status, and how mentalizing is calculated. The same applies to Gorgellino et al. (2025), who, in a systematic review of clinical samples, found evidence of a disrupted mentalization pattern in several psychiatric disorders such as mood, anxiety, personality, and psychotic disorders. As a whole, these findings indicate that adverse childhood events may affect psychological functioning partly via social-cognitive and mentalizing alterations.

A second interesting finding is that the link between Theory of Mind and adult psychopathology is also important, as difficulties in mentalizing have been documented in various types of psychopathology. Interpersonal interpretation, emotional understanding, and reactions to socially relevant information may be challenged as a result of difficulties in understanding mental states. Prior studies have found that abnormalities in Theory of Mind and related mentalizing processes have been associated with a variety of disorders, including schizophrenia, borderline personality disorder, and depression (Brüne, 2005; Weightman et al., 2014). Likewise, studies of social cognition in psychopathology have shown how understanding mental

states is crucial for emotional and interpersonal functioning (Stauffer et al., 2013). The findings serve as a foundation for thinking of Theory of Mind as a process rather than a cognitive ability that could be important regarding psychological adjustment.

The potential mechanism of Theory of Mind is especially relevant, as the effects of childhood adversity are not likely to occur via one mechanism. Adverse childhood events can impact emotional regulation, attachment, cognition, interpersonal expectations, and social cognition all at once (Cicchetti and Toth, 2005; Weissman et al., 2019). Theory of Mind thus could be one pathway by which adverse childhood experiences are connected to depression, anxiety, and stress in adults. This view is in line with developmental theories that view early environmental events as having an impact on psychological outcomes in later life stages via multiple, interrelated developmental processes and not just one single process.

Although growing evidence of childhood trauma and mentalizing exists, an important research gap still exists. Much of the current literature has focused on how emotional reactivity or attachment insecurity, resilience, and cognition mediate the relationship between childhood adversity and later psychopathology (Mikulincer and Shaver, 2012; Weissman et al., 2019). Fewer studies have directly investigated whether the relationship between childhood trauma and mental health in adulthood is mediated by Theory of Mind, as compared to the other mental health outcomes studied. The recent meta-analysis by Yang and Huang (2024) reinforces the evidence of the relationship between childhood maltreatment and mentalizing capacities, whereas the systematic review by (Gorgellino et al., 2025) shows the relevance of impaired mentalizing to trauma-related psychopathology. The preliminary results, however, do not rule out the possibility that Theory of Mind is an intermediary between childhood trauma and specific adult outcomes of mental health.

This is especially important in Pakistan, where empirical studies on the relationship between childhood adversity and mental health have started to emerge, but research specifically examining the relation between Theory of Mind and childhood adversity in Pakistan is still limited. There is existing evidence in Pakistan that links childhood adversity with poorer psychological outcomes among young adults

(Fazal et al., 2022; Mahmood and Fatmi, 2025), and some evidence indicates that social-cognitive functioning may explain this relationship. It is important, therefore, to consider this pathway in a Pakistani sample as it would help to further extend the literature on the link between childhood adversity and the wider literature on mentalizing and social cognition.

Therefore, this present study investigates association between childhood trauma, theory of mind, and the mental health of young adults in Pakistan. It gives an in-depth understanding of depression along with anxiety, and other stress-related aspects of adult mental health, and explains whether Theory of Mind provides mediation among childhood trauma and depression, anxiety, and stress. Gender differences are also explored for the key study variables. The study aims to add a more comprehensive understanding of how childhood adversities can continue to impact psychological functioning as adults and to contribute to the scarce literature focusing on social-cognitive mechanisms that underlie the long-term psychological impact of childhood adversity within a Pakistani population.

Chapter 2

Literature Review

In the last 30 years, studies in the fields of developmental psychology, psychiatry, and neuroscience have put more and more focus on the psychological implications of the past adverse experiences in the long run. One of the strongest environmental predictors of mental illnesses in adults living in various cultural backgrounds has been found to be childhood trauma (Felitti et al., 1998; Hughes et al., 2017). Megabasic epidemiological research indicates that adverse childhood experiences (ACEs) have a dose-response correlation with subsequent depression, anxiety, substance use disorder, suicidality, and personality pathology (Kessler et al., 2010; Norman et al., 2012). These results indicate that peer and familial stress in early developmental years can result in fundamental changes in the pathways of emotional, cognitive and social functioning (Kessler et al., 2010; Norman et al., 2012).

Notably, recent studies have no longer focused on recording the links between trauma and psychopathology, but rather detailed the underlying process behind how childhood adversity is eventually transformed into psychological distress in adulthood (McLaughlin et al., 2020). Researchers also tend to believe that trauma-related effects are not predetermined and occur through the developmental mechanisms of neurobiological control, attachment mechanisms, and social-cognitive abilities (Cicchetti and Toth, 2005; Teicher and Samson, 2016). In this context, it is important to establish mediating mechanisms in order to develop refined theoretical models and develop focused clinical interventions.

A single mechanism that has also garnered increasing interest is Theory of Mind (ToM) which is one of the fundamental social-cognitive abilities that allow human beings to understand and make predictions about the mental states of others (Premack and Woodruff, 1978). Since ToM forms during early relationship contexts and it is heavily dependent on attunement of caregivers and emotional communication (Fonagy and Luyten, 2009), ToM is especially susceptible to interference in an abusive or neglectful environment. Simultaneously, compromised social cognition has been considered the cause of numerous psychiatric conditions (Stauffer et al., 2013), which prompts the idea that ToM might be used as a mediator between childhood traumas and adult mental health.

Although this line of reasoning is theoretically plausible, the empirical studies that explicitly consider Theory of Mind as a mediator of childhood trauma and adult psychological distress are scarce, especially in non-western studies. The current literature review thus summarizes the available materials on childhood trauma, adult mental health, and the Theory of Mind and is intending to define the conceptual and empirical platform of exploring their relationship within a culturally specific context.

2.1 Developmental Mechanisms Linking Childhood Trauma to Adult Mental Health

Childhood trauma-adult mental health relationship has come to be understood through the developmental mechanisms. Trauma impacts interwoven emotional, cognitive and interpersonal systems throughout the course of development (Cicchetti and Toth, 2005).

Disrupted attachment is one of the key mechanisms linking childhood trauma with later psychological difficulties. According to Attachment Theory, early caregiver relationships shape internal working models that influence emotion regulation and interpersonal functioning throughout life (Bowlby, 2008). There is recent evidence that insecure and disorganized attachment patterns are linked to greater vulnerability to depression, anxiety, and a failure to regulate emotions, stemming from

adverse caregiving environments. Moreover, attachment insecurity was found to be a significant pathway from childhood maltreatment to adult psychopathology (Luyten et al., 2020; Raby et al., 2017).

Another developmental mechanism is social cognition, specifically Theory of Mind. Early relational trauma can affect mentalising skills, emotional attunement and understanding mental states of the self and others (Fonagy et al., 2018). This association is supported by recent evidence, a meta-analysis indicated that greater exposure to childhood maltreatment was significantly associated with poorer mentalizing abilities (Yang and Huang, 2024).

Similarly, a recent systematic review found that mentalization disturbances were consistently reported in children with psychiatric disorders exposed to childhood trauma (Gorgellino et al., 2025).

Social cognitive impairments have become widely acknowledged as transdiagnostic risk factors for psychiatric disorders. In fact, impairments in Theory of Mind have been found in a number of psychiatric conditions, including schizophrenia, and be common in these patients using meta-analysis (Stauffer et al., 2013).

Systematic reviews more recently demonstrate that social cognition is an important mechanism in psychological dysfunction that is shared across mood disorders, anxiety disorders, personality disorders and psychosis (Gorgellino et al., 2025). In depression, these challenges with social cues could lead to maladaptive cognition and in anxiety disorders to increased threat perception (Weightman et al., 2014; Hezel and McNally, 2014).

Modern neurobiological research adds to these developmental mechanisms. Childhood trauma has been reported to impact brain networks associated with emotional regulation and social cognition – such as those related to executive functioning, emotional processing, and mentalizing.

Recent studies have shown that these neurodevelopmental changes may be associated with increased emotional reactivity and challenges with adaptive social cognition, leading to increased risk for psychological disorders later in adulthood (McLaughlin et al., 2020).

2.2 Neurobiological Effect of Childhood Trauma on the Development of Social Cognition

Childhood trauma leads to measurable neurobiological changes to emotional and social functioning. Repeated exposure to stress response systems results in elevated cortisol, dysfunction of areas of the brain that regulate emotional control (Heim et al., 2008; Teicher and Samson, 2016). Trauma-exposed individuals have been shown to exhibit alterations in brain regions involved in emotional regulation and social cognition, including the amygdala, hippocampus, and prefrontal cortex. Contemporary evidence indicates that these neurodevelopmental alterations contribute to heightened emotional reactivity, impaired executive functioning, and increased vulnerability to psychopathology across the lifespan (McLaughlin et al., 2020; Teicher and Samson, 2016).

ToM shares components with the neural system in which it is involved, such as the medial prefrontal cortex and the tem- poroparietaljunction (Blakemore and Mills, 2014). Early adversity can then have an impact on emotional regulation and social cognition. Such adaptations are protective at times but can become maladaptive in other social contexts, leading to vulnerability to psychological disorders (McLaughlin et al., 2020).

2.3 The Complementary Role of Emotion Regulation

A second pathway of emotional regulation between childhood trauma and adult psychopathology was also identified. Frequently, people who have been exposed to trauma are more easily triggered and have problems regulating negative emotions (Cloitre et al., 2009). The challenges can be due to inadequate caregiver model of adaptive coping. Emotion dysregulation has been shown to be a mediator between childhood maltreatment and psychological functioning, including depression and anxiety (Weissman et al., 2019). Moreover, there is a strong relationship between emotion regulation and Theory of Mind. In order to mentalize one must be

aware of their own emotional state as well as that of others (Fonagy et al., 2018). Metallization deficits can thus further contribute to emotional dysregulation and psychological suffering (Luyten et al., 2020).

2.4 Theory of Mind and Adult Psychopathology

It is widely acknowledged that people with psychiatric disorders have Theory of Mind deficits. Meta-analyses indicate that schizophrenia and borderline personality disorder (BPD) are associated with significant impairments (Brüne, 2005). Deficits in ToM have been observed in mood disorders, both as a negative bias in the interpretation of social cues and a failure to perceive emotions (Weightman et al., 2014).

Likewise, those with anxiety disorders also showed a tendency to perceive social cues as threatening when they were ambiguous (Hezel and McNally, 2014). The results indicate that the deficits in ToM could be a transdiagnostic vulnerability factor that relates to psychological problems.

2.5 Childhood Trauma

Childhood trauma describes adverse events that happen during childhood, such as physical, emotional, sexual abuse, emotional and physical neglect, and exposure to domestic violence and household dysfunction. These experiences are beyond a child's developmental coping mechanisms and are known to impact a child's future emotional, cognitive, and inter-personal functioning (Teicher and Samson, 2016). More recently, infant maltreatment has been observed to alter developmental pathways related to emotion regulation, social cognition and stress adaptation which heighten risk of psychological disorders throughout the lifespan (McLaughlin et al., 2020).

It is a well-established fact that childhood trauma significantly increases the likelihood that adults will develop depression, anxiety, post-traumatic stress disorder and other forms of psychopathology. The neurobiological alterations, maladaptive

coping, and disruption of emotional and social development are believed to be responsible for these long-term effects (McKay et al., 2021; Hughes et al., 2017).

Domestic violence, severe discipline, physical punishment and neglect are significant public health issues linked to childhood trauma in Pakistan. Adverse childhood experiences have been linked to reduced psychological functioning and impaired social-cognitive skills such as Theory of Mind, which could impact empathy, social functioning, and ultimately mental health in childhood and later in life (Yang and Huang, 2024; Fazal et al., 2022). The latest study in Pakistan, for example, has shown that childhood adversity is strongly linked to depression, anxiety and psychological distress amongst young adults and university students. Fazal et al. (2022) reported that negative childhood experiences were linked to poorer mental health among University students in Islamabad and Rawalpindi, while Sajid et al. (2025) found that childhood traumatic experiences significantly predicted the adult mental health among University students in Pakistan. The results of the study indicate that childhood trauma is still a major risk factor for psychological distress in the context of Pakistan and highlight the importance of exploring social-cognitive processes such as Theory of Mind which could mediate the relationship between childhood trauma and psychological distress. Moreover, a study among the young adults in Pakistan has recently shown that higher exposure to adverse childhood events was significantly related to lower current mental health among the youth, thus adding further evidence of the long-term psychological impact of adverse childhood events among the Pakistani population (Mahmood and Fatmi, 2025).

Growing evidence suggests that impairments in Theory of Mind and metallization represent important mechanisms linking childhood trauma with later psychological difficulties. Recent systematic reviews have shown that childhood trauma is consistently associated with disturbances in metallization across mood disorders, anxiety disorders, personality disorders, and psychosis, indicating that social-cognitive dysfunction contributes to long-term emotional and interpersonal difficulties (Gorgellino et al., 2025). Similarly, meta-analytic evidence indicates that childhood maltreatment is associated with poorer mentalizing abilities, increasing

vulnerability to depression, anxiety, and other psychological disorders (Yang and Huang, 2024).

2.6 Adult Mental Health

Mental health of an adult encompasses their mental, emotional, and social health. Over 1/3 of adults have reported some type of traumatic experiences during their childhood, including child abuse, neglect, or exposure to domestic violence (World Health Organization, 2022), which has also been linked to the lifetime mental health problems. Individuals that used to experience life in traumatic situations are in danger of developing major depressive disorder, anxiety disorder, personality disorder, and suicidal thoughts (Teicher and Samson, 2016).

Despite limited resources, higher level of stigma and lesser accessibility of psychological services in Pakistan mental health problems are still a significant public health problem with delayed diagnosis and treatment. The World Health Organization (2022) has highlighted the need for greater emphasis to be placed on strengthening mental health services in the community as well as trauma-informed care to enhance mental wellbeing in low- and middle income countries, including Pakistan. Some of the most common mental health conditions linked to childhood trauma are depression, anxiety disorders, post-traumatic stress disorder and personality disorders, and there has been considerable evidence that adverse childhood experiences are associated with an increased risk of these disorders throughout adulthood (Hughes et al., 2017; McLaughlin et al., 2020).

Cultural stigma, low mental health literacy and inadequate accessibility of mental health services in Pakistan are still discouraging the utilization of psychological services by people who might be experiencing emotional suffering. These barriers include a lack of culturally appropriate and trauma-informed mental health services and early intervention programmes that can help diagnose and treat mental health problems in a timely manner (World Health Organization, 2022).

The current study focuses on the understanding of the influence of early trauma on cognitive and emotional development via Theory of Mind. The modern metallization research indicates that the inability to think and feel others might affect

a person's ability to understand mental states, to manage emotions and to interact with others in a proper way, which can lead to depression, anxiety and other types of psychological problems (Luyten et al., 2020). Therefore, Theory of Mind is a plausible mechanism that could explain the relationship between childhood trauma and poorer adult mental health outcomes.

New evidence from Pakistan suggests that exposure to adverse childhood experiences is highly correlated with mental health and psychological status in young adults, such as depression, anxiety and emotional distress. Although there is a significant body of evidence, few studies have assessed the path of how childhood trauma relates to mental health outcomes in adults in Pakistan. The mediating role of Theory of Mind is largely unexplored and is an important gap in the literature that will be filled by the present study.

This thesis will fill this gap by examining how ToM can help to mediate the association between childhood trauma and mental health in adulthood with a particular emphasis on psychological tests and cultural background.

2.7 Theory of Mind

Theory of Mind (ToM) cognitive ability that allows people to reason and comprehend the mental conditions of other people (their beliefs, intentions, desires, and emotions) and realize that the other mental conditions might not be the same as one own mental condition (Premack and Woodruff, 1978). Empathy, moral reasoning, effective communication and social environments are all of critical importance.

Theory of Mind is a gradual maturation process that is influenced by secure attachment, sensitivity of caregivers, and the experiences of early socialization. Recent studies suggest that psychological supports in childhood enhance mentalizing capacities while negative experiences can hinder development of mentalizing capacities in children (Luyten et al., 2020).

Children in a place of constant emotional neglect or abuse may not mature emotionally and their heads may not be able to conceive or it may fail to interpret

the Theory of Mind. Indicatively, Children exposed to emotional abuse and neglect frequently experience difficulties interpreting others' emotions and intentions, which may contribute to impaired social relationships, interpersonal withdrawal, and emotional difficulties later in life (Yang and Huang, 2024; Gorgellino et al., 2025). Theory of Mind (ToM) is typically gained during the period between the third and the fifth year of the child, and further developed up to the age of a teenager and adulthood (Wellman, 2014).

The latest evidence shows that emotional neglect and interpersonal abuse disrupt the development of Theory of Mind and mentalisation, leading to problems with empathy, perspective-taking and social reasoning. In a recent meta-analysis, they found that childhood maltreatment is significantly linked to poorer mentalizing abilities, and in a systematic review, they reported that impairments in mentalizing are consistently observed in people with childhood trauma across various psychiatric conditions (Yang and Huang, 2024; Gorgellino et al., 2025). The results indicate that childhood trauma has a negative impact on social-cognitive functioning, which is independent from overall intellectual functioning and can contribute to psychological problems in adulthood. This is the primary problem forming the adult mental health – these to Mimpairments complicate the process of trusting other people, good interpersonal relationship and controlling emotions.

Contemporary mentalization research suggests that impairments In a country with a collectivist and patriarchal culture like Pakistan, where emotional outburst is typically "inappropriate" and therefore not allowed to be expressed in front of others, people who have difficulty in understanding others' minds may find it particularly challenging to approach others for assistance, to show and communicate their suffering or to sustain healthy relationship dynamics.

Overall, understanding the role of Theory of Mind in the relationship between childhood trauma and adult mental health may contribute to the development of targeted interventions, including mentalization-based therapy and other social-cognitive interventions aimed at improving emotional regulation, interpersonal functioning, and psychological well-being among trauma-exposed individuals (Fonagy et al., 2018; Luyten et al., 2020).

2.8 Rationale

Early childhood trauma is known to be a serious public health problem globally and there is strong evidence that adverse childhood experiences are associated with lifelong emotional, cognitive and social consequences (Felitti et al., 1998; Hughes et al., 2017; Teicher and Samson, 2016). As previously stated, abuse, neglect and dysfunction in the family during the "critical developmental periods" may alter the neurobiological function of the stress and emotional regulation systems resulting in depression, anxiety and other psychological problems later in life. (Heim et al., 2008; McCrory et al., 2011). Not everyone who experiences child- hood trauma will develop mental health issues, however, suggesting psychological processes that underlie such trauma are important.

Theory of Mind (ToM) is a potential mechanism that involves understanding and interpreting one's own and others' mental states (Premack and Woodruff, 1978). ToM has been described as developing within early attachment relationships, and influenced by the caregiver's responsiveness and emotional attunement (Fonagy et al., 2018; Fonagy and Luyten, 2009). Interruptions of these initial relational contexts, especially trauma, may disrupt social-cognitive growth and lead to subsequent psychological challenges. Theoretical arguments for this connection have not yet been followed up with empirical studies which explore ToM as a mediator between childhood trauma and adult mental health.

The current research study is restricted to adults (18-35 years) to investigate the findings of early trauma's long-term effects. This developmental period is especially significant because mental health disorders emerge during this period, and advanced social-cognitive abilities are still developing into early adulthood (Blakemore and Mills, 2014; Kessler et al., 2010). Also, adults can be a good group to study childhood trauma experiences, because adults can report these events more reliably in retrospect (Hardt and Rutter, 2004).

In Pakistan, where socioeconomic difficulties, cultural practices and mental health resources are often limited, this study is supported by a range of factors that may exacerbate exposure to childhood adversity and lead to decreased availability of mental health resources (World Health Organization, 2022). Although mental

health problems have been found to be prevalent, studies in Pakistan have been conducted on prevalence rates and not on underlying cognitive processes. Specifically, the relationship between Theory of Mind and trauma and/or adult mental health have not been well studied in this cultural context.

In light of this, the current study seeks to explore this possibility by testing the mediation role of Theory of Mind between childhood trauma and adult mental health outcomes. This mechanism will be explored in an effort to offer insights to theory and culturally responsive culturally relevant, trauma informed interventions.

2.9 Research Objectives

i. To examine the relationship between Childhood Trauma and Adult Mental Health, along with the mediating role of the theory of Mind (ToM).

ii. To examine the mean differences between genders and age in Childhood Trauma, Adult Mental Health, and Theory of Mind (ToM).

2.10 Research Hypotheses

H1: There is a negative relationship between childhood trauma, theory of mind and adult mental health outcomes.

H2: The relationship between childhood trauma and adult mental health (depression, anxiety, and stress) is partially mediated by theory of mind (ToM).

H3: There are significant age and gender differences in childhood trauma, Theory of Mind, and adult mental health outcomes.

2.11 Theoretical Framework

The study is based on Metallization Theory, a developmental and clinical theory that was developed in the last few decades and explains how early relational experiences influence social-cognitive functioning and psychological adjustment

throughout the lifespan. Within metallization theory, the processes of childhood trauma can be linked to mental health outcomes in adulthood by disruptions in social-cognitive development, such as Theory of Mind (ToM). The focus and precise positioning of the current research in this theoretical framework combines developmental psychology, attachment theory, and social cognition into an integrated explanatory model.

2.11.1 Metallization Theory

The concept of metallization had been previously explained by Fonagy and Target (1997) and later developed by Fonagy et al. (2018). The theory assumes that metallization, which is the ability to conceive oneself and other people in a psychologically real way that can be described in terms of intentional mental states, such as beliefs, desires, emotions, and intentions is a background psychological process, which is developed during early attachment relations.

This framework states that by undergoing frequent occurrences of safe and responsive caregiving, children learn skills of mentalizing. As the caregivers are sensitive to the emotional conditions of a child and mirrors the experience, the child slowly learns to interpret and control emotions. Such process aids in growth of reflective functioning which is one of the fundamental elements of metallization (Fonagy et al., 2018). ToM is the conceptualization of one of the most important cognitive processes of metallization, which allows individuals to ascribe mental states to others and anticipate behavior.

Nevertheless, in cases when the first relationships of attachment are traumatized by abuse, neglect, emotional invalidation or inconsistent caregiving, metallization could be impaired. Children with chronic relational trauma tend to perceive caregivers as terrorizing or unpredictable and this brings confusion in the interpretation of mental states (Fonagy and Luyten, 2009). Rather than forming stable images of themselves and others, trauma-exposed persons can use defensive mechanisms like hypermentalizing (attributing intentions too much), hypomentalizing (attributing mental states too little), or concrete thinking (Bateman and Fonagy, 2016).

Mentally, metallization theory can be compared to neurobiological findings that early adversity has an impact on brain areas that are related to social cognition, such as the medial prefrontal cortex, the temporoparietal junction, and the anterior cingulate cortex (McCrory et al., 2011). It is possible that these neural systems are highly important in perspective-taking and emotional regulation which makes trauma-related ToM impairments even more plausible.

2.11.2 Trauma, Mentalization and Psychopathology

The metallization theory suggests that the lack of mentalizing makes one more prone to becoming psychopathic (Bateman and Fonagy, 2016).Whenever individuals find it difficult to make sense out of their own emotional states or are unable to accurately guess what others are up to, there are high chances that they would develop interpersonal conflict, dysregulation of emotions and identity disjuncture (Fonagy and Luyten, 2009). Such impairments become particularly clear in different mental health illnesses (Roepke et al., 2013a).

Growth-wise, childhood trauma also interferes with scaffolding that leads to healthy social-cognitive development. Ensink et al. (2015) have discovered that the reflective functioning of maltreated children was substantially low in comparison with the non-maltreated children. These shortages remained despite the adjustment of intellectual functioning indicating that trauma specifically affects the development of social-cognitive, but not cognitive ability (Ensink et al., 2015).

In the metallization model therefore, Theory of Mind has the role of a development mechanism that enables interrelated trauma that was experienced early on in the relational context to lead to subsequent emotional and interpersonal dysfunction.

2.11.3 Theory of Mind as a Mediating Mechanism

The conceptualization of the present study is that the Theory of Mind mediates between childhood trauma and adult mental health. Childhood trauma is theorized in mediation terms to have a negative impact on ToM capacities, which may consequently predispose an individual to depression, anxiety, and stress-related

symptoms. Such conceptualization is consistent with more general developmental models that indicate that environmental stressors do not have a direct effect on later outcomes, but rather indirectly affect these outcomes through psychological mechanisms (Cicchetti and Toth, 2005). Instead of considering trauma as having a direct impact on psychopathology, the mentalization theory focuses on any middle-level cognitive-affective mechanism that results out of early relationships. Provided that the development of ToM is interrupted in cases of trauma, a person can:

i. Perceive social intentions negatively or antagonistically.

ii. Lack of emotions control.

iii. Problem of identity coherence.

iv. Stacking up on interpersonal hypersensitivity.

These challenges may build up towards adulthood, giving rise to mental distress among adults.

Nonetheless, the mediation pathway between the two has not been empirically tested, especially in non-Western population. The current research provides a first attempt to test Theory of Mind as a mediator, directly testing one of the main assumptions of the mentalization theory in a culturally underrepresented setting.

2.12 Conceptual Framework

The current study used a mediation model to explore the link between childhood trauma, Theory of Mind (ToM), and adult mental health outcomes (depression, anxiety, stress). The structure suggests that childhood trauma could influence adult mental health in two ways, both direct and indirect via Theory of Mind.

The role of childhood adversity such as abuse and neglect, family dysfunction, and more in predicting negative psychological outcomes in adulthood has been well established. The direct pathway in the present model from childhood trauma to

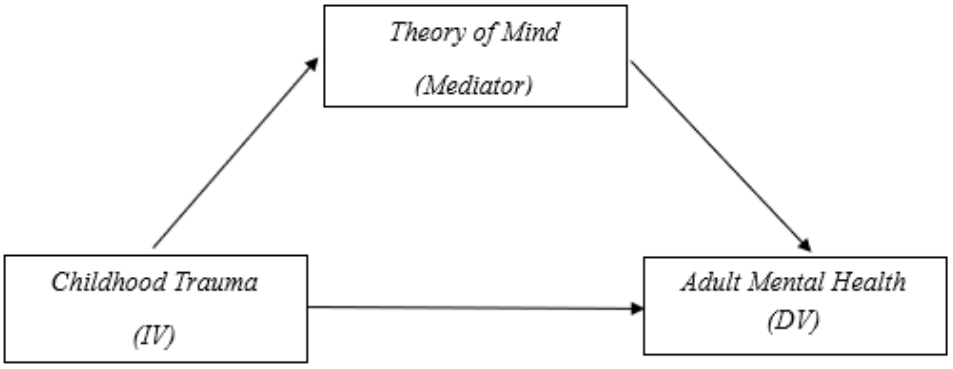


FIGURE 2.1: Conceptual Framework

adult mental health outcomes (depression, anxiety, and stress) reflects the potential that adverse childhood experiences could be related to mental health distress in adulthood. The previous developmental models indicated that early adverse experiences may affect the subsequent psychological functioning in various emotional, cognitive, interpersonal and developmental ways (Cicchetti and Toth, 2005).

The model further suggests that this relationship could be explained, at least in part, by the existence of Theory of Mind (ToM) mediation. Theory of Mind is the understanding and comprehension of one's own and another individual's beliefs, emotions and intentions (Premack and Woodruff, 1978). ToM is thought to be built in early attachment and caregiving relationships that are shaped by the responsiveness and emotional attunement of caregivers (Fonagy and Luyten, 2009; Fonagy et al., 2018). The adverse events of childhood, especially those that occur in the context of relationships, can interfere with these relationship processes and thus impact social-cognitive functioning.

Theory of Mind was chosen as the mediator because it has a theoretically meaningful psychological mechanism between early relational experiences and later psychological functioning. Childhood trauma is an event that happens when these capacities of social cognition and mentalizing are in the process of development in interpersonal relationships. Thus, exposures that are traumatic can affect people's perception of their own and others' mental states, and can subsequently impact their emotional and interpersonal functioning. ToM offers a potential pathway in which the effects of childhood adversity might manifest in adults' psychological functioning, as well as a direct pathway, and does not presume that a direct pathway is the only mechanism through which such effects are seen in adults' mental

health.

Disabilities or difficulties with ToM can, in turn, relate to issues with interpersonal functioning, understanding emotions, and psychological adjustment. Previous studies have linked various aspects of social cognition to various types of psychopathology, such as depression, anxiety and personality disorders (Stauffer et al., 2013; Roepke et al., 2013b). Thus, the hypothesized connection between Theory of Mind and adult mental health outcomes (depression, anxiety and stress) is assumed based on the assumption that there may be a relationship between mentalizing capacity and psychological distress.

Overall, the model has two pathways: one direct pathway from childhood trauma to mental health outcomes in adulthood, and an indirect pathway from childhood trauma to mental health outcomes in adulthood through Theory of Mind. The choice of ToM as a mediator is based on developmental and attachment theoretical approaches, which suggest that social-cognitive and mentalizing abilities emerge in relation to early relational experiences and that they are later associated with psychological functions throughout development (Cicchetti and Toth, 2005; Fonagy et al., 2018). To this end, the present study is able to extend beyond the point of determining whether childhood trauma is linked to adult mental health, to examining the role of ToM as a possible psychological pathway.

2.13 Cultural Context and Research Gap

Although there is a significant amount of evidence from other countries around the globe regarding the link between childhood trauma and poor mental health outcomes in adulthood, there have been few studies in Pakistan that focused on the developmental pathway between childhood trauma and poor mental health outcomes in adulthood. Existing Pakistani studies have mostly concerned the prevalence of depression and anxiety and direct links between trauma and psychological symptoms, with little attention given to the mediating processes (Taj, 2015). Given the local context and the potential role of socio-cultural factors (including collectivism, family systems, mental health stigma, gender norms, and

limited access to psychological services) in shaping trauma exposure and psychological outcomes, it is important to explore these relationships. In addition, much of the previous research has used samples of children and adolescents, which have resulted in a lack of understanding about the impact of childhood trauma on adult functioning. Despite the consistent links between childhood trauma and depression, anxiety, post-traumatic stress disorder (PTSD) and other psychological forms of distress (Hughes et al., 2017; Norman et al., 2012), it is unclear how these effects will continue through development.

Specifically, the research efforts have not included the study of social-cognitive factors, like Theory of mind (ToM), which can explain the link between Childhood trauma and Adult mental health (depression, anxiety and stress) among Pakistani Adults. Understanding and inferring the mental state of self and others is known as Theory of Mind (Premack and Woodruff, 1978) and is fostered in secure attachment relationships and emotionally supportive environments (Fonagy et al., 2018). Childhood maltreatment, neglect, or inadequate parental care can disrupt metallization processes, which can lead to poorer social-cognitive functioning (Luyten et al., 2020). Theories of metallization also suggest that the lack of reflective functioning is related to emotional dysregulation and heightened risk for psychopathology (Fonagy and Luyten, 2009). ToM has been independently found to be related to social-cognitive impairments (McCrory et al., 2011; Stauffer et al., 2013) and psychological distress (McCrory et al., 2011; Stauffer et al., 2013) in childhood trauma, suggesting ToM may be an important mediation pathway. Few studies, however, have used these constructs in a coherent way to explain a situation, especially in the context of South Asia. The current study seeks to see if Theory of Mind is a mediator between childhood trauma and adult mental health (depression, anxiety and stress) of adults in Pakistan (18-35 years of age). The study aims to address this gap by making a contribution to developmental psychopathology studies, exploring the transferability of metallization-based frameworks across the Western and non-Western world, and offering evidence to support the development of culturally attuned trauma-informed treatment.

Chapter 3

Research Methodology

3.1 Research Design

The study employed the quantitative cross-sectional design.

3.2 Sample

In the present study, a research population of 550 Pakistani adults (aged 18-35 years) was studied. The adult population was selected between 18-35 years old because they can give informed consent and recall past childhood experiences accurately. This age span is the young adult life, when many of the consequences of childhood trauma are likely to be apparent and so are many common mental health conditions (Kessler et al., 2010). The sample size was calculated with the sample to item ratio method to warrant sufficient statistical power (Comrey and Lee, 2013). The convenience sampling method was employed.

3.3 Time Horizon, Study Setting and Data Collection Procedures

The current research was carried out with a cross-sectional time horizon because the participants were observed at one moment. This design was also believed to

be suitable for examing the mediating role of Theory of Mind in the association between childhood trauma and adult mental health outcomes without controlling for any variables.

The cross-sectional method made it possible to determine the relationship between variables in a set period. The information was gathered in different educational and working environments in Pakistan. The study environment covered both the public and the private universities, work places where people were practicing the professional career. The participants were expected to be literate and able to comprehend English since the assessment tools were written in English.

Ethical issues were taken seriously before the actual data collection. The method of accessing the participants was approaching them physically and face to face. Participants were given a short introduction of why the study is being conducted. They were told that they could do so voluntarily and could withdraw at any point without paying any fine.

All the participants gave informed consent prior to the questionnaire administration. Standardized self-report measures on childhood trauma, Theory of Mind, and adult mental health outcomes were used to collect the data. For the purpose of data collection, the questionnaires were distributed as printed material in classrooms and workplace environment with the previous consent of the concerned authorities. The respondents were taken through the questionnaires one at a time in a non-distracting setting.

During the data collection process, confidentiality and anonymity were guaranteed. No personal data were taken, and the gathered data were applied in the study only. At the end of it, the participants were given some little appreciation on their part in the research.

3.4 Sample Characteristic

The sample size included Pakistani adults aged between 18 and 35 years; this group was categorized as university students and employed people with different

educational and occupational backgrounds. The demographics of the study participants were diverse thus increasing the applicability of the results in the intended population.

3.4.1 Criteria for Inclusion

The present study was subject to the following inclusion criteria:

i. The participants had to be 18-35 years of age and adults.

ii. Participants were who had minimum education level enrolled in Bachelors.

3.4.2 Criteria for Exclusion

The following exclusion criterion were used in the current research:

i. Students who reported any psychological or physical Condition that can interfere with participation were excluded.

3.5 Ethical Considerations

The current study was given ethical approval by the Ethics Review Committee of the Faculty of Management and Social Sciences, Capital University of Science and Technology. The research was also done according to the accepted ethical principles of research on human subjects. Before the participation, a detailed explanation of the purpose of the study, procedures and prospective risks and expected benefits was given to the participants. They were notified of the sensitivity of some questions especially those that were pertaining to childhood trauma and mental health. All the participants received written informed consent prior to the start of data collection. It was made clear to the participants that the study was an entirely voluntary affair and that they could opt out of it at any point without being subject to any form of negative repercussions.

In order to safeguard the rights and the wellbeing of the participants, the research process was conducted with high levels of confidentiality and anonymity.

The information was kept safely and only reported in a general form to make sure that no individual identity would be tracked.

3.6 Assessment Measures

3.6.1 Demographic Information Sheet

There was a structured demographic information sheet that was created in order to get the background information of the participants. This form contained questions that measured some of the most important demographic factors (age, gender, marital status, socioeconomic status and family structure (nuclear or joint family system).

The demographic information sheet was given at the start of the questionnaire booklet to obtain the general information of the participants before the assessment of the main study variables.

3.6.2 Childhood Trauma Questionnaire

The Childhood Trauma Questionnaire (CTQ) (Bernstein et al., 1994) was a widely-used self-report instrument used to assess childhood trauma. The CTQ is structured in such a way that it is retrospective in ascertaining childhood and adolescent abuse and neglect experiences. The 5 areas of childhood maltreatment measured by the instrument used in the current study include (Bernstein et al., 2003): Emotional abuse, Physical abuse, Sexual abuse, Emotional neglect and Physical neglect. The rating of each item was on a 5-point likert scale - Never True to Very Often True. This scoring system allowed a standard rate of the severity and frequency of negative childhood experience. An increase in the score in the respective subscales implied increased exposure to a certain type of childhood trauma (Bernstein et al., 1998).

The CTQ has recorded good psychometric qualities in different cultural settings. High internal consistency has always been reported, and the Cronbach alpha coefficients are generally above or equal to.80 of the total scale and satisfactory levels

of reliability within subscales (Bernstein et al., 2003; Scher et al., 2001). The CTQ has been applied in the Pakistani context in studies involving the study of the trauma in people with depression and thus serves as a further indication of its relevance and applicability in this population (Younas et al., 2023).

3.6.3 Depression Anxiety and Stress Scale – 21 Item Version

The present study measured adult mental health based on the Depression Anxiety and Stress Scale 21 item version (DASS-21) as a self-report measurement that is well extensively tested measure by Lovibond and Lovibond (1995). DASS-21 is a brief form of the original 42-item DASS that is actually aimed to measure three connected negative affective conditions, which are depression, anxiety, and stress. All these subscales have 7 items and the respondents are asked to rate how much they have been true of them in the last one week on a 4-point Likert scale with one end stating Never applied to me and the other one always applied to me.High scores in these subscales represent high degrees of psychological distress in the respective domains.

DASS-21 has also depicted high psychometric measures in different populations and environments. The internal consistency reliability is always high with Cronbachs alpha coefficients usually between 0.81 and 0.97 of the subscales (Antony et al., 1998; Henry and Crawford, 2005). Construct validity of the instrument is also good because factor analyses justify the three-factor structure of stress, anxiety, and depression (Lovibond and Lovibond, 1995). DASS-21 has found significant application in cross-cultural studies and has been proven to be applicable in various languages, including Urdu, which is why it would be suitable to work with Pakistani populations (Bibi et al., 2020).

The DASS-21 has been used in the current study to determine the current depression, anxiety and stress levels among the participants. The scale helped in the study of the direct correlation between childhood trauma and mental health consequences in adulthood, and how it might work indirectly through Theory of Mind.

3.6.4 Theory of Mind Inventory: Self-Report Adult (To MI:SR–Adult)

The present study has evaluating Theory of Mind with the help of the Theory of Mind Inventory: Self-Report-Adult (ToMI:SR-Adult), a self-report questionnaire that was created byHutchins et al. (2021) to determine the self-assessed ToM skills in adults. The tool measures the ability of a person to interpret and infer the feelings, ideas, and interests of other people, and it involves both cognitive and affective aspects of ToM. In particular, the ToMI:SR–Adult measures the ability to interpret sarcasm, non-literal language, comprehending complicated emotional conditions, and making inferences about mental conditions in daily social life (Hutchins et al., 2021).

The inventory contains 7-point Likert scale with total 47 items where higher score indicates higher stronger self-reported Theory of Mind and social-cognitive ability, and it takes an average duration of 8-12 minutes. It has proved to be applicable to neurotypical adults, as well as those who might be affected by social-cognitive disabilities, e.g., people with trauma-related disorders and other mental challenges (Hutchins et al., 2021).

The ToMI:SR-Adult has a good psychometric. The internal consistency is also good with the Cronbach alpha coefficients standing above.80 in domains meaning it is very reliable. Construct validity and contrasting group validity also exhibit good construct validity and contrasting group validity in the scale, which indicates that the scale is successful in measuring Theory of Mind abilities. Also, the qualitative user feedback helps to justify its ecological validity, which represents the social-cognitive functioning in real-life settings (Hutchins et al., 2021).

The ToMI:SR -Adult was also used in the current research to define the self-perceived Theory of mind skills among the participants. The acquired scores were applied to investigate the possible mediating impact of ToM in the connection between childhood trauma and adult mental health results.

3.7 Data Analyses

All data obtained by the survey was first of all inputted in the Statistical Package of the Social Sciences (SPSS) version 28 before statistical analyses were conducted. The quality of the dataset was maintained by using data cleaning processes by verifying the scores of missing values, outliers and inconsistency of responses.

The analysis of the data was based on both the descriptive and inferential statistical methods. First, descriptive statistics have been calculated to present the characteristics of the sample and other essential variables of the study, such as childhood trauma, Theory of Mind (ToM), and adult mental health outcomes. In the continuous variables, central tendency and dispersion measures have been performed including means and standard deviations, skew and kurtosis in order to determine the distribution of the data. Histogram was also used to visualize the distribution of the continuous variables.

In case of categorical variables, frequencies and percentages were given in order to indicate the demographic representation and other categorical features of the sample. Internal consistency analyses were done to all scales to assure the reliability of the measurement tools and the coefficients of Cronbach were determined to determine the extent to which the items quantified the same construct. Correlational analyses were conducted following descriptive analyses, to compare the relationships between the variables of main study. Because some variables did not meet the assumption of normality so Spearman's rank-order correlation wasdone to examine the relationship between childhood trauma, ToM and adult mental health outcome.

To determine the hypothesized mediation model, regression based mediation analysis was utilized through Hayes' PROCESS macro (Model 4) for SPSS.

Chapter 4

Results

This chapter presents the results of the statistical analyses conducted to examine the relationship between childhood trauma, theory of mind and adult mental health (depression, anxiety and stress) among young adults (N = 550).The SPSS 25 version was employed to analyze the dataset. For clarity, tables and figures are used to support the descriptive and inferential results of statistical studies.

Table 4.1: Frequency & percentages of demographic variables (N=550)

Characteristics	**f**	**%**
Age		
18–25 years	185	33.6%
26–30 years	180	32.7%
31–35 years	185	33.6%
Gender		
Male	284	51.6%
Female	266	48.4%
Socioeconomic Status		
Lower	190	34.5%
Middle	185	33.6%
Upper	175	31.8%
Family System		
Nuclear	290	52.7%
Joint	260	47.3%
Marital Status		
Single	310	56.4%
Married	240	43.6%

Note. f = Frequency, % = Percentage, M = Mean, SD = Standard Deviation.

The study had 550 participants in total. 284 of them (51.6%) were male, while 266 (48.4%) were female. The age range of the participants was 18 to 35 years. Equal number of the participants were in age range of 18 to 25 years and 31 to 35 years (n = 185, 33.6%). Remaining 180 participants were in the age range of 26 to 30 years (32.7%). Regarding socioeconomic status, majority of the participants (n = 190, 34.5%) perceived themselves to be from lower class. In terms of family system, the majority of participants reported living in nuclear family system (n = 290, 52.7%), whereas others reported living in joint family system (n = 260, 47.3%). With respect to marital status, majority of participants were single (n = 310, 56.4%), remaining 240 (43.6%) individuals were married. Table 4.2

TABLE 4.2: Psychometric Properties of the study variables (N=550)

					Range				
Variables	**k**	α	**M**	**SD**	**Actual**	**Potential**	**Skew**	**Kurt**	**K.S**
Childhood Trauma	29	.77	85.79	14.63	40–116	25–125	-0.61	0.66	.068
Depression	7	.92	11.97	4.70	0–21	0–21	-0.19	-0.35	.074
Anxiety	7	.92	10.62	4.68	0–21	0–21	-0.09	-0.47	.078
Stress	7	.91	13.07	4.58	0–21	0–21	-0.10	-0.54	.075
Theory of Mind	60	.98	195.26	38.77	74–300	60–300	-0.01	-0.27	.068

Note. M = Mean, SD = Standard Deviation, k = Number of items, α = Cronbach's Alpha, K.S = Kolmogorov–Smirnov Test.

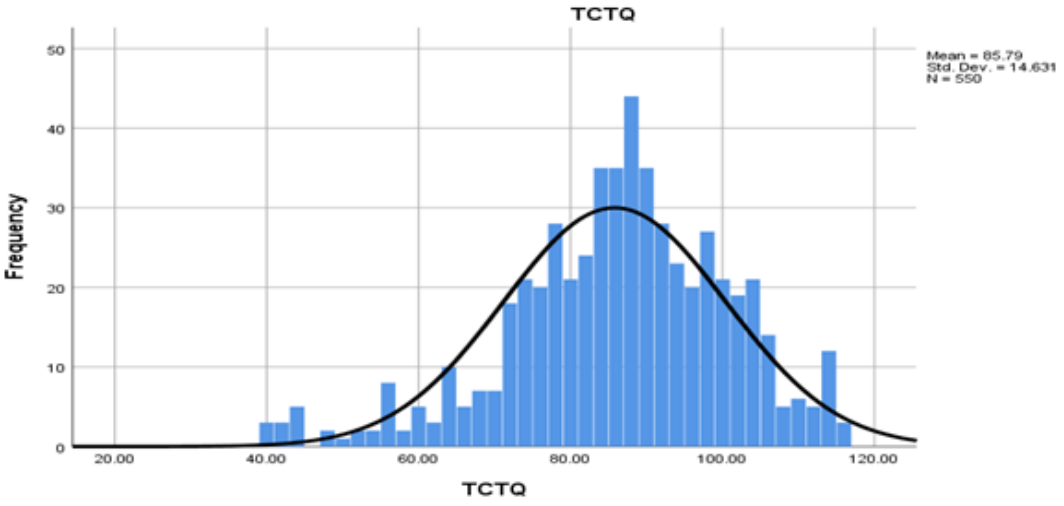


FIGURE 4.1: Graphical Representation of Distribution of Data for CTQ

presented the alpha reliability coefficient and descriptive statistics for the study variables. The Cronbach's alpha reliability for Childhood trauma is 0.77. For

the Depression, Anxiety and Stress, the alpha reliability is found to be 0.92, 0.92 and 0.91 respectively. Moreover, on the Theory of mind, alpha reliability is found to be 0.98. The data is not normally distributed because all study variables had significant values on both Kolmogorov- Smirnov and Shapiro-Wilk tests ($p < .001$).

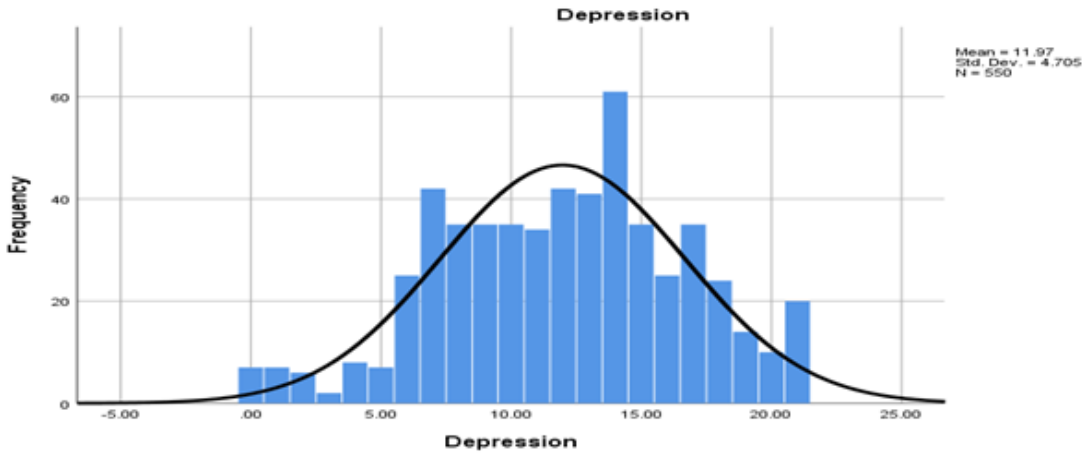


FIGURE 4.2: Normal distribution curve for Depression

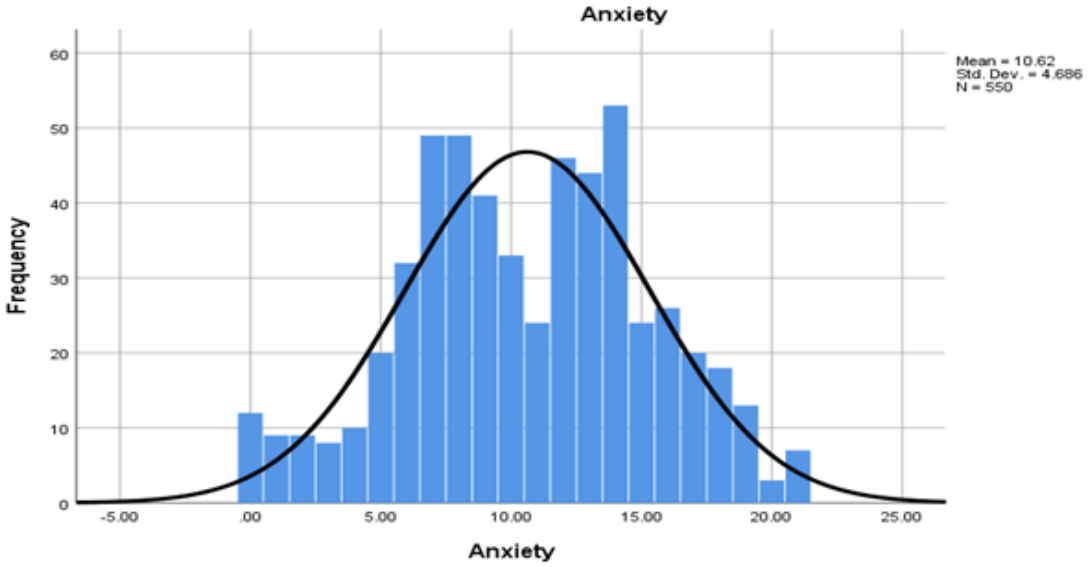


FIGURE 4.3: Normal distribution curve for Anxiety

Table 4.3 displays the correlation analysis between childhood trauma, adult mental health, and Theory of Mind among adults. The results indicate significant correlations among study variables ($p < .01$). Childhood trauma showed a positive association with depression ($r = .22^{**}$), anxiety ($r = .14^{**}$), and stress ($r = .21^{**}$). It indicates that childhood trauma increases depression, anxiety and stress among adults. Furthermore, childhood trauma had a significant positive relationship with

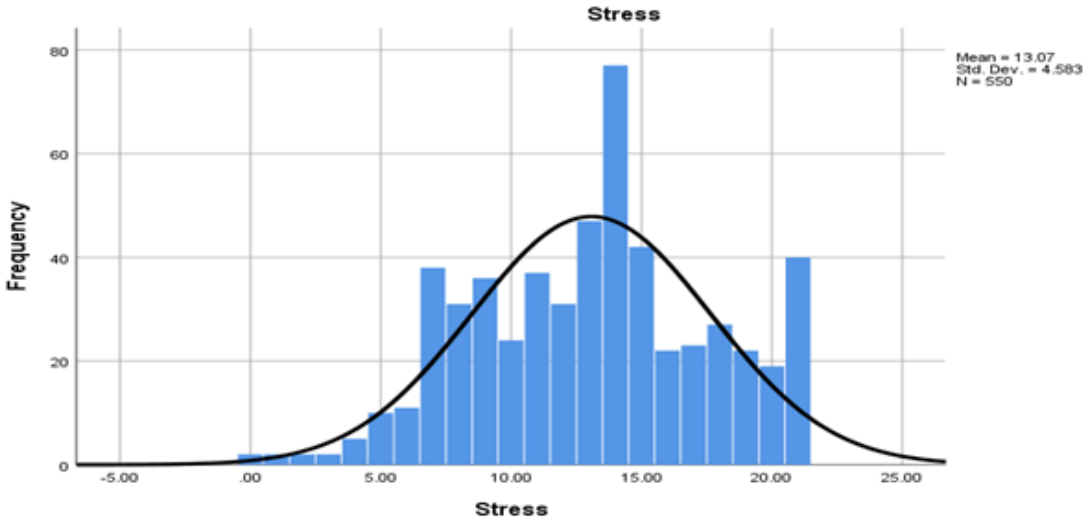


FIGURE 4.4: Normal distribution curve for Stress

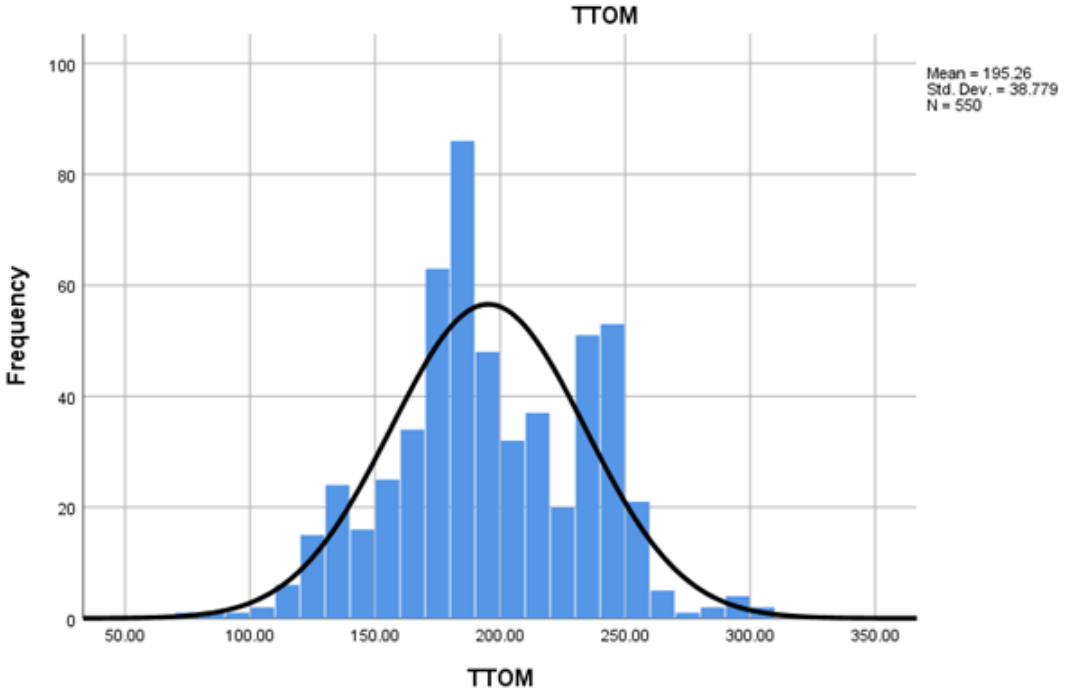


FIGURE 4.5: Normal distribution curve for ToM

Theory of Mind ($r = .20^{**}$). It indicates that childhood trauma increases theory of mind. Likewise, depression ($r = .18^{**}$), anxiety ($r = .17^{**}$), and stress ($r = .15^{**}$) showed significant positive relationships with Theory of Mind ($p < .01$). It showed that adult mental health increases theory of mind.

Table 4.4 shows that the total effect of childhood trauma on depression was significant ($\beta = 0.06$, $p < .001$). The direct effect was also significant ($\beta = 0.05$, $p < .001$), indicating that childhood trauma had a positive impact on depression.

TABLE 4.3: Spearman's Correlation between the study variables (N=550)

Variables	**1**	**2**	**3**	**4**	**5**
1. Childhood Trauma	–	.22**	.14**	.21**	.20**
2. Depression		–	.13**	.18**	.18**
3. Anxiety			–	.16**	.17**
4. Stress				–	.15**
5. Theory of Mind					–

Note. $^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$.

TABLE 4.4: Mediating Analysis of Theory of Mind in the Relationship between Childhood Trauma and Depression (N=550)

Paths	$\boldsymbol{\beta}$	**SE**	**LL**	**UL**	**t**	**p**
CT → ToM	0.64	0.11	0.42	0.85	5.85	.000
ToM → Depression	0.01	.005	.006	0.02	3.13	.002
CTQ → Depression	0.06	0.01	0.04	0.09	4.90	.000
Total Effect	0.06	0.01	0.04	0.09	4.90	.000
Direct Effect	0.05	0.01	0.02	0.08	4.03	.000
Indirect Effect	0.01	.004	.003	0.01	–	–

Note. CT = Childhood Trauma; ToM = Theory of Mind; β = Coefficient; t = t-Statistics; CI = Confidence Interval; LL = Lower Limit; UL = Upper Limit; $p < .05$.

Moreover, the indirect effect was statistically significant [β = 0.01, (LL = .003; UL = 0.01)], indicating that partial mediation occurred. Hence, Theory of Mind significantly mediated the relationship between childhood trauma and depression.

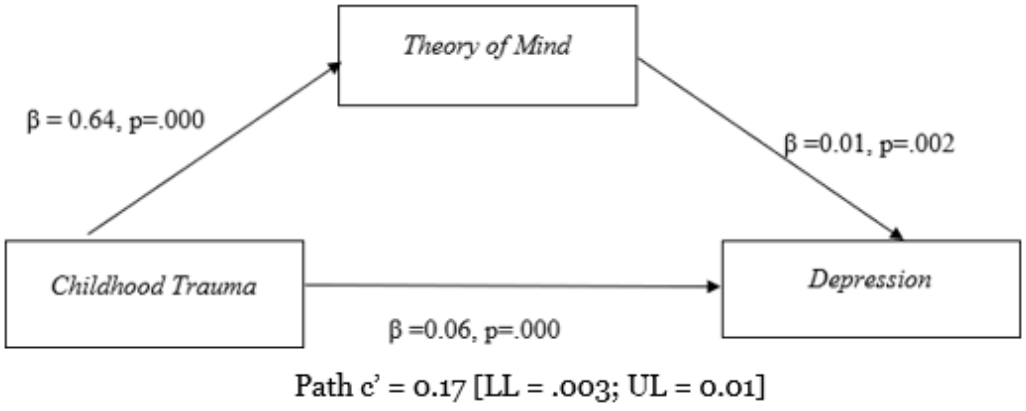


FIGURE 4.6: Path Diagram of mediation in the relationship between Childhood Trauma, Theory of Mind and Depression

TABLE 4.5: Mediating Analysis of Theory of Mind in the Relationship between Childhood Trauma and Anxiety (N=550)

Paths	***β***	**SE**	**LL**	**UL**	**t**	**p**
CT → ToM	0.64	0.11	0.42	0.85	5.85	.000
ToM → Anxiety	0.01	.005	.004	0.02	2.81	.005
CTQ → Anxiety	0.04	0.01	0.02	0.07	3.29	.001
Total Effect	0.04	0.01	0.02	0.07	3.29	.001
Direct Effect	0.03	0.01	.008	0.06	2.53	.01
Indirect Effect	.009	.004	.002	0.01	–	–

Note. CT = Childhood Trauma; ToM = Theory of Mind; β = Coefficient; t = t-Statistics; CI = Confidence Interval; LL = Lower Limit; UL = Upper Limit; $p < .05$.

Table 4.5 shows that the total effect of childhood trauma on anxiety was significant ($\beta = 0.04$, $p = .001$). The direct effect was also significant ($\beta = 0.03$, $p < .001$), indicating that childhood trauma had a positive impact on anxiety. Moreover, the indirect effect was statistically significant [$\beta = .009$, (LL = .002; UL = 0.01)], indicating that partial mediation occurred. Hence, Theory of Mind significantly mediated the relationship between childhood trauma and anxiety.

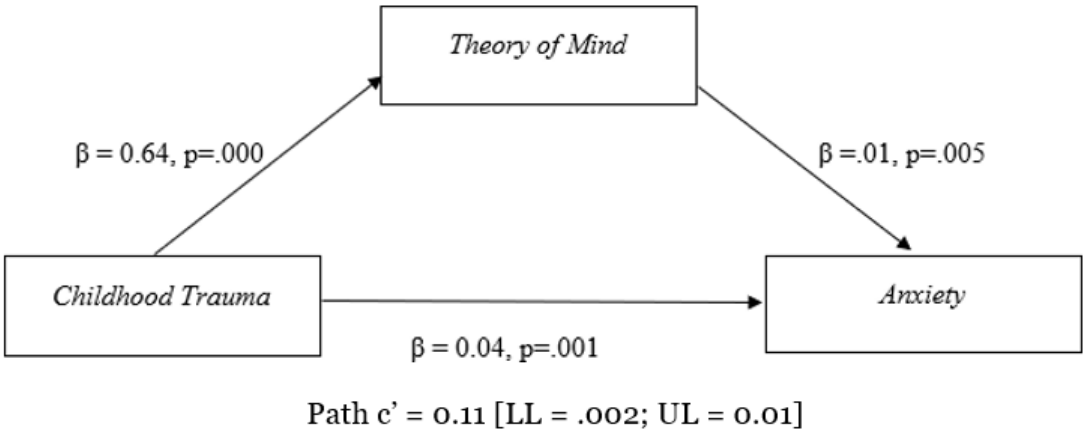


FIGURE 4.7: Path Diagram of mediation in the relationship between Childhood Trauma, Theory of Mind and Anxiety

Table 4.6 shows that the total effect of childhood trauma on stress was significant ($\beta = 0.07$, $p < .001$). The direct effect was also significant ($\beta = 0.06$, $p < .001$), indicating that childhood trauma had a positive impact on stress. Moreover, the indirect effect was statistically significant [$\beta = .008$, (LL = .001; UL = 0.02)],

TABLE 4.6: Mediating Analysis of Theory of Mind in the Relationship between Childhood Trauma and Stress (N=550)

Paths	***β***	**SE**	**LL**	**UL**	**t**	**p**
CT → ToM	0.64	0.11	0.42	0.85	5.85	.000
ToM → Stress	0.01	.005	.002	0.02	2.39	.01
CTQ → Stress	0.07	0.01	0.04	0.09	5.43	.000
Total Effect	0.07	0.01	0.04	0.09	5.43	.000
Direct Effect	0.06	0.01	0.03	0.08	4.71	.000
Indirect Effect	.008	.004	.001	0.02	–	–

Note. CT = Childhood Trauma; ToM = Theory of Mind; β = Coefficient; t = t-Statistics; CI = Confidence Interval; LL = Lower Limit; UL = Upper Limit; $p < .05$.

indicating that partial mediation occurred. Hence, Theory of Mind significantly mediated the relationship between childhood trauma and stress.

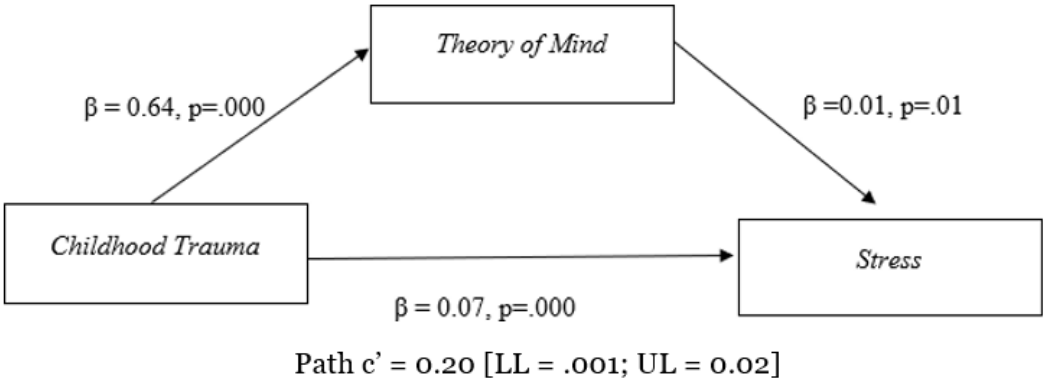


FIGURE 4.8: Path Diagram of mediation in the relationship between Childhood Trauma, Theory of Mind and Stress

TABLE 4.7: Mann–Whitney U Test Showing Gender Differences on Study Variables (N=550)

Variables	**Mean n=284 (Male)**	**Rank**	**Mean n=266 (Female)**	**Rank**	**U**	**Z**	**p**
Childhood Trauma	263.81		287.98		34451.500	-1.78	.075
Depression	273.94		277.16		37329.500	-0.23	.812
Anxiety	286.75		263.49		34577.000	-1.72	.086
Stress	265.13		286.58		34825.500	-1.58	.113
Theory of Mind	276.74		274.17		37418.500	-0.19	.849

Note. p = Asymptotic significance (2-tailed).

Table 4.7 indicates the results of the Mann–Whitney U test used to examine gender differences in adult mental health, its subscales, Theory of Mind (ToM), and childhood trauma because the assumption of normality was violated. There were no significant gender differences in depression ($U = 37329.500$, $Z = -0.23$, $p = .812$), anxiety ($U = 34577.000$, $Z = -1.72$, $p = .086$), or stress ($U = 34825.500$, $Z = -1.58$, $p = .113$). Regarding Theory of Mind, no significant gender difference was found ($U = 37418.500$, $Z = -0.19$, $p = .849$). Similarly, childhood trauma scores did not differ significantly based on gender ($U = 34451.500$, $Z = -1.78$, $p = .075$). Although females had slightly higher mean ranks in childhood trauma, depression, and stress, and males had higher mean ranks in anxiety and Theory of Mind, these differences were not statistically significant ($p > .05$). Overall, the results indicate that gender had no significant impact on childhood trauma, adult mental health, or Theory of Mind in the current sample.

TABLE 4.8: Kruskal–Wallis H Test Showing Age-Group Differences on Study Variables

Variables	**Mean Rank n=185 (18–25 yrs)**	**Mean Rank n=180 (26–30 yrs)**	**Mean Rank n=185 (31–35 yrs)**	**H**	**df**	**p**
CT	265.65	281.69	279.33	1.092	2	.579
Depression	320.03	258.81	247.21	22.47	2	.000
Anxiety	313.05	262.08	251.01	16.08	2	.003
Stress	304.32	273.88	248.25	11.61	2	.000
ToM	282.00	281.10	263.55	1.579	2	.454

Note. p = Asymptotic significance (2-tailed), CT = Childhood Trauma; ToM = Theory of Mind.

Table 4.8 indicates the results of the Kruskal–Wallis H test used to examine age differences in adult mental health, its subscales, Theory of Mind (ToM), and childhood trauma because the assumption of normality was violated. There were a significant age differences in depression ($H = 22.47$, $df = 2$, $p < .001$), anxiety ($H = 16.08$, $df = 2$, $p = .003$), and stress ($H = 11.61$, $df = 2$, $p < .001$). It indicates that the mean rank of depression ($M = 320.03$), anxiety ($M = 313.05$) and stress ($M = 304.32$) is significantly higher among participants between 18 to 25 years of age as compared to the participants in other age categories. Regarding Theory of Mind, no significant age difference was found ($H = 1.579$, $df = 2$,

$p = .454$). Similarly, childhood trauma scores did not differ significantly based on age ($H = 1.092$, $df = 2$, $p = .579$). Although participants between 26 to 30 years of age had slightly higher mean ranks in childhood trauma and participants between 18 to 20 years of age had higher mean ranks in Theory of Mind, but these differences were not statistically significant ($p > .05$). Overall, the results indicate that age had significant impact on adult mental health in the current sample.

Chapter 5

Discussion and Conclusion

This study was conducted to assess whether the relationship between childhood trauma and mental health outcomes (depression, anxiety, and stress) can be mediated by Theory of Mind (ToM) among adults. The study also examined the gender differences in childhood trauma, Theory of Mind, and mental health. Over- all, the results supported the proposed conceptual framework, indicating that childhood trauma was positively correlated with depression, anxiety, and stress, and that Theory of Mind played a mediating role explaining the link between past trauma exposure and each of the mental health dimensions, including depression, anxiety and stress in adulthood.

The results also showed that there was no gender difference in childhood trauma, Theory of Mind, depression, anxiety, or stress. This work adds to the expanding number of studies that focus on the long-term psychological impacts of childhood trauma, and underscores the role of social-cognitive functioning as a mechanism that helps explain trauma-related mental health out- comes. The next step in the discussion is an interpretation of the demographic characteristics and psychometric properties of the sample in the study.

Each hypothesis is then discussed in relation to previous empirical evidence and the relevant theoretical frameworks are discussed, and possible explanations for the observed results are provided. Finally, the chapter presents the summary of findings, theoretical and practical implications, and limitations of the study, recommendations for future research, and the overall conclusion.

5.1 Demographic Characteristics of the Study Sample

The present study consisted of 550 young adults (18-35 years) with a slightly higher proportion of males than females. Participants were mostly in the 18-25 age group, and then in the 26-30 and 31-35 age groups. This is in line with the demographic composition of Pakistan as a significant majority of the population is in the young adult and working-age group. The 7th Population and Housing Census (2023) has shown that the population of Pakistan is predominantly young as almost 53.2% of the population falls under age group 15–64 years, while nearly 15% of the population is in the age group of 15–24 years (Pakistan Bureau of Statistics, 2023). The sample was also representative of various socio-economic status, with the majority being from the lower and middle socioeconomic status.

This distribution is consistent to the socio-economic structure of Pakistan with the majority of people being low and middle income. Besides, the majority of the participants were nuclear families and unmarried. This demographic profile is anticipated as the study sites the young adults studying at higher education or gainfully employed in the workforce. The current sample also broadly represents the demographic characteristics of young adults in Pakistan, as reflected in the national census data which shows that a large proportion of the population in the age range of 18-35 years are unmarried and are moving towards higher education and work (Pakistan Bureau of Statistics, 2023). Most of those who participated in the present study were in their early adult years, in the 18-25 age range, reflecting the experiences of the majority of this age group, who are moving from adolescence to adulthood. This demographical trend is quite common in Pakistan as majority of its population is composed of young people.

The Pakistan Bureau of Statistics (2023) reported that the population of Pakistan is mainly young, and there are a significant number of people of age 15-29. Many transitions in education, occupation and social life can occur in the young adult years in Pakistan, raising risk of psychological stress, and emphasizing the potential long-term consequences of adverse childhood events. Thus, the focus on young adults in the current study is appropriate because this developmental phase

is a crucial time to explore the impact of childhood trauma on mental health and social-cognitive functioning in young adults. This is significant in the Pakistani context as a rise in mental health concerns among young adults is reported (Pakistan Bureau of Statistics, 2023; World Health Organization, 2022); and where, trauma-informed mental health services remain limited. The present sample contained a relatively equal number of males and females (51.5% males and 48.5% females). While it was a convenience sampling method, and results were limited to the study population, this study included both men and women, and it was an opportunity to analyze gender related aspects within the study participants.

The total population of Pakistan is around 51.2% male and 48.8% female (Pakistan Bureau of Statistics, 2023) which is similar to the gender distribution of the current sample. Moreover, participants were from diverse socioeconomic backgrounds, mostly from lower and middle socioeconomic groups. The pattern is similar with the socioeconomic structure of Pakistan, where large portion of households comes in lower and middle income groups (Pakistan Bureau of Statistics, 2023). The participation of people with different socioeconomic backgrounds allowed for an examination of childhood trauma, Theory of Mind, and mental health across people who have different social and economic circumstances, but the findings must be interpreted with the consideration of the non-probability sampling technique utilized.

The overall demographic features of the sample were suitable to explore the association of childhood trauma, ToM measures and adult mental health in young adults. The age range and the gender of the participants, as well as their varying socio-economic, family and marital statuses ensured variability of the study sample and enabled the investigation of these relationships across a range of demographic characteristics. The results are not representative of Pakistan's population due to the use of convenience sampling, but the demographic characteristics of the respondents were generally similar to the Pakistani population, which is largely young and has a relatively equal gender split as reported in the 7th Population and Housing Census (Pakistan Bureau of Statistics, 2023). Hence, the results provide valuable information about the relationship between childhood trauma, theory of mind and mental health in the Pakistani young adult population in the sample.

5.2 Psychometric Properties of the Study Measures

Prior to testing the proposed hypotheses the psychometric characteristics of the research tools were tested to determine the reliability of the measures for the constructs under study. The results showed that all instruments had well to excellent internal consistency, which meant that the instruments were measuring the constructs they were intended to measure in a consistent way in the current sample. The guidelines suggested by Nunnally and Bernstein (1994) suggest that a Cronbach alpha coefficient higher than .70 is acceptable for psychological research but that greater than .80 is good and greater than .90 is excellent reliability of items on the scale.

Internal consistency was excellent for all three Depression, Anxiety, and Stress Section of the Depression, Anxiety, and Stress Scale-21 (DASS-21) with Cronbach's alpha coefficients greater than .90. The reliability of DASS-21 found in the present study is corroborated by previous psychometric studies that report high reliability of the DASS-21 in clinical and non-clinical samples (Lovibond and Lovibond, 1995; Antony et al., 1998). The good reliability found in the current study indicates that the instrument was able to measure depression, anxiety and stress symptoms in young adults of Pakistan with good reliability and the subsequent analysis of adult mental health symptoms were conducted with confidence.

Likewise, high internal consistency ($\alpha = .99$) was found for the Theory of Mind (ToM) scale, indicating that the items measured the same underlying construct consistently. A reliability coefficient this high indicates excellent measurement precision but may also suggest that some items assess highly similar aspects of Theory of Mind (Tavakol and Dennick, 2011). Nevertheless, the findings indicate that the scale consistently measured participants' social-cognitive abilities and was appropriate for investigating its proposed mediating role in the present study.

The Childhood Trauma Questionnaire (CTQ) also showed good internal consistency ($\alpha = .89$), similar to the reliability estimates found in earlier versions of the CTQ (Bernstein et al., 2003; Scher et al., 2001). The results indicate this test of CTQ was an appropriate measure of past abuse and neglect experiences in the

current sample. Consistency among the CTQ items is additional evidence for the appropriateness of its use for the study of the long-term psychological impact of childhood adversity.

Overall, the psychometric assessment shows high to very high reliability for all study measures, which serves as a good methodological basis for subsequent correlation, mediation and group comparison analyses. High internal consistency of the instruments supports the confidence that the relationships observed between childhood trauma, Theory of Mind and adult mental health are meaningful and not due to measurement error.

5.3 Hypothesis 1: Relationship between Childhood Trauma, Theory of Mind and Adult Mental Health

The first hypothesis was that there would be a significant positive relationship between childhood trauma, Theory of Mind (ToM) and mental health in adults. This hypothesis was confirmed by the results. Childhood trauma was significantly ($p < .01$) and positively correlated with depression ($r = .22$), anxiety ($r = .14$), stress ($r = .21$) and Theory of Mind ($r = .20$) using Spearman's rank-order correlation analysis. Furthermore, Theory of Mind was significantly and positively associated with depression ($r = .18$, $p < .01$), anxiety ($r = .17$, $p < .01$), and stress ($r = .15$, $p < .01$). The results indicated that higher exposure to childhood trauma was related to greater psychological distress and differences in TOT in young adults. The results of the study are in line with earlier studies, which have shown that childhood trauma is a powerful predictor of mental health problems throughout life.

In a recent systematic review and meta-analysis, McKay et al. (2021) found that exposure to childhood adversity was associated with a significantly higher risk for depression, anxiety, and other psychiatric disorders in adulthood. In the same way, exposure to multiple adverse childhood experiences has been shown to be significantly associated with psychological distress (Hughes et al., 2017), and childhood

abuse and neglect consistently with depression, anxiety, and stress-related disorders (Norman et al., 2012). The current results thus add to the emerging evidence showing that consequences of childhood trauma span beyond childhood and impact on psychological functioning in adulthood. The present study also revealed a significant positive association between Theory of Mind and Childhood Trauma. This is in line with recent studies showing that child maltreatment affects social-cognitive skills, such as mentalizing.

In a recent meta-analysis of 23 studies, more severe childhood maltreatment was found to be significantly correlated with lower mentalizing capacity, indicating that childhood adversities hinder mentalizing (Yang and Huang, 2024). Likewise, a recent systematic review found that childhood trauma was associated with poor metallization in a variety of psychiatric conditions, with emotional and physical neglect emerging as key risk factors for poor metallization (Gorgellino et al., 2025). The results are consistent with Metallization Theory Fonagy et al. (2018) which suggests that negative attachment experiences can affect the development of mentalizing skills and consequently psychological functioning across the lifespan.

The present study also confirmed these significant positive correlations between Theory of Mind and depression, anxiety, and stress. While the benefits of Theory of Mind in social functioning are generally believed to be positive, recent research showed that the quality of metalizing, not just the quantity, can be impacted by childhood trauma. Yang and Huang (2024) found that childhood maltreatment is significantly related to decreased mentalizing ability and Gorgellino et al. (2025) found that mentalizing disturbances related to trauma are found across mood, anxiety, personality, and psychosis disorders. These results imply that those who had been traumatized in childhood might have abnormal perception and processing of social cues, which may make them susceptible to depression, anxiety and stress.

Given that, the present study's positive correlations between social-cognitive functioning and psychological well-being further reinforce the strong relationship between these factors. The results are significant in the light of Pakistan scenario. Childhood trauma, emotional neglect, stringent parenting, domestic violence and physical abuse are all significant but underappreciated issues in public health in Pakistan. Few people have information about mental health and trauma, stigma

attached to psychological services and poor trauma-informed care can hinder timely identification and care of psychological challenges related to trauma. The findings are in line with recent studies in Pakistan that have highlighted significant relationships between adverse childhood experiences and depression, anxiety and psychological distress in university students (Fazal et al., 2022; Sajid et al., 2025).

Based on the present findings, it is posited that Theory of Mind could be another social-cognitive pathway between childhood trauma and mental health in young adults in Pakistan. In general the results supported the first hypothesis and showed that the childhood trauma was significantly related to depression, anxiety, stress, and Theory of Mind. The findings also indicated that the psychological effects of childhood trauma are not confined to emotional effects; they are also seen in social-cognitive function. The results will add to the emerging evidence of the need for early identification of childhood trauma and the need for trauma-informed and metallization-based approaches in psychological assessment and intervention.

5.4 Hypothesis 2: The Relationship between Childhood Trauma and Adult Mental Health is Partially Mediated by Theory of Mind

We next hypothesized that the association between childhood trauma and mental health in adulthood would be partially mediated by Theory of Mind (ToM). This was confirmed by the findings. Hayes' PROCESS Macro (Model 4) was used for mediation analyses, which revealed that Theory of Mind significantly mediated the relationship of childhood trauma with each of the three mental health domains (depression, anxiety, stress) in adulthood. Specifically, childhood trauma significantly predicted Theory of Mind ($\beta = .64$, $p < .001$), while Theory of Mind significantly predicted depression ($\beta = .01$, $p = .002$), anxiety ($\beta = .01$, $p = .005$), and stress ($\beta = .01$, $p = .01$). In addition, the indirect effects were also rather large, with the 95% confidence intervals for the indirect effects not including zero. When Theory

of Mind was included in the model, the impact of childhood stress on depression, anxiety, and stress was statistically significant. The results indicated partial mediation (not total mediation) of the relationship between childhood trauma and mental health in the adult period by Theory of Mind. That is, childhood trauma impacts psychological distress both directly and indirectly via changes in Theory of Mind.

The present findings also do align with Metallization Theory which posits that mentalizing of one's own and others' mental states is shaped by secure, emotionally attuned childhood attachment relationships (Fonagy et al., 2018). If children are raised in an environment of dysfunction or abuse, mentalizing capacities can be impaired, and this can make them more vulnerable to future psychological issues. Current evidence also indicates that deficits in metallization are a trans diagnostic mechanism involved in multiple types of psychopathology such as depression and anxiety disorders, as they reduce the capacity of individuals to manage their emotions and to process interpersonal experiences and adapt to challenging situations (Luyten et al., 2020).

The findings of the present study are further supported by recent studies showing the deleterious effect of childhood trauma on mentalizing and social-cognitive functioning. A recent meta-analysis performed by Yang and Huang (2024) found that higher exposure to childhood maltreatment was significantly correlated with lower mentalizing skills, indicating that childhood adverse events affect the ability to understand and interpret mental states of oneself and others. Similarly, in a systematic review by Gorgellino et al. (2025), impairments in metallization consistently have been observed in individuals with a history of childhood trauma and have been linked with various psychiatric disorders such as depression, anxiety, personality disorders, and psychosis. The present findings are consistent with previous ones that childhood trauma is associated with psychological adjustment beyond just emotional issues, also by social-cognitive alterations.

Theory of Mind partially mediated the relationship between childhood trauma and adult mental health, however, significant direct effects were observed, suggesting that there are other psychological factors that contribute to this relationship. There is emerging research that mentalizing is not the only factor that accounts

for the impact of childhood adversity on adult psychological functioning; emotion regulation difficulties, attachment insecurity, maladaptive cognitive schemas, resilience, and coping strategies also play a role (McLaughlin et al., 2020; Weissman et al., 2019). The present results thus support a pluridimensional approach to trauma-related psychopathology in which Theory of Mind is just one of multiple developmental pathways that connect childhood trauma to depression, anxiety and stress. The results of the present study, showing persistent and robust direct effects, corroborate this multidimensional perspective on trauma related psychopathology.

Early adverse experiences initiate a cascade of emotional, cognitive and interpersonal changes that compounds across development (Cicchetti and Toth, 2005). Trauma leads to disruption of the emotional security system, and also affects neurobiological systems involved in stress regulation and social information processing (McCrory et al., 2011; Teicher and Samson, 2016). These developmental changes may further impact adult psychological functioning such as Theory of Mind, emotional regulation and interpersonal functioning. Thus, the current results lend support to the developmental psychopathology perspective that suggests that childhood trauma can have long-term psychological consequences via several pathways, such as through TOT.

The results also have important clinical implications. Partial mediation also suggests that the psychological effects of childhood trauma might be reduced with social-cognitive and mentalizing interventions. Mentalization Based Therapy (MBT) is a therapy created by Bateman and Fonagy (2016) to strengthen individual's metallization and their ability to master interpersonal experiences. Research has previous demonstrated that mentalizing difficulties have been linked to emotional dysregulation, interpersonal difficulties and psychiatric symptoms (Bateman and Fonagy, 2016). Therefore, metallization-related methods in trauma-sensitive psychological interventions might enhance the effectiveness of treatment for individuals who experience childhood adversity and who are suffering from depression, anxiety and stress.

The overall conclusion is that the results strongly support the H2. The study demonstrates that Theory of Mind is one of the psychological mechanisms that

contribute to the link between childhood traumatic events and adult mental health and highlights the possibility that other emotional and cognitive processes are also involved in this link. The present results will add to the previous literatures on the significance of social-cognitive function in the psychological aftermath of childhood trauma in Pakistani context among young adults.

5.5 Hypothesis 3: There are Significant Mean Differences between Age and Genders in Childhood Trauma, Theory of Mind and Adult Mental Health Outcomes

The third hypothesis was that there would be significant gender differences in childhood trauma, adult mental health and Theory of Mind (ToM). But the results were not consistent with this hypothesis. The results of Mann–Whitney U test showed that there were no significant differences between the mean scores for depression, anxiety, stress, childhood trauma and Theory of Mind for males compared to females (all $p > .05$). There were no significant differences in mean ranks for theory of mind, depression, and stress between males and females, although the ranks were slightly higher in males; there were no significant differences in childhood trauma and anxiety between males and females, although the rank was slightly higher in females. The present sample showed no differences between males and females regarding psychological distress, exposure to childhood trauma, and social-cognitive functioning.

This is in line with previous studies showing that while there are likely to be different types of childhood adversity for men and women, the overall extent of childhood trauma may be similar between the sexes. Across the world, rates of childhood maltreatment are high, and significant rates for both males and females exist, although differences in rates may be due to the type of maltreatment rather than to prevalence of adverse childhood experiences (ACEs) (Stoltenborgh et al., 2015). Likewise, (Hughes et al., 2017) highlighted the need to consider adverse

childhood experiences as a public health problem that impacts youth regardless of gender. Thus, the current results could suggest that while the way in which childhood adverse events are manifested differ, young adults in Pakistan might be experiencing similar amounts.

In a similar vein, there were no gender differences seen with depression, anxiety or stress. This is different to many studies from around the world which reported depression and anxiety rates to be higher in females than males (Seedat et al., 2009; Salk et al., 2017). A number of biological, hormonal and gender specific psychosocial factors have been proposed to account for the vulnerability of females to internalizing disorders (Nolen-Hoeksema, 2001). But the present results are in line with research that indicates that if the environment, educational experiences, and psychosocial stressors are similar for men and women, some gender gaps in more common mental health issues could be reduced (Piccinelli and Wilkinson, 2000). Most of the present sample were university students and young working adults, whose academic, occupational and social contexts were similar, which may have resulted in similar levels of psychological distress for males and females.

The results further showed that there was no significant difference in the TOMS between males and females. This correlates with some research that suggests that there are not enough or significant adult differences in ToM skills between genders (Bosacki and Wilde Astington, 1999; Ibanez et al., 2013). Also, social-cognitive skills are generally shown as a developmental process during the adolescent and young adult years, and social-cognitive skills are a developmental process that is influenced by educational contexts, interpersonal contexts and relations, and not only by biological sex (Wellman, 2014). It is important to note that the participants were similar in terms of their educational level and developmental age, which could have been a factor in the similarity of males and females in terms of Theory of Mind abilities.

Metallization Theory suggests that the quality of initial attachments and emotional responsiveness, and reflective caregiving are the more important factors contributing to development of Theory of Mind than being male or female is (Fonagy et al., 2018). Secure attachment relationships are associated with effective mentalizing abilities, across both genders. Likewise, the view of Developmental

Psychopathology holds that psychological adjustment is a result of an interaction of biological, psychological and environmental factors in a developmental manner, not solely demographic factors (Cicchetti and Toth, 2005). The results therefore suggest an attention to developmental experiences instead of gender differences when understanding the impact of childhood trauma and psychological functioning.

Another possible reason for the lack of gender differences is due to the characteristics of the present sample. They had been chosen from similar educational and occupational backgrounds and were of the same age, meaning that they had similar life experiences as well as psychosocial needs. The gender differences in mental health and social cognitive functions might have been restricted by similarities. Furthermore, the availability of increased educational opportunities, changing gender roles and increased involvement of young adults in society in Pakistan may be reducing the gender differences in psychological functioning which have been observed in previous studies.

Overall, Hypothesis 3 was not supported. Small differences in mean ranks were seen but were not statistically significant. The results suggest that gender was not a significant factor in childhood traumatic experiences, Theory of Mind, depression, anxiety or stress for the current sample of young adults. The results, however, suggest that the longterm psychological consequences of childhood trauma are similar in men and women, and that environmental influences and social-cognitive factors are more important than socio-demographic factors in understanding the psychological state of adults.

This study revealed that in depression, anxiety, and stress there were significant differences between age groups with participants aged 18-25 years having the highest mean rank 320.03, 313.05 & 304.32 respectively. These findings are similar to those of studies which have proposed that younger adults may be affected by higher psychological distress, which could be related to developmental changes in education, employment, financial independence, relationships, future planning, etc. (Best et al., 2023; Fisher et al., 2024). Depression, anxiety and stress have also been reported to be significant factors of psychological distress among young adults in the Pakistani context (Kazmi and Lewis, 2024). However, no significant

age differences were found in childhood trauma, $H(2) = 1.092$, $p = .579$, or Theory of Mind, $H(2) = 1.579$, $p = .454$. None of these differences in childhood trauma is surprising as the experiences took place when children were younger and may not be expected to differ systematically by age group in adulthood. Also, the lack of significant differences in ToM could possibly be the result of a limited age range (18–35 years) as significant differences may be found in wider age ranges. Mentalizing is shown to continue to evolve in adolescence and young adulthood and that individual differences in adult ToM may be related to the specific type of assessment used (Meinhardt-Injac et al., 2020; Desatnik et al., 2023; Yeung et al., 2024). The results of the current study must be taken with the limitations of a cross-sectional design that examined self-reported ToM. Thus, these results should be viewed as age-group differences in participants currently studied and not as evidence of developmental change.

5.6 Summary of Findings

The current study aimed to investigate the association of childhood trauma, Theory of Mind (ToM) and adult mental health among the young adults in Pakistan. In addition, the study explored whether Theory of Mind was a mediator between childhood trauma and depression, anxiety, and stress (dimensions of adult mental health) and explored gender differences on the study variables. Findings showed that child adverse life experiences (ALS) were significantly and positively correlated with depression, anxiety and stress, and Theory of Mind (ToM), with those who reported higher levels of child ALS reporting higher levels of psychological distress. Moreover, Theory of Mind showed strong positive associations with depression, anxiety, and stress, indicating a strong association between social-cognitive functions and mental health outcomes among adults. Thus, the first hypothesis was confirmed.

The mediation analyses also showed that the effects of childhood trauma on the three dimensions of adult mental health were partially mediated by Theory of Mind. However, depression, anxiety and stress did show significant indirect effects, suggesting that childhood trauma had an impact on psychological distress both

directly and indirectly as a result of Theory of Mind. The results of this study align with the Mentalization Theory assumptions and demonstrate that Theory of Mind is indeed a key psychological process involved in the long-term impact of experiences in childhood. Hence, the second hypothesis was also substantiated.

Partial mediation suggests that the relationship between childhood trauma and mental health in adulthood is mediated by several psychological processes and Theory of Mind is one of them. While Theory of Mind accounted for a substantial portion of the relationship between childhood trauma and depression, anxiety and stress, it is important to consider that there were also significant direct effects on these outcomes, indicating that there may be other mechanisms which contribute to these relationships. Emotional regulation, attachment insecurity, maladaptive schemas of thinking, resilience and coping are other factors that have been found to be important mediators between childhood adversity and later psychological distress. The current results, therefore, corroborate a multidimensional perspective on trauma-related psychopathology in that multiple emotional, cognitive, and interpersonal processes have an impact on mental health outcomes throughout development.

The third hypothesis was not supported by the findings, however. There was some difference in mean ranks between male and female on childhood trauma, depression, anxiety, stress and Theory of Mind, but there were no significant gender differences. Such results indicate that the interrelationships of the variables in the present sample were similar by gender.

The lack of significant gender differences indicated that the psychological impact of childhood trauma and related social-cognitive processes were similar for male and female participants in the current sample. The finding suggests that childhood trauma may be more of a determinant for the relationship between Theory of Mind and adult mental health than gender. This suggests that interventions to support the psychological effects of childhood trauma can be as effective for boys and girls, especially those based on shared psychological processes like mentalizing skills and emotional regulation.

The study generally confirms empirical evidence that childhood trauma is strongly linked to poorer mental health in adulthood and that ToM is a significant explanatory factor in the link between childhood trauma and poorer adult mental health. The results have implications for the current literature by validating the importance of social-cognitive functioning in the context of psychological outcomes of childhood trauma among Pakistani young adults. They further support Metallization Theory, and highlight the need for the consideration of Theory of Mind in trauma-informed assessment and intervention practices.

In general, the study findings support the significant association between childhood trauma and mental health among young adults and that Theory of Mind is one of the important social-cognitive mechanisms related to this association. The findings support Mentalization Theory in that they show that events that happen during childhood can shape psychological functioning in adulthood by disrupting mentalizing processes. Moreover, the study is also a contribution to the emerging body of literature on trauma-informed mental health, as the majority of studies have been conducted in Western population. The present results offer some insight into how social-cognitive functioning is related to psychological distress in the context of childhood trauma in the Pakistani population of young adults, as there is limited empirical evidence in this context for Pakistan.

The results also underscore the relevance of integrating assessments of childhood trauma into psychological assessments and the need for mentalization-based and trauma-informed approaches to be integrated into clinical practice. Overall, the study adds to the current literature, offering evidence that childhood trauma has direct and indirect effects on adult mental health via its impact on Theory of Mind, and enriching understanding of the psychological long-term effects of adverse childhood experiences.

The strong positive correlations between the study variables suggest that childhood trauma is a relevant risk factor in adulthood for psychological functioning. Those who reported more exposure to adverse childhood events were also more likely to report depression, anxiety, and stress, demonstrating the long-term effects of adverse childhood events on emotional health. High rates of childhood trauma are also correlated with Theory of Mind and there is also a positive relationship

between childhood trauma and Theory of Mind, meaning that adverse childhood experiences may also be linked to social-cognitive deficits. The results highlight the importance of recognizing the impact of childhood adversity not just on emotional outcomes, but on other cognitive and interpersonal functioning – which can impact psychological functioning into adulthood.

5.7 Theoretical Implications

i. This study adds to the current literature by offering additional evidence on the psychological pathways of childhood trauma to adult mental health. The findings further expand on previous studies which have established that childhood trauma is an important risk factor for depression, anxiety and stress (Hughes et al., 2017; Norman et al., 2012) and find that Theory of Mind partially mediates these relationships. Empirical support for Mentalization Theory (Fonagy et al., 2018), which suggests that experiences of early attachment relationships affect a person's ability to comprehend mental states, manage emotions, and interpret interpersonal relationships.

ii. The results indicate that emotional dysregulation alone is not sufficient to account for the long-term psychological impact of childhood trauma, but changes in social-cognitive functioning, especially Theory of Mind (ToM), also play a role.

iii. The findings also align with the tenets of Developmental Psychopathology Theory (Cicchetti and Toth, 2005) in that multiple, inter-related developmental domains are impacted by early adverse experiences over the lifespan.

iv. The current results suggest that childhood adversity impacts not only emotional functioning but also cognitive and interpersonal processes, which aligns with the notion that adult psychopathology is developed through multiple processes.

v. The study is a contribution to the scarce literature that has investigated Theory of Mind as a mediator between childhood trauma and adult mental health in a non-Western and Pakistani context.

vi. In contrast, previous research has largely centered on emotion regulation, attachment insecurity, and resilience as mediating pathways (McLaughlin et al., 2020; Weissman et al., 2019); the current results suggest that TOT is another social-cognitive pathway that could link childhood trauma to psychological well-being.

vii. The findings extend the scope of Metallization Theory by showing the applicability of Theory of Mind in the understanding of mental health outcomes of trauma exposure in young adults in Pakistan.

viii. The study also contributes to the integration of Theory of Mind in multidimensional models of mental health, including emotional, cognitive, interpersonal, and neurodevelopmental processes, which will guide the future theoretical development and empirical studies.

ix. The current outcomes theoretically support the belief that social cognitive processes can provide a vital pathway through which childhood adversity is connected with individuals' psychological functioning. Past studies have identified cognitive factors with the potential mediators among experiences of adverse childhood with adult psychopathology, through the role of early life adversity in Theory of Mind and other social-cognitive issues (Aafjes-van Doorn et al., 2020; Mackey et al., 2025). Hence, the current outcomes extend existing theoretical domains by positioning ToM as a potential mechanism linking childhood trauma through the adult mental health issues. Integration of developmental and social cognitive theories The results contribute towards the developmental theories by stating that experiences occurring during childhood may remain relevant to social-cognitive functioning during adulthood. Research showed that Theory of Mind continues to develop in adolescence and in young adulthood, making this developmental period theoretically very vital for exploring individual differences in mentalizing capacities (Meinhardt-Injac et al., 2020). Hence, the current research supports an integrated belief in which experiences from early adversity, along

with later developing social cognitive processes are connected while exploring adult psychological functioning. Support for a multidimensional pathway from childhood trauma to adult psychopathology The partial mediation present in the study suggests that Theory of Mind alone does not completely explain the connection among childhood trauma and depression along with anxiety and stress. This is theoretically supported by many systematic reviews depicting that the connections between childhood adversity and adult mental well-being are more likely to include multiple psychological functions, involving regulation of emotions, appraisal of cognition, and social functions (Panagou and MacBeth, 2022). Hence, the support a broader theoretical model through which ToM shows one of several linked mechanisms by which childhood trauma may be connected with adult mental well-being.

5.8 Clinical and Practical Implications

i. The results of the current study highlight the significance of assessing childhood trauma regularly during psychological assessments and childhood adversity was significantly linked to depression, anxiety and stress among young adults in Pakistan. When evaluating and treating people with emotional distress and trauma, mental health professionals should be aware that trauma experienced in childhood can have lasting impact on mental health into adulthood.

ii. The partial mediation of Theory of Mind points to the need for psychological interventions to be more than symptom-reduction, and to include more social-cognitive aspects, such as perspective-taking, emotional understanding, reflective functioning and interpersonal awareness. The results lend support to the use of Mentalization-Based Therapy (MBT) (Bateman and Fonagy, 2016) in the case of people who have experienced childhood trauma since mentalizing is specifically targeted in this therapy to improve capacity in this domain, which may be impaired by adverse developmental experiences.

iii. Trauma-focused CBT interventions could also include aspects that increase emotional awareness, interpersonal understanding, and social-cognitive skills.

iv. The findings indicate that there is a need for trauma-informed mental health screening programs in educational institutions, such as schools, colleges and universities, and for adolescents and young adults to be early identified as having psychological issues related to childhood trauma.

v. Psychoeducational interventions that focus on enhancing emotional awareness, adaptive coping, and effective interpersonal communication could improve Theory of Mind skills and limit the risk of chronic psychological distress.

vi. The results highlight the need for public health approaches to creating policy and programs that support good parenting, ensure secure attachment, help keep children safe, and provide early intervention to reduce the potentially lifelong psychological effects of adverse childhood experiences.

vii. The findings from the present study are consistent with the integration of trauma-informed and metallization-based approaches within clinical practice, education, and community mental health services within the Pakistani context where trauma-informed services are limited and help-seeking is further burdened by mental health stigma.

viii. Overall, the results suggest that interventions focusing on childhood trauma and social-cognitive functioning can have a positive impact on psychological well-being and long-term mental health outcomes in young adults from Pakistan.

5.9 Limitations of the Study

The present study contributes to the knowledge concerning the relationship between childhood trauma, ToM, and mental health in adulthood, but some limitations must be noted when interpreting the results. The design of the study

was cross-sectional, and this affects the ability to establish causal relationships between the study variables. There were significant associations and mediation effects found, but the order of these relationships could not be established without longitudinal data. Second, all measures were self-report, which could have led to self-report bias (socially desirable response, recall bias, personal interpretation of childhood experiences). Participants' psychological state at the time of the assessment may have influenced the accuracy of recollections, as the trauma occurred in the past.

In addition, the results of this study cannot be generalized beyond the sample of young adults (18-35 years) in Pakistan due to the use of a non-probability convenience sampling technique. There may be differences in the relationships between the study variables among people of different ages, clinical populations, and cultural and geographical backgrounds.

Furthermore, although par- tial mediations were observed between the relationship between childhood trauma and adult mental health, other significant psychological mechanisms, including emotion regulation, attachment security, resilience, coping strategies, and social supports, were not explored and could be relevant to these relationships as well.

Lastly, there was a lack of examination of the differential effects of various types of abuse and neglect on social-cognitive functions and psychological outcomes, which could have unique effects on social-cognitive functioning and psychological outcomes.

Furthermore, there were other limitations concerning the theory of mind in the current study. Theory of Mind was a self-report measure used to assess which reflects the perceived social cognitive abilities rather than performance, which would have been objectively demonstrated in understanding their mental states.

Therefore, the findings did not fully capture the actual differences in mentalizing abilities. Further studies can be conducted by addressing these limitations by using any tool that has a combination of self-report measures and performance-based or behavioral assessments of theory of mind. Such methods, which assess multiple areas, may provide a comprehensive understanding of the role of theory

of Mind in the relationship between childhood trauma and adult mental health outcomes.

5.10 Recommendations

Future study should rely on;

i. Longitudinal studies should be used to further clarify the causal and developmental links between childhood trauma, Theory of Mind (ToM), and mental health in adults.

ii. Larger and more diverse samples, especially adolescents, older adults, clinical populations, and participants from all parts of Pakistan, should be recruited for researchers to generalize the findings.

iii. Future studies should explore individual components of childhood trauma (e.g., emotional abuse, physical abuse, sexual abuse, emotional neglect, and physical neglect) to understand the distinct impact on Theory of Mind and on adult mental health outcomes. In later research, other factors that mediate and moderate the relationship between childhood trauma and adult mental health—such as emotion regulation, attachment style, resilience, coping styles, and social support—can be added to gain more understanding of the mechanisms.

iv. To avoid response bias and improve the accuracy of assessment, Multimethod assessment approaches are encouraged: clinical interviews and behavioral measures of Theory of Mind, in addition to self-report questionnaires. Future trauma-informed psychological interventions (such as Metacognitive Based Therapy, Bateman & Fonagy, 2016) should be considered in terms of their effectiveness to improve future Theory of Mind and reduce symptoms of depression, anxiety and stress in individuals who have experienced childhood trauma.

v. Special focus should be given to culturally relevant development and assessment of trauma-informed mental health interventions in Pakistan to foster mental health and mitigate the impact of childhood trauma in young adults.

5.11 Conclusion

The present study explored the relationship between childhood trauma, Theory of Mind (ToM), and adult mental health in youthful adults in Pakistan with the mediation of ToM in the relationship between childhood trauma with depression, anxiety and stress dimensions. The results showed a significant relationship between childhood trauma and increased depression, anxiety, and stress symptoms and a significant relationship between childhood trauma and Theory of Mind. Moreover, Theory of Mind partially mediated the links between childhood trauma and each dimension of adult mental health, suggesting that psychological effects of adverse childhood experiences act not only directly on emotional pathways, but also via social-cognitive pathways. No gender difference was found, but the results indicate that the long-term psychological impact of childhood trauma is similar for male and female young adults in the present sample.

The results are significant from the perspective of the psychological health of Pakistani youth. Childhood adversity also does not seem limited to childhood; it has long-lasting effects that can affect emotional functioning and social-cognitive development in early adulthood. The Pakistani context is unique in that many children suffer from childhood maltreatment, experience harsh parenting practices, have conflicts with their parents, face emotional neglect, and the repercussions of early adverse experiences are not widely recognized, and the conversation about mental health is still constrained by stigma. Instead, childhood experiences that have not been resolved can stay with them and impact the way they think about themselves, other people's thoughts and feelings, and how they respond to the daily interpersonal and emotional challenges. Thus, there is a need to prioritize in public health the importance of establishing healthy family environments and the long-term effects of childhood trauma.

The study also adds to the literature supporting Metallization Theory (Fonagy et al., 2018) and Developmental Psychopathology Theory (Cicchetti and Toth, 2005) by contributing to the growing literature that childhood trauma contributes to mental health in adulthood, in part by impacting social-cognitive functioning. The findings build upon the current literature, as this has not been studied in the Pakistani context and has emerged as an important psychological mechanism involved in psychological distress following traumatic events. This contribution is of special significance as studies on social-cognitive pathways of childhood trauma to mental health in adults are still scarce in Pakistan.

The overall findings suggest the importance of psychological evaluation and early intervention of Pakistani youth from a trauma-informed perspective. It is crucial for all educational settings, health and healthcare systems, and policymakers to also understand the need for interventions that promote mentalizing skills, emotional awareness, and interpersonal functioning in addition to mental health care, as early identification of childhood adversity is essential. This can help lessen the long-term effects of depression, anxiety, and stress, and improve healthy psychological growth. Future research should focus on uncovering further developmental processes and factors that could account for the different effects of childhood trauma on mental health in different cultural and developmental settings and help to design more effective prevention and intervention for young adults in Pakistan.

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Appendix A - Consent Form

Participant Consent Form

I confirm that I have read and understood the information provided in the participant information sheet. I have been given the opportunity to ask questions regarding the study.

My participation in this research is completely voluntary, and I understand that I have the right to withdraw from the study at any time until the point of data analysis, without any impact on my academic standing or legal rights.

I understand that the information obtained from the questionnaires will remain anonymous and will be used solely for research purposes.

I agree to take part in this study.

☐ Yes

☐ No

Appendix B - Demographic Information Sheet

Instructions:

Please read each question carefully and tick the option that best describes you. All information will be kept confidential and used only for research purposes.

1. Gender

☐ Male

☐ Female

2. Age Group

☐ 18–25 years

☐ 26–30 years

☐ 31–35 years

3. Socioeconomic Status

☐ Lower

☐ Middle

☐ Upper

4. Family System

☐ Nuclear

☐ Joint

5. Marital Status

☐ Single

☐ Married

Appendix C - Depression, Anxiety and Stress Scales -21

DASS21 Name: Date:

Please read each statement and circle a number 0, 1, 2 or 3 which indicates how much the statement applied to you **over the past week**. There are no right or wrong answers. Do not spend too much time on any statement.

The rating scale is as follows:

0 Did not apply to me at all
1 Applied to me to some degree, or some of the time
2 Applied to me to a considerable degree or a good part of time
3 Applied to me very much or most of the time

1 (s)	I found it hard to wind down	0	1	2	3
2 (a)	I was aware of dryness of my mouth	0	1	2	3
3 (d)	I couldn't seem to experience any positive feeling at all	0	1	2	3
4 (a)	I experienced breathing difficulty (e.g. excessively rapid breathing, breathlessness in the absence of physical exertion)	0	1	2	3
5 (d)	I found it difficult to work up the initiative to do things	0	1	2	3
6 (s)	I tended to over-react to situations	0	1	2	3
7 (a)	I experienced trembling (e.g. in the hands)	0	1	2	3
8 (s)	I felt that I was using a lot of nervous energy	0	1	2	3
9 (a)	I was worried about situations in which I might panic and make a fool of myself	0	1	2	3
10 (d)	I felt that I had nothing to look forward to	0	1	2	3
11 (s)	I found myself getting agitated	0	1	2	3
12 (s)	I found it difficult to relax	0	1	2	3
13 (d)	I felt down-hearted and blue	0	1	2	3
14 (s)	I was intolerant of anything that kept me from getting on with what I was doing	0	1	2	3
15 (a)	I felt I was close to panic	0	1	2	3
16 (d)	I was unable to become enthusiastic about anything	0	1	2	3
17 (d)	I felt I wasn't worth much as a person	0	1	2	3
18 (s)	I felt that I was rather touchy	0	1	2	3
19 (a)	I was aware of the action of my heart in the absence of physical exertion (e.g. sense of heart rate increase, heart missing a beat)	0	1	2	3
20 (a)	I felt scared without any good reason	0	1	2	3
21 (d)	I felt that life was meaningless	0	1	2	3

Appendix D - Childhood Trauma Questionnaire

Childhood Trauma Questionnaire

Patient's full name: _____ **Date accomplished:** _____

Name of attending professional: _____

Instructions: Please rate yourself based on the options below in relation to the following possible traumatic experiences that you may have experienced. Take your time and be honest with your answers. This will be kept confidential.

Item	Never True	Rarely True	Sometimes True	Often True	Very Often True
1. I did not have enough to eat.	○	○	○	○	○
2. I had someone to take care of me and protect me.	○	○	○	○	○
3. I've been called "stupid," "lazy," and/or "ugly.	○	○	○	○	○
4. My parents were too drunk/high to take care of me.	○	○	○	○	○
5. Someone helped me feel important.	○	○	○	○	○
6. I had to wear dirty clothes.	○	○	○	○	○
7. I felt loved.	○	○	○	○	○
8. I felt/thought that my parents wished I had never been born.	○	○	○	○	○
9. I got hit so hard that I had to see a doctor.	○	○	○	○	○
10. There is nothing I want to change in my family.	○	○	○	○	○
11. I've been hit so hard that it left bruises and marks.	○	○	○	○	○
12. I was punished with a belt, board, cord, or another hard object.	○	○	○	○	○
13. My family looked out for each other.	○	○	○	○	○
14. My family said hurtful or insulting things to me.	○	○	○	○	○
15. I was physically abused.	○	○	○	○	○
16. I had a perfect childhood.	○	○	○	○	○

Bernstein D., Fink L. (1998). Childhood Trauma Questionnaire. A Retrospective Self-Report Questionnaire and Manual. San Antonio, The Psychological Corporation.

PAGE 1

Item	Never True	Rarely True	Sometimes True	Often True	Very Often True
17. I got hit badly and it was noticed by a teacher, neighbor, and/or doctor.	○	○	○	○	○
18. Someone in my family hated me.	○	○	○	○	○
19. My family felt close to each other.	○	○	○	○	○
20. Someone tried to touch me in a sexual way or tried to make me touch them.	○	○	○	○	○
21. Someone threatened to hurt me unless I did something sexual with them.	○	○	○	○	○
22. I have the best family in the world.	○	○	○	○	○
23. Someone made me try to do sexual things/watch sexual things.	○	○	○	○	○
24. Someone molested me.	○	○	○	○	○
25. I was emotionally abused.	○	○	○	○	○
26. Someone took me to see the doctor when I needed to/if I needed to	○	○	○	○	○
27. I was sexually abused.	○	○	○	○	○
28. My family gave me strength and support.	○	○	○	○	○

Scoring:

- **Never true** = 1
- **Rarely true** = 2
- **Sometimes true** = 3
- **Often true** = 4
- **Very often true** = 5

Some items have the inverse, though. These specific items are Items 2, 5, 7, 13, 19, 26, and 28. So, "Never true" is equal to 5, and "Very often true" is equal to 1.

SCORE TALLIES ⟶

Bernstein D., Fink L. (1998). Childhood Trauma Questionnaire. A Retrospective Self-Report Questionnaire and Manual. San Antonio, The Psychological Corporation.

Score Tallies:

	Physical Abuse	Emotional Abuse	Sexual Abuse	Physical Neglect	Emotional Neglect
	9.) _____	3.) _____	20.) _____	1.) _____	*5.) _____
	11.) _____	8.) _____	21.) _____	*2.) _____	*7.) _____
	12.) _____	14.) _____	23.) _____	4.) _____	*13.) _____
	15.) _____	18.) _____	24.) _____	6.) _____	*19.) _____
	17.) _____	22.) _____	27.) _____	*26.) _____	*28.) _____
Sum:	_____	_____	_____	_____	_____

The * means that the scoring is inversed for them.

To calculate the section below, you only need to look at Items 10, 16, and 22. For each of these, if the patient answers "Very often true," it's equivalent to 1 point. If they picked other answers, then it's equivalent to 0. The maximum score that they can get for Minimization/Denial is 3.

	Minimization/Denial
	10.) _____
	16.) _____
	22.) _____
Sum:	_____

Level of abuse	Physical Abuse	Emotional Abuse	Sexual Abuse	Physical Neglect	Emotional Neglect
None	7	8	5	7	9
Low	9	12	8	9	14
Moderate	12	15	12	12	17
Severe	13+	16+	13+	13+	18+

Bernstein D., Fink L. (1998). Childhood Trauma Questionnaire. A Retrospective Self-Report Questionnaire and Manual. San Antonio, The Psychological Corporation.

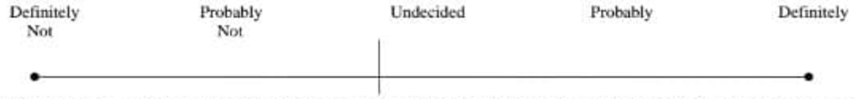
Appendix E - Theory of Mind questionnaire



Theory of Mind Inventory — **Self Report - ADULT**

Tiffany I.. Hutchins, Ph.D.
Patricia A. Prelock, Ph.D., CCC-SLP
Laura Foran Lewis, Ph.D., R.N.

INSTRUCTIONS: The purpose of this survey is to learn how you understand the thoughts and feelings of yourself and other people. Please read each statement carefully and indicate the degree to which you believe each statement is true for you. Sometimes, you may feel that you don't know for sure whether a statement is true or not. When you feel this way, reflect on your experiences and try to decide, given everything you know, how certain you are that the statement is true or not true. There are no right or wrong answers so please respond as honestly and thoughtfully as possible. To indicate your response, make a vertical hash mark along the appropriate point on the continuum. If you feel undecided as to the most appropriate answer, make a hash mark somewhere underneath 'undecided' but keep in mind that you can lean toward either end of the continuum. For example:



If you have more definite feelings that the statement is true or not true, make a hash mark along the continuum that reflects those feelings. For example:

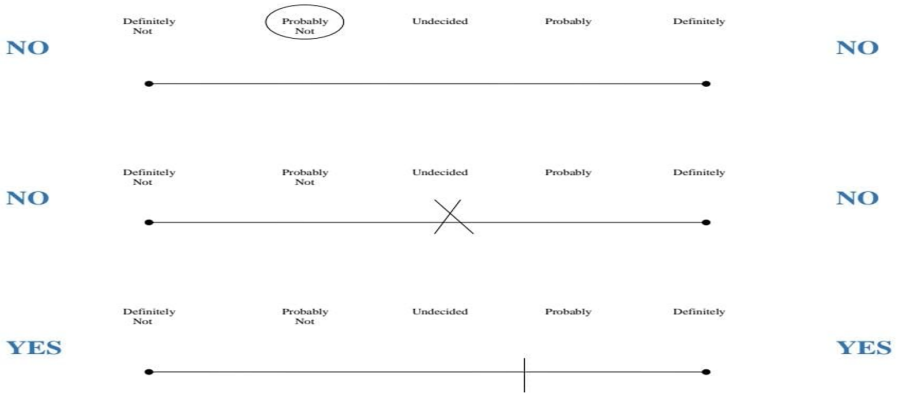


To express total confidence in your answer, put a hash mark through the dot at either end of the continuum. For example:



3

Please indicate your response by drawing a vertical hash mark and *avoid* other ways of responding:



5

5. I understand the metaphor in the following sentence: "After many years of working at the jail, the prison guard had become a hard rock that could not be moved".

Definitely Not | Probably Not | Undecided | Probably | Definitely

6. If I heard a waitress say to a coworker "Hey, the ham sandwich left me a big tip!", I would understand that the waitress was referring to a customer who had ordered a ham sandwich.

Definitely Not | Probably Not | Undecided | Probably | Definitely

7. If I drove up to my friend's house in a big car and my friend said "I didn't know you were a bus driver", I would understand that my friend was commenting on the size of the car.

Definitely Not | Probably Not | Undecided | Probably | Definitely

For Scoring Purposes

5._____

6._____

7._____

For Scoring Purposes

4

1. If I had a friend who was sad about something, I would feel sad myself.

Definitely Not | Probably Not | Undecided | Probably | Definitely

2. I understand that it is possible to experience two conflicting emotions at the same time (e.g., being sad that a sick pet died but being happy that it is no longer in pain).

Definitely Not | Probably Not | Undecided | Probably | Definitely

3. I can accurately judge the passage of time (e.g., I am good at knowing when 5 minutes, 30 minutes, or 2 hours has gone by).

Definitely Not | Probably Not | Undecided | Probably | Definitely

4. I have rich memories for my own past experiences (when recalling something, I remember where I was, when something happened, who else was there, what I was thinking or feeling).

Definitely Not | Probably Not | Undecided | Probably | Definitely

1._____

2._____

3._____

4._____

For Scoring Purposes

6

8. Look at the image below:



When I look at this image, I immediately see what looks like a person.

Definitely Not | Probably Not | Undecided | Probably | Definitely

8._____

9. A 'double bluff' is a type of deception where someone tries to deceive another person by actually telling the truth. I understand what double bluff is and why people use it.

Definitely Not | Probably Not | Undecided | Probably | Definitely

9._____

For Scoring Purposes

10. I understand why people often cling to mistaken beliefs despite overwhelming evidence to the contrary.

Definitely Not | Probably Not | Undecided | Probably | Definitely

10._____

11. I understand that people can hold two or more contradictory beliefs, ideas or values at the same time (e.g., believing in fuel efficient cars but wanting a large fuel inefficient car).

Definitely Not | Probably Not | Undecided | Probably | Definitely

11._____

12. I understand that people in a community share common notions that are considered obvious and known to all (e.g., people in our culture tend to assume that all children like sugary treats).

Definitely Not | Probably Not | Undecided | Probably | Definitely

12._____

13. I understand how people make snap judgments about others based on very little information (e.g., Justin knows Bradley is wealthy so Justin assumes Bradley is 'out of touch' and unable to understand regular people).

Definitely Not | Probably Not | Undecided | Probably | Definitely

13._____

For Scoring Purposes

8

14. I understand that when it comes to getting along with others, honesty is not always the best policy.

Definitely Not | Probably Not | Undecided | Probably | Definitely

15. I understand how people use facial expressions to hide how they really feel (e.g., people can smile when they are sad and laugh when they feel embarrassed).

Definitely Not | Probably Not | Undecided | Probably | Definitely

16. I can tell the difference between when a friend is teasing in a nice way and when a bully is making fun of someone in a mean way.

Definitely Not | Probably Not | Undecided | Probably | Definitely

17. I can tell the difference between lies and jokes.

Definitely Not | Probably Not | Undecided | Probably | Definitely

For Scoring Purposes

14._____

15._____

16._____

17._____

For Scoring Purposes

9

18. Sometimes people do things deliberately and sometimes they make mistakes or do things by accident. I can tell when people do things on purpose or by accident.

Definitely Not | Probably Not | Undecided | Probably | Definitely

19. People do certain things when they are not interested in talking to us (e.g., they might look away for a long time or start fidgeting). I can recognize when a listener is not interested in what I am saying.

Definitely Not | Probably Not | Undecided | Probably | Definitely

20. People do certain things when they are disgusted (e.g., they might squint their eyes, crinkle their nose, of slowly shake their head). I can recognize when others are disgusted.

Definitely Not | Probably Not | Undecided | Probably | Definitely

21. I can put myself in other people's shoes and understand how they feel.

Definitely Not | Probably Not | Undecided | Probably | Definitely

For Scoring Purposes

18._____

19._____

20._____

21._____

22. When I hear jokes like "What is black, white, and *read* all over? It's a newspaper!" or "The duck said to the bartender, 'put it on my *bill*'", I immediately understand the humor in this play on words.

Definitely Not | Probably Not | Undecided | Probably | Definitely

23. I am good at getting the jokes that other people tell.

Definitely Not | Probably Not | Undecided | Probably | Definitely

24. I speak differently to young children compared to adults (e.g., I use simpler language when speaking to youngsters).

Definitely Not | Probably Not | Undecided | Probably | Definitely

25. People do certain things when they are sad (e.g., they might look downward, have a frown, or talk in a soft voice). I can recognize when others are sad.

Definitely Not | Probably Not | Undecided | Probably | Definitely

For Scoring Purposes

22._____

23._____

24._____

25._____

26. People do certain things when they are scared (e.g., they might raise their eyebrows, lean backwards, or talk in a high pitched voice). I can recognize when others are scared.

Definitely Not | Probably Not | Undecided | Probably | Definitely

27. People do certain things when they are surprised (e.g., they might open their eyes very wide or open their mouths really wide). I can recognize when others are surprised.

Definitely Not | Probably Not | Undecided | Probably | Definitely

28. I understand the kinds of situations that would make someone feel embarrassed.

Definitely Not | Probably Not | Undecided | Probably | Definitely

29. I can accurately identify and reflect on my own emotions (that is, I know what I am feeling and why I am feeling it).

Definitely Not | Probably Not | Undecided | Probably | Definitely

For Scoring Purposes

26._____

27._____

28._____

29._____

For Scoring Purposes

12

30. I can predict my own emotions to better plan for the future (e.g., if going on a long car ride, I know that I might get bored so I might bring something to do in the car).

Definitely Not | Probably Not | Undecided | Probably | Definitely

For Scoring Purposes

*30.*_____

31. I understand the kinds of situations that would make someone feel proud.

Definitely Not | Probably Not | Undecided | Probably | Definitely

*31.*_____

32. I can predict people's emotions based on the situation they are in.

Definitely Not | Probably Not | Undecided | Probably | Definitely

*32.*_____

33. I am good at planning for the future.

Definitely Not | Probably Not | Undecided | Probably | Definitely

*33.*_____

13

34. I can predict how my words and actions will be interpreted by others.

Definitely Not | Probably Not | Undecided | Probably | Definitely

For Scoring Purposes

*34.*_____

35. I can read other people's body language to tell how they feel (e.g., feeling happy, sad, mad, or scared).

Definitely Not | Probably Not | Undecided | Probably | Definitely

*35.*_____

36. I have good eye contact when I am talking to people.

Definitely Not | Probably Not | Undecided | Probably | Definitely

*36.*_____

37. I understand how people can move their bodies to mislead others (e.g., someone who 'walks tall' to hide a lack of confidence).

Definitely Not | Probably Not | Undecided | Probably | Definitely

*37.*_____

13

34. I can predict how my words and actions will be interpreted by others.

Definitely Not | Probably Not | Undecided | Probably | Definitely

For Scoring Purposes

*34.*_____

35. I can read other people's body language to tell how they feel (e.g., feeling happy, sad, mad, or scared).

Definitely Not | Probably Not | Undecided | Probably | Definitely

*35.*_____

36. I have good eye contact when I am talking to people.

Definitely Not | Probably Not | Undecided | Probably | Definitely

*36.*_____

37. I understand how people can move their bodies to mislead others (e.g., someone who 'walks tall' to hide a lack of confidence).

Definitely Not | Probably Not | Undecided | Probably | Definitely

*37.*_____

For Scoring Purposes

14

38. I can read the tone of other people's voices to tell how they feel (e.g., I can tell when others are excited, angry, or bored).

Definitely Not | Probably Not | Undecided | Probably | Definitely

For Scoring Purposes

*38.*_____

39. I can read people to tell if they like me or not.

Definitely Not | Probably Not | Undecided | Probably | Definitely

*39.*_____

40. I understand the kinds of situations that would make someone feel jealous.

Definitely Not | Probably Not | Undecided | Probably | Definitely

*40.*_____

41. I can tell when others are being insincere.

Definitely Not | Probably Not | Undecided | Probably | Definitely

*41.*_____

For Scoring Purposes

17

50. I am good at explaining my feelings.

Definitely Not | Probably Not | Undecided | Probably | Definitely

51. I can imagine myself in the future and see what I am doing, thinking, and feeling.

Definitely Not | Probably Not | Undecided | Probably | Definitely

52. When I look at people's faces, I tend to look at their eyes because the eyes give me good information about what someone is thinking or feeling.

Definitely Not | Probably Not | Undecided | Probably | Definitely

53. I am good at picking up on other people's moods without having to think about it.

Definitely Not | Probably Not | Undecided | Probably | Definitely

For Scoring Purposes

*50.*_____

*51.*_____

*52.*_____

*53.*_____

18

54. I am good at predicting events in terms of whether they are likely or unlikely to actually occur.

Definitely Not | Probably Not | Undecided | Probably | Definitely

55. I understand the metaphors people use (e.g., "That man is a lion" or calling a puddle of oil a "dead rainbow").

Definitely Not | Probably Not | Undecided | Probably | Definitely

56. I am socially aware (that is, I am aware of and understand the social features of the situation I am in).

Definitely Not | Probably Not | Undecided | Probably | Definitely

57. I can shift a topic of conversation with skill.

Definitely Not | Probably Not | Undecided | Probably | Definitely

For Scoring Purposes

*54.*_____

*55.*_____

*56.*_____

*57.*_____

For Scoring Purposes

19

58. When I recount stories, I talk about people's thoughts and feelings to explain their actions.

Definitely Not	Probably Not	Undecided	Probably	Definitely

58._____

59. I understand proverbs even if they are unfamiliar to me (e.g., "Envy is destroyed by true friendship").

Definitely Not	Probably Not	Undecided	Probably	Definitely

59._____

60. I am good at beginning and ending conversations.

Definitely Not	Probably Not	Undecided	Probably	Definitely

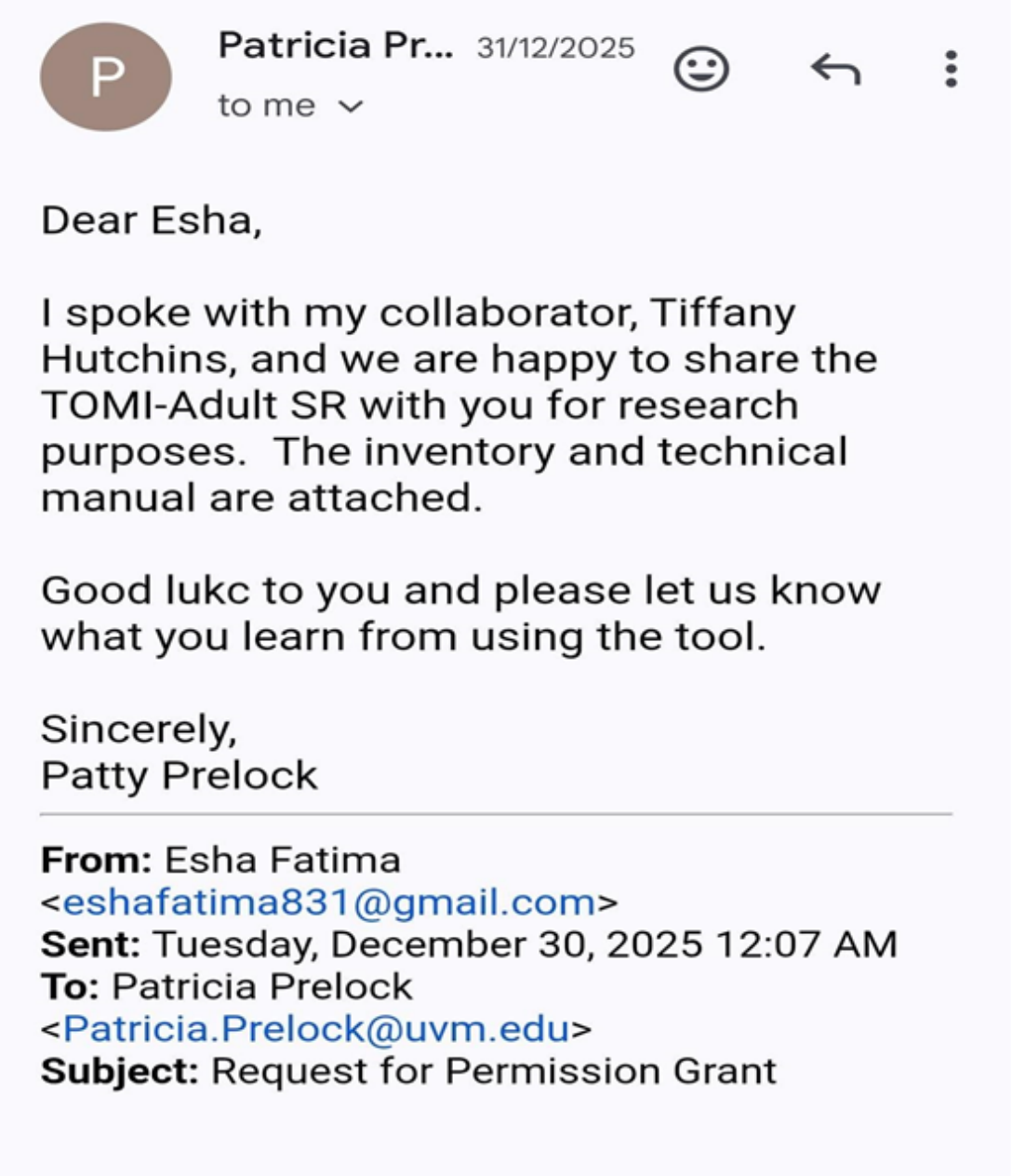
60._____

For easy scoring, cut out the ruler below. Scores for each item range from 0-20. To score, first align the ruler points 0 and 20 to the end points (solid circles) located at each end of the continuum. Be sure to estimate each score to the first decimal point (e.g., 9.4) and avoid rounding to whole integers (e.g., 9.0). After you've scored each item, sum the scores and divide by 60. This is the composite score.

Composite Score (sum all scores and divide by 60) =
_____



Appendix F - Permission from Author



P

Patricia Pr... 31/12/2025

to me

Dear Esha,

I spoke with my collaborator, Tiffany Hutchins, and we are happy to share the TOMI-Adult SR with you for research purposes. The inventory and technical manual are attached.

Good lukc to you and please let us know what you learn from using the tool.

Sincerely,
Patty Prelock

From: Esha Fatima <eshafatima831@gmail.com>
Sent: Tuesday, December 30, 2025 12:07 AM
To: Patricia Prelock <Patricia.Prelock@uvm.edu>
Subject: Request for Permission Grant