The Impact of North Korean Defector Mothers' PTSD symptoms on their Adolescent Children's Mental Health : Mediating Role of Family Functioning and Adverse Childhood Experiences

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A Dissertation Submitted
to the Department of Nursing
and the Graduate School of Yonsei University
in partial fulfillment of the
requirements for the degree of
Doctor of Philosophy

Ocksim Kim

July 2024

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The Graduate School
Yonsei University
June 2024

ACKNOWLEDGMENTS

As I complete my doctoral dissertation, I am filled with a myriad of emotions. My journey into nursing with a dream of contributing to the unification of nursing was met with numerous challenges and obstacles. There were moments when I wanted to give up, but the words of encouragement and helping hands I received allowed me to persevere. Looking back, I realize I owe an outstanding debt of gratitude to many.

First and foremost, I am deeply grateful to my advisor, Professor Sang Hui Chu, who opened the door for me to embark on my doctoral journey. Through research on the health of North Korean defectors, I grew as a researcher and found valuable inspiration for my dissertation topic. Professor Chu's sincere and objective guidance and encouragement from the beginning to the end of my dissertation taught me academic knowledge and the attitude of a dedicated researcher.

I also extend my heartfelt thanks to Professor Gwangsuk Kim, who meticulously reviewed each stage of my dissertation and offered invaluable advice to enhance its quality. Professor JiYeon Choi provided careful attention to the areas I overlooked and was always willing to lend a helping hand. Professor Wootaek Jeon, through his graduate courses, broadened my perspective and ensured that my dissertation maintained its unique focus. Professor Nah-Mee Shin helped me structure my dissertation and enhanced its completeness by addressing the parts I had missed despite her busy schedule. I am also profoundly grateful to Professor Kijun Song, whose kind and expert guidance helped me navigate the statistical analysis process whenever I encountered difficulties.

I am thankful to Professors SoonBok Chang, Sue Kim, and Meenhye Lee, who have supported me continuously since my undergraduate days. Their reminders that I am both a student and a mother helped me remember the reasons behind my academic pursuits and dissertation writing. I also thank Professors Chonghun Jeong and Yong Kwan Jeon, who have warmly mentored North Korean defector students. I will always cherish their care and support.

I sincerely thank Professor JeongHee Jeon, Principal Cho Myung-sook, and others who assisted with data collection, though I regret not being able to mention everyone by name. I am grateful to Commissioner JungYi Lee and Alice Lee for their unwavering support and encouragement. I also appreciate Hyeran Lee and Myeog-Hee Kim, who wrote their dissertations alongside me, offering

advice and sharing progress updates. I am deeply thankful to the North Korean defector mothers and their children who bravely participated in this research.

My fellow members of the 402 research lab, including Dr. Mihui Kim, Dr. Seongmi Choi, Dr. Hokon Kim, Dr. Yesol Kim, Wonjin Seo, Sanghwa Lee, and Hanna Lee, have been invaluable to me, making my time both memorable and enjoyable. I am grateful to Professor Kyoung-A Kim for guiding me from the early days of my doctoral program when I knew more about what I did not know than what I did. I also extend my heartfelt thanks to Dr. Jiwon Baek, Minjeong Ko, and Subin Park, my colleagues in the same research team. Lastly, I extend my thanks and encouragement to Hyejeong Jeong, Jisoo Kim, JaeWon Hyun, and Heejae Lee from my dissertation research team.

As I conclude my dissertation, I express my heartfelt gratitude to my family. First and foremost, I am deeply thankful to my mother, who has always believed in me and supported me. I also thank my sincere younger brother and grandmother, who sacrificed much for our family. Additionally, I am grateful to my wise mother-in-law for her warm support. I offer my profound thanks and love to Dr. Seonggyu Choi, my most serious discussion partner and mentor throughout my doctoral journey. I send all my love to my son, Beommaru, and daughter, Nurian, who are the mirrors of my life. Without the help and encouragement of all these individuals, I would not have reached this point today.

Lastly, I give thanks and glory to God, who has been with me and guided me through this entire journey.

July 2024

Ocksim Kim

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

ABSTRACT

The Impact of North Korean Defector Mothers' PTSD symptoms on their Adolescent Children's Mental Health : Mediating Role of Family Functioning and Adverse Childhood Experiences

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Introduction: North Korean defectors who have resettled in South Korea often experience various severe traumas during their escape process, leading to a high prevalence of post-traumatic stress disorder (PTSD). The emotional and psychological wounds resulting from such trauma can have long-term impacts not only on children's early childhood but also on their physical and psychosocial well-being in adulthood. This study aimed to investigate the effects of PTSD symptoms in North Korean defector mothers on the mental health (depression, anxiety) of their adolescent children by examining the mediating roles of family functioning and adverse childhood experiences (ACEs).

Methods: Employing a descriptive correlational design, this study analyzed paired data from 113 North Korean defector mothers and their adolescent children (aged 12-24) residing in local communities in South Korea. Data from 113 pairs were analyzed. Mothers' trauma experiences,

PTSD symptoms, and perceived family functioning, as well as children's perceived family functioning, ACEs, depression, and anxiety, were the main variables assessed. SPSS version 27.0 and the SPSS PROCESS macro (version 3.5.3) were utilized for statistical analysis. Mediation analysis was conducted using PROCESS macro model 6, based on 5,000 bootstrap samples.

Results: The mean age of North Korean defector mothers participating in this study was 48.6 ± 6.8 years, and they experienced an average of 9.9 ± 4.5 traumas during the defection process. Despite these challenges, only 16.8% (n=19) met the criteria for PTSD and 17.7% (n=20) for Complex PTSD (CPTSD). The perceived family functioning by mothers averaged 2.3 ± 0.5 points, and family functioning was significantly lower in mothers with PTSD or CPTSD compared to those without PTSD symptoms (F=6.234, p = .003). The adolescent children perceived family functioning with a mean score of 2.0 ± 0.4 points, and those with mothers experiencing PTSD or CPTSD expressed significantly worse emotional reactions (F = 3.786, p = .026). The mean number of ACEs reported by the children was 1.1 ± 1.4 (F = 5.811, p = .004), and children of mothers with PTSD or CPTSD reported significantly more ACEs. The depression score was 5.3 ± 6.2 (F = 3.407, p = .037), and the anxiety score was 6.3 ± 7.9 (F = 3.122, p = .048), with significantly higher levels of depression and anxiety observed among children of mothers with PTSD or CPTSD. The results of this study indicate that PTSD symptoms in North Korean refugee mothers did not directly influence their children's depression and anxiety, nor did the reported family functioning by the mothers impact their child's depression and anxiety. However, PTSD symptoms in North Korean refugee mothers were found to indirectly affect their children's depression (β = 2.4117, 95% CI [.9606, 4.2761]) and anxiety (β = 3.1588, 95% CI [1.2689, 5.4724]) through the sequential mediation of perceived family functioning and adverse childhood experiences reported by the children.

Conclusion: This study confirmed that PTSD symptoms in North Korean defector mothers,

resulting from their traumatic experiences, indirectly affect the mental health of their adolescent children. To prevent the intergenerational transmission of trauma among North Korean defectors, it is necessary to provide integrated support that includes not only the mental health of the defectors themselves but also that of their families.

Key words: North Korean defectors, adolescent children, trauma exposure, PTSD symptom, family functioning, ACEs, mental health, depression, anxiety

1. INTRODUCTION

1.1. Background

The intergenerational transmission of trauma refers to the accumulation of emotional and psychological trauma being passed from one generation to the next (Rakoff et al., 1966). This phenomenon occurs when trauma, which lies dormant, is reactivated by similar stimuli and transmitted to the next generation (Dekel & Goldblatt, 2008; Schwerdtfeger et al., 2013; Bezo & Maggi, 2015). Parents with mental health vulnerabilities are known to increase the risk of traumatic experiences in their children's early years, thereby passing their trauma onto their children (Curran et al., 2018). Unresolved trauma in the parent generation can be transmitted to their children, impacting not only their development during childhood but also their physical health and psychosocial well-being into adulthood. This transmission can have long-term effects on offspring (Dekel & Goldblatt, 2008; Bezo & Maggi, 2015; Dalgaard & Montgomery, 2017; Flanagan et al., 2020; Cerdeña et al., 2021).

Approximately 33,000 North Korean defectors have entered South Korea, with women making up about 72% of this population (Ministry of Unification, 2023). North Korean defectors experience various traumas in North Korea, including witnessing public executions, extreme hunger, constant surveillance and threats, and violence (National Human Rights Commission of Korea, 2017). Significantly women may fall victim to human trafficking and sexual violence and may experience unwanted pregnancy and childbirth in the process (Lee & Kim, 2015). The severe trauma experienced by North Korean defectors triggers psychological and social aftermath, such as post-traumatic stress disorder (PTSD) during the resettlement process in South Korean society (Jang &

Lee, 2010; Kim, 2012). Indeed, the lifetime prevalence of PTSD among North Korean defectors is 15.3%, approximately nine times higher than the 1.7% observed among South Koreans (Lee et al., 2018). Continuous exposure to adversities such as famine, forced labor, political repression, and human rights violations in North Korea, along with risks such as repatriation to North Korea during the defection process, leads to prolonged and repetitive trauma exposure, resulting in the development of complex PTSD (CPTSD). Among North Korean defectors, the prevalence of CPTSD has been reported as 30.4% (n = 153) in a recent study (Baek et al., 2022).

As the proportion of women among North Korean defectors increases, the number of children born in North Korea or China is also on the rise. North Korean-born teenagers have similarly experienced hunger, poverty, and separation from a family like their parents, and they have also encountered extreme fear during the defection process and in China (Park et al., 2017; Lee et al., 2020). Even after they arrive in Korea, despite being of the same ethnicity as South Koreans, they continue to perceive cultural differences due to over 70 years of division, experiencing feelings of anxiety, lethargy, sadness, and diminished interest in the future (Korea Hana Foundation, 2022b). On the other hand, children of North Korean defectors born in third countries like China have never faced threats such as repatriation, unlike North Korean-born teenagers. However, they may experience repeated family dissolution and reconstitution throughout the migration. Additionally, they experience difficulties in social communication due to cultural and experiential language differences, identity confusion, and prejudice in schools and workplaces. Young defectors also struggle with physical health, socio-economic status, psychological health, and social integration compared to their South Korean peers due to unstable home environments, such as single-parent households (Go, 2014).

The negative experiences endured by North Korean defectors during the process of defection have been observed to lead to the weakening of family functioning, increased cultural adaptation

stress in unfamiliar societies, and diminished parenting efficacy, subsequently impacting child abuse (Ryu & Yang, 2021c). According to a survey study on child abuse and perpetration behaviors among 129 North Korean defector mothers, the majority of participants reported committing emotional abuse (57.7%), physical abuse (49.0%), and neglect (40.8%) in the past year, with these figures being approximately three times higher compared to South Korean parents (Kim & Ryu, 2016), thus suggesting vulnerability in parenting. Such trauma symptoms can manifest in negative parenting styles, decreased emotional availability of parents, accumulation of family stress factors, and family dysfunction, potentially through unstable attachment. These are indirectly related to the well-being of children (Flanagan et al., 2020). In situations where family functioning is unhealthy, there may be a discrepancy in achieving family goals, difficulties in coping with stress and adaptation, and various problems may emerge during crises (Beavers & Hampson, 2000; Skinner et al., 2000)

Parental trauma increases the risk of adverse childhood experiences (ACEs). Specifically, children who have experienced parental abuse or neglect tend to exhibit symptoms of depression, anxiety, and anger, accompanied by low self-esteem (Kim, 2009; Romens et al., 2015; Kwon & Lee, 2018). Individuals who have experienced at least four or more ACEs are at increased risk of various health issues compared to those who have not experienced ACEs, including smoking, excessive alcohol consumption, health problems, cancer, heart disease, respiratory diseases, engaging in risky sexual behaviors, mental health disorders, and exposure to health risks such as interpersonal and self-directed violence (Hughes et al., 2017). According to epidemiological studies, ACEs have been reported to deteriorate health by accelerating aging, increasing mortality rates even in adulthood (Boscarino, 2008; Anda et al., 2010). Felitti et al. (1998) reported a graded relationship between ACEs and premature mortality, noting that individuals with six or more ACEs have a life expectancy shortened by 20 years compared to those without ACEs.

However, there have been relatively few studies conducted on intergenerational transmission of trauma within domestic contexts so far. Studies conducted have been limited to either the parental or offspring generation, which limits our understanding of the mechanisms through which parental trauma is transmitted to their children (Kim, 2001; Kim, 2019; Lee et al., 2019). Therefore, this study focuses on both North Korean defector mothers and their children. We aim to examine the mediating effects of family functioning and the children's ACEs on the relationship between mothers' PTSD symptoms and the child's mental health. The results of this study will serve as foundational data for the development of nursing interventions and policymaking aimed at preventing intergenerational transmission of trauma and promoting mental health among North Korean defector families.

1.2. Purpose

This study aims to investigate the mediating effects of family functioning and ACEs in understanding the intergenerational mechanisms by which PTSD symptoms in North Korean defector mothers impact the mental health of their children.

1) To identify the direct effects of a mother's PTSD symptoms on their child's mental health.
2) To identify the indirect effects of a mother's PTSD symptoms on their child's mental health mediated by family functioning.
3) To identify the indirect effects of a mother's PTSD symptoms on their child's mental health mediated by ACEs
4) To identify the indirect effects of a mother's PTSD symptoms on their child's mental health mediated by family functioning and ACEs

1.3. Definitions

1.3.1. PTSD symptoms

1) Theoretical definition: PTSD is a psychological response characterized by experiencing severe stress (psychological trauma), which leads to repetitive re-experiencing through dreams or recollections, along with sustained arousal, agitation, insomnia, and difficulties in emotional regulation (APA, 2013). In the revised ICD-11 of 2018, trauma-related disorders were classified into PTSD and CPTSD. CPTSD includes the core symptoms of PTSD as well as additional symptoms reflecting its impact on self-organization, emotional regulation, self-concept, and interpersonal relationships (Cloitre et al., 2018).

2) Operational definition: In this study, PTSD is the score measured by the Intergenerational Trauma Questionnaire (ITQ), developed using the revised ICD-11 criteria (Cloitre et al., 2018). Based on measurement outcomes, the PTSD symptom cluster is defined to include both PTSD and CPTSD groups.

1.3.2. Family functioning

1) Theoretical definition: Family functioning refers to the dynamic interrelatedness of all aspects of a family, functioning as an organism, and the ability to maintain a harmonious family system (Olson et al., 1979; Miller et al., 2000). Healthy family functioning occurs when there is clear communication, well-defined roles, cohesion, and good affect regulation within the family environment. In contrast, poor family functioning is characterized by high levels of conflict, disorganization, poor affective and behavioral control, and difficulty adjusting to new routines (Lewandowski et al., 2010).

2) Operational definition: In this study, family functioning is the score of the McMaster Family Assessment Device (FAD) scale, where higher scores indicate lower levels of family functioning (Miller et al., 1986).

1.3.3. Adverse Childhood Experience: ACEs

1) Theoretical definition: ACEs refer to traumatic events experienced before the age of 18, including all types of abuse and neglect, such as parental substance abuse, incarceration, and domestic violence. It also encompasses severe family dysfunction, such as having a parent with a mental illness or experiencing parental divorce, and stress related to exposure to violence (CDC, 2021; Slikkers & Pena, 2021).

2) Operational definition: In this study, ACEs indicate the score measured by the ACEs scale developed by Felitti et al. (1998). A higher score indicates a higher level of ACEs.

1.3.4. Adolescent Child's Mental Health

1) Theoretical definition: Adolescent mental health is a complex and multifaceted issue influenced by a range of factors, including genetic vulnerability, neurobiological changes, and psychosocial stressors (Paruk & Karim, 2016). Emotional disorders such as depression and anxiety are common among adolescents (WHO, 2021).

2) Operational definition: In this study, the mental health means depression and anxiety levels of North Korean defector children. Depression is assessed using the Mental Health Screening for Depressive Disorders (MHS-D) scale developed by (Park et al., 2022). Anxiety is measured using the Mental Health Screening for Anxiety Disorders (MHS-A) scale developed by (Kim et al., 2021).

2. LITERATURE REVIEW

2.1. Posttraumatic stress disorder: PTSD

According to the DSM-5 (Diagnostic and Statistical Manual of Mental Disorders, Fifth edition, 2013), traumatic events are defined as experiences involving actual or perceived threats of death, serious injury, or sexual violence. This includes not only directly experiencing or witnessing trauma but also learning about traumatic events experienced by close family members or close friends, as well as repeated or extreme exposure to disturbing details, which is known as secondary trauma (Choi, 2017).

Traumatic events can be experienced as either single (acute) or repetitive (chronic) occurrences (APA, 2000), and individuals may initially exhibit symptoms of Acute Stress Disorder (ASD) in response to experiencing traumatic events, with symptoms sometimes resolving over time. Symptoms resulting from trauma involve long-term changes in physiological arousal, emotions, memory, and cognition (Dye, 2018). Traumatic events, which induce extreme stress or distress in individuals, can result in physical, emotional, and psychological shock, potentially causing long-term impacts on an individual's daily life (APA, 2013). Individuals who experience traumatic events often suffer from mental health issues such as PTSD, depression, and anxiety (Spinhoven et al., 2014).

In the WHO's ICD-11 (International Classification of Diseases, 11th revision) published in 2018, PTSD is classified into primary type and complex type. PTSD includes six symptoms across three categories: re-experiencing (flashbacks/intrusive solid memories, nightmares), avoidance

(avoidance of thoughts and emotions, avoidance of places, people, and activities), and hyperarousal (startle response, hypervigilance). CPTSD is defined as Disturbances in self-organization that may arise from chronic or repeated exposure to multiple traumas, which are difficult or impossible to escape, such as childhood abuse, domestic violence, or captivity during the war (Maercker et al., 2013). CPTSD, along with the primary type of PTSD, encompasses difficulties in emotion regulation (hyperarousal, hyporarousal), negative self-concept (feelings of worthlessness, shame/guilt), and challenges in relationships (difficulty feeling closeness, indifference towards relationships or social involvement) (Cloitre et al., 2018).

2.2. Trauma and Intergenerational Transmission

The transmission of psychological, social, or behavioral traits from one generation to the next is called "intergenerational transmission" (Kellermann, 2001). Research on the intergenerational transmission of trauma began in the 1970s, focusing on Holocaust survivors and their children, who did not directly experience the trauma and stemmed from clinical observations of significantly increased mental health issues among these children (Danieli, 2013; Weiss & Weiss, 2000; Kellermann, 2001). Intergenerational traumatization, or parent-to-child transmission of trauma (Prager, 2003), is the process whereby those close to a trauma survivor develop psychological distress symptoms similar to those of the survivor (East et al., 2018). Despite not directly experiencing the same trauma as their parents, offspring exhibited more pronounced symptoms of mental illness compared to their parents and were characterized as survivors encountering qualitative trauma (Kelstrup & Carlsson, 2022; Bolhuis et al., 2023). Many studies have suggested that the effects of traumatic events can be transmitted through generations within families.

Intergenerational trauma has now been documented in descendants of survivors exposed to a variety of atrocities, including "the troubles" in Northern Ireland (Downes et al., 2013; Fargas-Malet & Dillenburger, 2016), Japanese American internment camps (Nagata & Cheng, 2003), the Israel-Palestine conflict (Atallah, 2017), Genocide against the Tutsi in Rwanda (Uwizeye et al., 2021), Cambodia refugee Offspring of Survivors of the Japanese Military Sexual Slavery (J. Lee et al., 2018; Lee et al., 2019), Korea Jeju 4.3 (Koh, 2018) and more broadly, the historical trauma perpetrated against Indigenous communities in Canada and the U.S. (Ehlers et al., 2013; O'Neill et al., 2018; Matheson et al., 2022). Intergenerational trauma has also been documented in families of refugees (Dalgaard & Montgomery, 2015; Flanagan et al., 2020; Sangalang & Vang, 2016) and combat veterans (Dekel & Goldblatt, 2008; O'Toole et al., 2017; O'Toole, 2022; Gitau et al., 2023).

The evidence of intergenerational traumatization has primarily been substantiated by assessing the adjustment difficulties experienced by children of traumatized parents (Sangalang & Vang, 2017). Initially studied among the offspring of Holocaust survivors, reports indicated that such children struggled with issues related to separation, depression, and aggression (Van IJzendoorn et al., 2003). Children of Holocaust survivors with PTSD were found to have a strong association with the development of PTSD themselves despite not experiencing the trauma directly. Additionally, parents who were exposed to trauma but did not develop PTSD were strong predictors of lifelong depressive disorders in their children (Yehuda et al., 2001). Similarly, the children of war veterans with PTSD exhibit behavioral problems such as aggression, delinquency, and hyperactivity (Dekel & Hadass Goldblatt, 2008). More recently, among the offspring of refugees, parental experiences of torture (Daud et al., 2005; Sangalang & Vang, 2017) and, Separately, parents' PTSD symptoms (Daud et al., 2008; Van Ee et al., 2012) have been found to correlate with children's psychological distress, internalizing issues, and hyperactivity.

The intergenerational transmission mechanisms of trauma are explained through biological, psychodynamic, sociocultural, and family system models (Kellermann, 2001; Lehrner & Yehuda, 2018).

2.2.1. Biological model

Trauma also has long-term effects on the neurochemical response to parental stress, which can lead to biological vulnerability and be transmitted to children (Van der Kolk et al., 2012; Leen-Feldner et al., 2013). Mechanisms like DNA methylation and histone modifications are implicated in the intergenerational transmission of trauma effects through epigenetic regulation of gene expression (Nie et al., 2022). Research has found lower levels of cortisol (a stress hormone) and altered methylation patterns in genes like NR3C1 (glucocorticoid receptor) and FKBP5 (regulates glucocorticoid receptor function) in children of Holocaust survivors with PTSD, especially when the mother experienced trauma (Yehuda & Lehrner, 2018; Nie et al., 2022). Maternal trauma during pregnancy can influence the offspring through epigenetic alterations, potentially via effects on the intrauterine environment or fetoplacental interactions. Offspring effects may be mediated by epigenetic changes in parental germ cells (sperm/eggs) resulting from acquired parental stress exposures, affecting fetal development in utero and the offspring's later phenotype. These epigenetic changes mirror those seen in traumatized parents.

Children of Holocaust survivors with PTSD had lower cortisol levels even in the absence of PTSD and were vulnerable to PTSD (Rachel Yehuda et al., 2001). In children of Holocaust survivors, dysregulation of the hypothalamic-pituitary-adrenal axis was observed, and there was a significant difference compared to children of parents without PTSD (Yehuda et al., 2007; Lehrner et al., 2014;

Yehuda et al., 2014). For example, children of mothers who have experienced trauma have exhibited changes in stress-related hormone levels, such as cortisol, even during infancy before any direct exposure to trauma. Furthermore, neuroimaging studies have identified structural and functional differences in the brains of infants born to mothers who experienced childhood emotional neglect.

2.2.2. Psychodynamic model

In the psychodynamic model, parents who have experienced trauma exhibit behaviors and emotional responses such as increased anxiety, depression, or difficulties in emotional regulation. Through non-verbal behaviors and the unconscious reenactment of fear and sadness, PTSD symptoms are expressed outwardly, and these behaviors may influence the emotional environment in which the child grows up. Children involuntarily experience negative experiences similar to their parents, and they unconsciously absorb the undifferentiated development of self and others and their parents' suppressed or unresolved experiences (Barocas & Barocas, 1980; Kestenberg, 1980; Kellermann, 2001). Many studies have documented the connection between parental trauma and the next generation's mental health. In Rwanda, during the civil war that occurred from 1990 to 1994, 800,000 people lost their lives in just 100 days. Children born after 1994 were found to suffer from the same anxiety and obsessive preoccupations as their parents' generation despite not directly They were witnessing the tragedy (Kagoyire et al., 2020). Adult children of American Vietnam War veterans with high combat exposure scored significantly higher on trait anxiety and PTSD symptoms compared with adult children of veterans with low combat exposure (Suozzia & Motta, 2004). Adult children of Holocaust survivors were more likely to have mood or anxiety disorders in their lifetime and slightly more likely to have a substance abuse disorder than demographically matched adults (Yehuda et al., 2008). The trauma-related distress of Vietnamese and Cambodian refugee

parents residing in the United States was indirectly linked to the mental health outcomes of their children and family functioning (Sangalang & Cindy Vang, 2017). Refugee parents from Southeast Asia have had negative impacts on their children, including psychological distress, burden, abuse, and neglect. Additionally, children born abroad, compared to those born in the United States, exhibited higher levels of post-traumatic stress, depressive symptoms, anxiety, attention deficits, and psychosocial stress following trauma. For all children, weaker family functioning was significantly associated with poorer mental health.

2.2.3. Sociocultural model

Compared with psychoanalytic theories focusing on unconscious and indirect influences, Sociocultural and Socialization models emphasize parents' conscious and direct effects on their children (Kellermann, 2001). Social and cultural mechanisms are associated with how parents who have experienced trauma interact with their children. They are transmitted through learning during the upbringing process, where observation, imitation, and acquisition of social norms, such as understanding of self and the world, are involved (Kellermann, 2001). Mothers who have experienced trauma may communicate their trauma to their children through various means, including hostile language, physical oppression, and authoritarian parenting styles (Schwerdtfeger et al., 2013; Dalgaard & Montgomery, 2017; Flanagan et al., 2020).

Children learn from their immediate environment, including parents and family members who may have experienced trauma. Some studies have highlighted specific behavioral patterns among the children of Holocaust survivors, including excessive protection from their parents, a high need for control, an obsession with the Holocaust, and immature dependency (Dashorst et al., 2019). According to Faye Sholiton (2018), parents who survived the Holocaust tended to overprotect their

children to prevent them from experiencing the suffering associated with the Holocaust, such as pain, fatigue, anxiety, and starvation, after enduring the trauma themselves (Plunka, 2018). While children sensed their parents' overprotection, they could not be sure of the source of their anxiety since their parents remained silent about the trauma. Survivors hesitated to talk about the Holocaust because they could not find the words to convey such immense trauma to their children.

Moreover, parents' emotional attachment deficits towards their children typically create a pathological environment within the family. As a result of emotional depletion, parents often could not enjoy family events with their children, leading to social isolation of the family from others (Davidson, 1980). Disrupted attachment and impaired parent-child relationships, often stemming from the caregiver's trauma, can contribute to the cycle of trauma across generations (O'Neill et al., 2018). Intergenerational transmission of trauma is believed to occur through the effect of trauma on parents' ability to function as a caregiver and parents (Daud et al., 2005), as well as through role modeling, where the child observes and imitates maladaptive behaviors exhibited by a traumatized parent (Dekel & Hadass Goldblatt, 2008). Indeed, these parenting behaviors risk interfering with young children's development (Blankers, 2013; Angela J Narayan et al., 2021). Traumatic experiences can significantly impact parenting styles, often leading to an increase in authoritarian and permissive parenting approaches (Maru et al., 2023). Research indicates that mothers who have experienced childhood trauma tend to exhibit higher levels of verbal hostility, physical coercion, and control toward their children while displaying lower levels of nurturance and consistency in their parenting (Bakhitova, 2014). Mainly, negative experiences encountered during the defection process have been found to weaken family functioning, induce cultural adaptation stress in an unfamiliar society, and reduce parental self-efficacy, ultimately influencing the occurrence of child abuse (Kim & Ryu, 2016; Ryu & Yang, 2021a).

2.2.4. Family system model

The role of families is crucial in child development and the intergenerational transmission of trauma (Curran et al., 2018). The intergenerational transmission of trauma through family systems is explained by complex patterns intertwined with nonverbal and ambiguous communication, difficulties in differentiation, and separation, including silence (Kellermann, 2001; Isobel et al., 2019). Family functioning includes child-rearing, family relationships, and communication patterns, and it was associated with maladaptive patterns of communication and other interpersonal processes with Holocaust survivor parents (Wiseman, 2008). Additionally, there was a higher lifetime prevalence of PTSD, mood, and anxiety disorders and a higher likelihood of experiencing emotional abuse and neglect (Sangalang & Vang, 2017).

In Israeli military veteran families, maternal trauma was found to be transmitted to adult children, while paternal trauma was not. This was attributed to mothers being the primary caregivers and spending more time with the children, contributing to their influence in parenting (Bachem et al., 2018). When fathers had PTSD, children perceived that their fathers were unable to fulfill their paternal roles. Thus, it was presumed that mothers had a more significant impact on their children's mental health (Dekel et al., 2005). Parental overprotection, rejection, and role-reversal parenting among Khmer Rouge genocide survivors mediated the relationship between parental trauma and children's depressive and anxiety symptoms, with maternal overprotection particularly influencing children's depression (Field et al., 2011). Refugee parents reported feeling more impatient, irritable, and less tolerant in their interactions with their children when their PTSD symptoms were more severe, experiencing feelings of guilt and regret afterward (Dalgaard & Montgomery, 2017). In refugee family systems, addressing feelings of guilt, personal inefficacy, and social isolation was deemed necessary, with issues of role reversal and role ambiguity also identified.

2.3. Intergenerational transmission of trauma research in South Korea

In South Korea, a qualitative study investigating intergenerational transmission of trauma in families of the victims of the 5.18 Democratic Uprising targeted both the first (Victim's family) and second (Victim's children) generations (Kim et al., 2011). The first generation, despite not directly experiencing the events, still identified with the victims and exhibited characteristics resembling those of survivors. They also displayed cultural trauma characterized by the repeated reenactment of traumatic events during the truth-finding process. The second generation witnessed their parents' absence and suffering and experienced trauma as a result. Throughout their growth, they were influenced by the lack of care, economic difficulties, domestic violence, emotional abuse, and career choices, leading to feelings of denial and anger toward the 5.18 incident.

Children of firefighters, who often experience trauma due to the nature of their profession, may undergo secondary traumatic experiences. This can lead them to suppress their emotions and avoid expressing their feelings to their parents out of fear of parental loss, creating emotional distance in their relationship with their parents. As a result, children may experience various forms of negative experiences, such as depression, emotional avoidance and detachment, and distrust towards others, which can evoke feelings of guilt in them (Kim & Kim, 2021).

The descendants of survivors of the "Comfort women," who were sexual slaves of the Japanese military during World War II, were found to suffer from at least one or more mental disorders, including major depressive disorder, panic disorder, post-traumatic stress disorder, adjustment disorder, insomnia disorder, somatic symptom disorder, and alcohol use disorder. Participants exhibited similar levels of shame and hypervigilance in response to stimuli related to the 'Comfort women' issue as their mothers did (Lee et al., 2019).

In a study involving 463 mother-child dyads in the Jeju region, the prevalence of psychiatric disorders in offspring varied according to mothers' ACEs scores. Specifically, social anxiety disorder, separation anxiety disorder, generalized anxiety disorder, post-traumatic stress disorder, eating disorder, major depressive disorder, attention deficit hyperactivity disorder, oppositional defiant disorder, and conduct disorder exhibited significant differences based on maternal ACEs total scores. Notably, the prevalence of any psychiatric disorder in offspring was significantly higher in mothers with three or more ACEs compared to those without ACEs (64.7% vs. 35.8%). Household dysfunction was the most prevalent among the ACEs domains at 26.8%. In mediation analysis, household dysfunction influenced the comorbidity of offspring's psychiatric disorders through maternal depression (Kang et al., 2022).

2.4. Trauma of North Korean defectors

In the 1990s, North Korea suffered significant damage in agriculture and industry due to consecutive natural disasters and the collapse of socialist countries. Severe food shortages and epidemics led to numerous casualties and illnesses across the entire region of North Korea (Lee, 2006). Free mobilization between provinces, cities, and counties in North Korea is prohibited domestically. Despite strict political measures regarding access to and movement along the North Korea-China border, many North Korean residents who have been unable to find a way to sustain themselves in North Korea have escaped to neighboring China due to its geographical proximity. In the mid-1990s, as state distributions ceased and the traditional role of men as family providers became meaningless, the practical role of head of household was shouldered mainly by women (Kim, 2014). Since the 2000s, various external information has been flowing into North Korea, leading to a gradual increase in family defections, where families leave North Korea together for the future of

their children, departing from the closed-off country (Park, 2002; Korea Institute for National Unification, 2010; Rue & Park, 2022). Generally, refugees are reported to face a higher risk of sexual violence and gender-based violence in their home country, transit countries, or host countries (Freedman, 2016; Block et al., 2022), with women being particularly vulnerable to these influences (Vallejo-Martín et al., 2021). Refugee women are often placed in more conducive environments for settlement in transit or refuge areas compared to men (Cheung & Phillimore, 2017), and North Korean women, too, found it relatively easy to establish residency through employment and marriage in China. However, China does not recognize the refugee status of North Korean defectors, forcing them to live under constant threat to their safety. If discovered by Chinese police and repatriated to North Korea, they undergo investigation by the State Security Department for ideological verification. They may be subjected to forced labor in labor training camps or, in some cases, sent to labor reeducation camps or political prisoner camps, where they may receive sentences of one year or more or even life imprisonment (Korea Institute for National Unification, 2013; Kim, 2019).

North Korean defectors who arrive in South Korea have often experienced witnessing the death of family members or close associates, hunger, torture, or violence while residing in North Korea. During their defection process, they undergo experiences such as separation from family, unexpected surveillance, the risk of arrest, human trafficking, and sexual violence (Kang, 2001; Yoon et al., 2007; Kim, 2012). In a study conducted by Kim (2012) at Hanawon, a settlement education institution for North Korean defectors in the early stages of settling in South Korea, 81.4% of respondents reported experiencing one or more traumas, while those who experienced four or more traumas showed significant differences in symptoms of PTSD, CPTSD, and depression compared to those who experienced no trauma or 1-3 traumas (Kim, 2012). North Korean defectors residing in local communities reported experiencing an average of 8.9 traumas, and trauma symptoms

measured by the ITQ (International Trauma Questionnaire) indicated that among the total 503 individuals, PTSD was identified in 34.8%, and CPTSD in 30.4% (Baek et al., 2022).

The common mental disorders observed among North Korean defectors include PTSD, anxiety, and depression (Kim, 2010), along with somatic symptoms such as difficulty breathing, palpitations, and neurological symptoms (Ahn et al., 2007; Lee et al., 2012). The prevalence of insomnia was over four times higher, at 38%, compared to 9% among South Korean residents (Lee et al., 2016). Depressive symptoms are the most common symptoms occurring after experiencing trauma (Shalev et al., 1998), and along with PTSD, depression, anxiety, alcohol abuse, and somatization disorders are primary comorbid conditions. It has been observed that major depressive disorder co-occurs in 52% of cases when PTSD is present (Rytwinski et al., 2013). From 2010 to 2018, based on data from the National Health Insurance Corporation, the disease burden among North Korean defectors was highest for major depressive disorder at 10.2%, followed by lower back pain at 7.4%, osteoarthritis at 6.7%, and liver cirrhosis at 5.6%. The top three diseases accounted for 24.3% of the total disease burden among North Korean female defectors (Kim et al., 2021).

Generally, women have a PTSD prevalence rate that is more than twice as high as men's (Brewin et al., 1999), and when accompanied by depressive symptoms, they are at a higher risk of suicide (Oquendo et al., 2005). In a meta-analysis study on PTSD, depression, and anxiety among North Korean defectors, PTSD showed a solid and significant association with depression and anxiety, with a higher impact of comorbidity in adults compared to adolescents (Taylor et al., 2017). Risk factors for suicide among North Korean defector women include trauma experiences, social exclusion and discrimination (Nam & Shin, 2022), daily life stress (Kim et al., 2013), and spousal violence (Cho, 2021), with women having more suicidal ideation compared to men (Kim et al., 2013; Kim & Chung, 2015).

North Korean defectors reported that 59.8% experienced stress in their daily lives, and 11.9%

reported experiencing suicidal impulses (Korea Hana Foundation, 2022a). This is more than twice the rate of 5.2% among South Korean residents (Korea National Statistical Office, 2020), with reasons for suicidal impulses including physical and mental illness or disability (32.7%), economic difficulties (22.4%), loneliness and isolation (12.8%), and family discord (11.4%). Considering that 60.2% of the subjects who have resided in South Korea for an average of over ten years are a high proportion, it suggests that North Korean defectors continue to face ongoing challenges in their lives.

The mental health issues and psychological distress resulting from trauma persist for a long time and have long-term effects not only on individuals but also on the health and psychosocial well-being of families and future generations (Weine et al., 2004; Dekel & Hadass Goldblatt, 2008). Therefore, it is necessary to identify various health problems that can occur among North Korean defectors not only at the individual level but also within families and across generations at an early stage.

2.5. Mental health of North Korean defector Children

As the proportion of North Korean defector women in South Korea has increased, the number of school-aged children born in North Korea and China has also increased (Jung, 2013). The children of North Korean defectors can be classified into those born in North Korea, those born in third countries, and those born in South Korea, with children born in North Korea and third countries such as China falling within the scope of "North Korean defector youth." (Kim, 2018). According to a survey of North Korean defectors, the percentage of respondents who reported raising school-aged children varied by age group: 9.0% among those in their 20s, 51.3% among those in their 30s, 68.4% among those in their 40s, 37.9% among those in their 50s, and 12.2% among those in their 60s (Korea Hana Foundation, 2021). The majority of mothers of North Korean adolescent defectors

are from North Korea (94.9%), while for fathers, a significant proportion (89.7%) are from China. Since around 2015, there has been an increase in the proportion of children born in third countries due to factual marriages or human trafficking in China compared to those born in North Korea. According to a report in April 2021, among the 2,287 adolescent defectors enrolled in primary, middle, and high schools, 1,498 (65.5%) were born in third countries, while 789 (34.5%) were born in North Korea (Korean Educational Development Institute, 2021).

North Korean adolescent defectors are vulnerable to mental health issues and family conflicts due to family dissolution during the defection process, precarious hiding in third countries, and psychological trauma. Upon entering South Korea and residing in resettlement institutions such as Hanawon, 21.1% of North Korean children aged 7-14, they displayed severe symptoms of PTSD (Lee et al., 2011). Previous studies have reported that North Korean adolescent defectors experience various mental health issues, including PTSD (Choi et al., 2011; Lee et al., 2012; Park et al., 2017). A study comparing and analyzing the behavior of 102 students (aged 13-22) in alternative schools for North Korean defectors with that of typical South Korean students found significant differences in internalized problems related to emotional behavior, including depression/anxiety, learning, and social issues (Lee et al., 2012). In a survey of anxiety and depression among 108 North Korean adolescent and young adult defectors aged 12-29, moderate to severe anxiety was reported by 22.2%, and depression by 14.8%, with these findings correlating with a decline in quality of life (Choi et al., 2011). In a 2022 survey on the realities of North Korean adolescent defectors, 13.5% reported experiencing daily stress frequently, while 68.7% stated they saw no need to disclose their North Korean origins, with concerns about discrimination being the most prominent reason cited (Korea Hana Foundation, 2022b). In local communities, North Korean defector mothers raising their children often choose not to disclose their status as North Korean defectors to successfully settle in South Korean society without facing discrimination (Hong

et al., 2010; Lee et al., 2012; Lee, 2017; Lee et al., 2022).

The children of North Korean defectors born in third countries such as China were not at risk of being repatriated to North Korea. However, they experienced attachment deficits with their parents due to witnessing their mother's forced repatriation process or unstable family situations during their upbringing. Some were also stateless despite being born in China (Lee & Kim, 2015; Kim & Kim, 2020). They came to South Korea at their mother's invitation. Still, due to prolonged separation from their parents and subsequent reunification, they are at a high risk of growing up in an unstable caregiving environment (Lee & Lee, 2013). Conflicts between parents and children spanning North Korea, China, and South Korea often arise due to differences in expectations shaped by the duration of separation lived over several years. If family conflicts are not resolved, situations may arise where parents and children cannot live together (Lee & Jeon, 2021). During the migration process, they repeatedly experience the dissolution and reformation of their families, leading to various issues such as family instability, language barriers, school adjustment problems, difficulties in communication with friends and teachers, and identity confusion. In comparative studies of the mental health of North Korean-born children and third-country-born North Korean defector children, quantitative research has shown higher levels of depression among North Korean-born adolescents. However, qualitative research has indicated that third-country-born children experience higher levels of depression (Kim, 2019). Furthermore, it is recognized that the depression of North Korean defector parents affects their children's depression, social relationships, and school adaptation (Yu & Kim, 2021).

Through a review of the literature, it was found that, like North Korean defectors, the mental health of their children is also vulnerable. While there have been previous studies on the mental health of children based on The parenting behaviors of North Korean defector parents, these studies relied solely on parental reports (Kim et al., 2024). To evaluate the mental health of children and

adolescents and explore intervention strategies, it is essential to directly inquire with the children or adolescents themselves rather than solely relying on reports from family members or other caregivers (Kagan, 1984; McHale & Irace, 2011; Scully et al., 2020).

2.6. Family functioning and Mental health

Families are the basic unit of society and crucial environments for individuals' physical and psychological development. Simultaneously, they influence the growth of all members and play an essential role in the smooth functioning of societal systems (Dai & Wang, 2015). According to family systems theory, a balanced family system possesses the resources and skills to cope with crises and respond appropriately and effectively (Beavers & Hampson, 2000; Olson, 2000). Family functioning involves addressing issues or conflicts, understanding stressors, and formulating coping strategies, which can help approach problems within the family unit (Francisco et al., 2016; Cong et al., 2020). In essence, healthy family functioning entails dynamic relationships where family members interact, maintain relationships, resolve issues, communicate, and care for each other together (Alderfer et al., 2008; Eshagh Afkari et al., 2013; Dalgaard et al., 2016). Meanwhile, Epstein et al. (1978) emphasized that when families fail to fulfill their essential functions, various problems can arise, particularly during crises. They suggested that more attention should be paid to achieving family functioning (Epstein et al., 1978; Ye et al., 2022).

The experience of parental trauma can directly influence the quality of family relationships, communication patterns, and parenting behaviors, thereby shaping a hostile family environment (Sangalang & Vang, 2017). Children of parents with a history of trauma, such as Holocaust survivors, are more likely to experience damaged family systems, which impedes the development of effective coping strategies and increases the risk of mental health issues like

depression and anxiety disorders (Fossion et al., 2015). Traumatized parents may struggle with mentalization (understanding their child's thoughts and feelings), leading to insecure attachment and affecting the child's sense of trust and emotional regulation (Fitzgerald et al., 2020). Low-income family functioning, including impaired parenting ability, low-quality parent-child relationships, and dysfunctional family dynamics, can increase the risk of transmitting trauma from parents to children (Reese et al., 2022; Ciydem et al., 2023). The suffering caused by trauma in Southeast Asian refugee mothers residing in the United States has been indirectly associated with their children's mental health through family functioning. Family functioning showed significant associations with children's depressive symptoms, antisocial and delinquent behaviors, and increased school-related problems (Sangalang & Vang, 2017). In a study involving three generations of mothers and granddaughters, characteristics such as childhood trauma, mental health issues, and family functioning were examined (Ciydem et al., 2023). It was found that higher levels of emotional abuse experienced by the first-generation grandmothers significantly increased emotional abuse levels in the third generation (grandchildren). This association was linked to witnessing physical violence and parenting styles within the family environment.

Promoting healthy family functioning is critical to interventions aimed at disrupting the intergenerational transmission of trauma. Family cohesion and resilience are significant protective factors against depression among North Korean refugees in South Korea. A study involving 304 adult North Korean refugees found that family cohesion was significantly associated with lower levels of depression, and this relationship was partially mediated by resilience. In cases of clinical depression, resilience fully mediates the relationship between family cohesion and depression (Nam et al., 2016). Parents and children, due to their differing developmental stages and levels, often hold varying perspectives on family functioning (Izzo et al., 2022). Furthermore, given the diversity in family characteristics and situations, family functioning factors can impact children's lives

differently, such as their mental health, social adaptation, and academic achievement (Stanescu & Romer, 2011; Kim et al., 2024). Therefore, assessing family functioning individually for parents and children is necessary to understand how family dynamics contribute to children's well-being (Ekas et al., 2016). Positive family health and resilience-building interventions aimed at improving family functioning could help break the cycle of intergenerational trauma transmission (Mew et al., 2022).

2.7. Adverse Childhood Experiences and Mental health

ACEs were potentially traumatic events in childhood (0-17 years) (Felitti, 2009). ACEs can include violence, abuse, and growing up in a family with mental health or substance use problems. ACEs are closely associated with children's mental health (Kim et al., 2007), playing a significant role in the onset and persistence of mental health problems during childhood and adolescence (Felitti et al., 1998; Miller-Lewis et al., 2013). When ACEs accumulate chronically, they lead to detrimental health outcomes, exacerbating health issues into adulthood and even old age, thereby increasing mortality rates (Boscarino, 2008; Anda et al., 2010; Bellis et al., 2016; Kim, 2017; Hughes et al., 2018). According to previous research, ACEs not only vary quantitatively but also qualitatively in terms of their types, leading to different health outcomes associated with trauma experience (Lanier et al., 2018).

Parental PTSD poses unique and additive risks for child ACEs over and above other parental mental health problems such as depression and anxiety (Chemtob et al., 2013). Children of mothers with PTSD are exposed to more traumatic events. Children of parents who have experienced trauma are indeed more likely to face negative childhood experiences. Children of traumatized parents may grow up in an environment shaped by their parent's trauma reactions and coping mechanisms. For example, parents with PTSD may be emotionally unavailable, neglectful, overprotective, or even

abusive, creating ACEs for the child (Lünnemann et al., 2019; Negriff, 2020). This can lead to the development of insecure attachment patterns, emotional dysregulation, and other psychological issues in the child. Specifically, children of parents affected by trauma, such as refugees seeking treatment, have a significantly higher hazard of experiencing various ACEs compared to the general population, including parental death, mental illness, substance use disorders, and living in poverty, highlighting the added challenges these children may encounter (Elsenburg & Taylor-Robinson, 2022).

Based on a study utilizing data from 'The 2010 Domestic Violence Survey of South Korea,' it was found that North Korean refugee women exhibited perpetration of child abuse behaviors in the past year, including emotional abuse (57.7%), physical abuse (49.0%), and neglect (40.8%) (Kim & Ryu, 2016). Furthermore, experiencing parental abuse during childhood was associated with the perpetration of child abuse behaviors, and spousal violence victimization exacerbated the relationship between these two variables. Children of North Korean refugees suffered higher rates of neglect and physical and emotional abuse than South Korean children. That depression was a risk factor for the perpetration of abuse (Kim et al., 2012). North Korean-born adolescents experienced a higher prevalence of abuse in their homes, schools, and local communities compared to adolescents born to mothers who were victims of human trafficking in China (Emery et al., 2015). Factors influencing parental child abuse by North Korean refugees residing in South Korea were categorized into three: the weakening of family functions due to past experiences before and after defection, stress from adapting to the unfamiliar culture of South Korean society, and low parenting self-efficacy (Ryu & Yang, 2021b). In a study comparing the extent of organizational violence, domestic violence, and related psychopathology among North Korean youth residing in South Korea with their South Korean counterparts, it was found that experiences of family violence were

significantly more common among North Korean youth compared to the South Korean sample (56.5% vs. 33.8%, $p = .01$). Moreover, 35.5% of the North Korean sample reported experiencing two or more types of family violence, whereas 23% of the South Korean sample reported experiencing two or more type (Park et al., 2019).

Through the above literature review, it was found that North Korean defectors experience various traumas during the defection process, and trauma affects not only mental health but also family functioning and child-rearing. The mental health of both defective adolescents and children born in China is also vulnerable, indicating significant adverse impacts from parents. North Korean defectors constitute the population that has experienced the most trauma among those currently residing in South Korea. While numerous studies have been conducted on their mental health issues, research on whether parental trauma affects the mental health of their children has not yet been undertaken. Therefore, in this study, we aim to investigate the relationship between trauma after defection experienced by North Korean defector mothers and their children's mental health by including both mothers and children as research subjects and analyze the mediating effects of family functioning and ACEs of children.

3. CONCEPTUAL FRAMEWORK

3.1. Theoretical framework

To explain the relationship between post-traumatic stress in North Korean defector mothers and the mental health of their children, Sangalang et al.'s (2017) conceptual model of the transmission of risk to children of refugee mothers was applied in this study. In this conceptual model, social psychological mechanisms consist of parent-child relationships, parenting behaviors, and family functioning, and these mechanisms explain the relationship between maternal traumatic distress and children's mental health (Figure 1).

The trauma experienced by parents can be transmitted to children who have not been directly exposed to the same trauma as their parents (Danieli, 2013; Weiss & Weiss, 2000). The trauma experienced by parents can directly influence the quality of family relationships, communication patterns, and parenting behaviors, shaping the overall family dynamics. This serves as substantive evidence of intergenerational transmission of trauma (Sangalang et al., 2017).

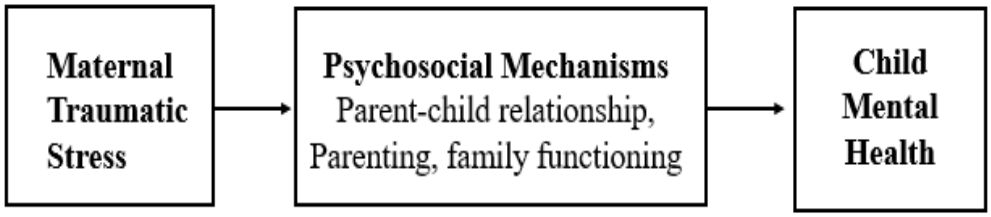

Figure 1. Conceptual model of the transmission of risk to children of refugee mothers (Sangalang et al., 2017)

3.2. Conceptual framework of this study

This study aims to explain the impact of post-traumatic stress in North Korean defector mothers on their children's mental health. In this study, family functioning is established as a psychosocial mechanism to explain the relationship between post-traumatic stress in North Korean defector mothers and their children's mental health. According to family systems theory, a family is an organic organization composed of more than one person, characterized by various subsystems based on the number of members, gender, generations, interests, and other factors. Within each subsystem, members fulfill unique roles (Miller et al., 2005) and closely influence one another (Cox & Paley, 2003).

Epstein et al. (1978) and Skinner et al. (2000) emphasized that when a family fails to perform its fundamental functions, various problems can arise during crises. They suggested that more attention should be paid to the processes of family functioning (Ye et al., 2022). Deterioration in family functioning is known to be significantly associated with worsening mental health in children, including increased depression, antisocial behavior, delinquency, and school problems (Sangalang & Vang, 2017).

Furthermore, Various adverse experiences during childhood are significant factors in the onset and persistence of mental health problems in both childhood and Children of mothers with traumatic experiences have been reported to exhibit higher frequencies of depression, anxiety, and aggressive behavior (Morimoto & Sharma, 2004; Kouros et al., 2008; Lindsey et al., 2009). Adverse experiences during childhood before the age of 18 increase the risk of mental health issues such as depression, anxiety, and alcohol abuse (Flaherty et al., 2006; Kim, 2017).

Thus, the children's ACEs are included as a mediating variable. ACEs for children encompass physical, emotional, and sexual trauma, as well as familial and adverse environmental factors. At

the same time, family functioning includes problem-solving, communication, family roles, affective responsiveness, affective involvement, behavior control, and general functioning. In the current model, the mother's post-traumatic stress was assessed based on ICD-11 PTSD or CPTSD. The children's mental health was evaluated through measures of depression and anxiety.

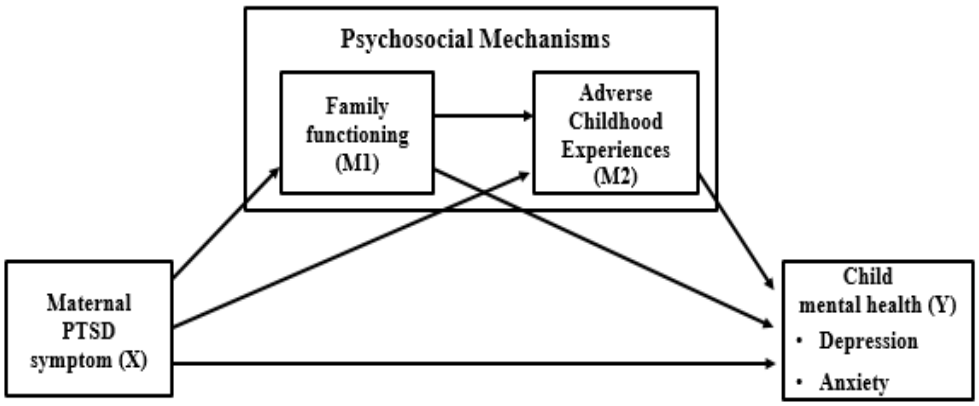

Figure 2. Conceptual model of this study

4. METHODS

4.1. Research design

This descriptive cross-sectional study examined the association between North Korean defector's Mothers' PTSD symptoms, family functioning, ACEs, and Children's Mental health.

4.2. Research questions and hypotheses

Research question 1: Does mothers' PTSD symptoms predict a child's mental health?

Research question 2: Does family functioning mediate the relationship between mothers' PTSD symptoms and children's mental health?

Research question 3: Does ACEs mediate the relationship between mothers' PTSD symptoms and children's mental health?

Research question 4: Does family functioning and ACEs mediate the relationship between mothers' PTSD symptoms and children's mental health?

4.3. Participants

The study included the children of North Korean defectors, encompassing individuals born in North Korea, China, or other third countries, as well as those born in South Korea. The age range was typically from 12 to 24.

Inclusion criteria:

1) Mother: ① North Korean defector mothers aged 19 years or above
   ② Children aged 12 to 24 must be present
2) Children: ① The children of North Korean defector mothers participating in the survey
   ② Included are those born in North Korea, China, or any other third country, as well as South Korea.

Exclusion criteria: Inability to understand the content of the survey written in Chinese or Korean.

Sample size: The quantitative study aimed to gather data from a minimum of 100 participants. The sample size was determined using the G-power program, with a significance level of .05, a medium effect size of .15, and a power of .90. Considering a dropout rate of 20%, the target was to collect information from 120 participants. Ultimately, the survey was completed by a total of 226 individuals, comprising 113 North Korean defector mothers and their respective children.

4.4. Recruitment

The Participants were recruited using snowball sampling. The primary researcher contacted North Korean defector community organizations and online communities with a request for participation and dissemination. A link to the study was also posted on social networking websites, such as Kaka-Talk open chat groups. The data were collected through face-to-face or remote methods, and during participant screening, it was confirmed whether the participants were North Korean defector mothers with children aged between 12 and 24 years. First, the mothers participated in the survey, and consent was obtained for their children's participation in the study. Subsequently, the children also completed consent forms to participate in the study, after which the questionnaires were collected.

Children of North Korean defector mothers born in China may have difficulty reading, understanding, and responding in Korean. Therefore, the children's questionnaire was prepared in Korean and Chinese versions. The Chinese version of the questionnaire was initially translated by a Korean language scholar who majored in Chinese. Two Chinese-origin Korean-Chinese individuals fluent in Korean conducted the second review and revisions, retranslated and verified the content to finalize the version. Before the primary survey, a pilot study was conducted with four North Korean defector mothers and their four children.

4.5. Measures

4.5.1. Trauma Exposure

Mothers' trauma exposure refers to the scores measured using a checklist adapted from previous research on PTSD among North Korean defectors (Yoon et al., 2007; Baek et al., 2022). The Traumatic Event Checklist for NKDs, with 17 items, reflects the cultural characteristics of NKDs and the general life event checklist. We asked each item “Have you ever experienced~?” with specific examples (eg. unwanted separation from a spouse, parent, or sibling, unwanted separation from a child, the sudden death of a family member or close friend, witnessing the death of a family member of a close friend, witnessing the death of someone, extreme hardship that can risk one’s life, life-threatening illness, domestic violence, verbal abuse, physical assault, sexual assault, threats to personal security, imprisonment, torture, discrimination, etc). Participants were asked to indicate on a ‘Yes’ (1) or ‘No’ (0) basis if they had directly experienced 17 traumatic events. A total score was calculated for each sample, ranging from 0 to 17.

4.5.2. PTSD symptoms

The International Trauma Questionnaire (ITQ; Cloitre et al., 2018), developed as a self-report measure of the International Classification of Diseases (ICD-11) PTSD and CPTSD, was translated and validated for North Korean defectors (Baek et al., 2022). The ITQ included six questionnaires in three clusters to assess PTSD symptoms: re-experiencing (RE as measured by RE1, RE2); avoidance (AV as measured by AV1, AV2); and sense of threat (TH as measured by TH1, TH2). DSO symptoms were assessed using six questionnaires comprising the following three clusters:

affective dysregulation (AD as measured by AD1, AD2); negative self-concept (NSC as measured by NSC1, NSC2); and disturbance in relationships (DR as measured by DR1, DR2). Additionally, three items measured functional impairment for PTSD and DSO symptoms. Diagnosis of PTSD requires the endorsement of one of two symptoms from each PTSD cluster, plus the endorsement of functional impairment associated with these symptoms. Diagnosis of CPTSD requires the endorsement of one of two symptoms from each of the six PTSD and DSO clusters, plus the endorsement of functional impairment associated with these symptoms. The effect of each symptom over the past month was measured by the participants using a five-point Likert scale ranging from 0 (Not at all) to 4 (Extremely). Internal reliability (Cronbach's α) was good in our sample for the RE (α = 0.94), AV (α = 0.88), and TH (α = 0.77) PTSD clusters, and the AD (α = 0.92), NSC (α = 0.96), and DR (α = 0.91) DSO clusters.

4.5.3. Family functioning

Family functioning among mothers and children was measured using the general family functioning subscale of the McMaster Family Assessment Device (FAD) (Miller et al., 1986). Korean revised version of FAD consists of seven subscales: problem-solving, communication, roles, affective responsiveness, affective involvement, behavior control, and general functioning. "problem-solving" is used to assess the ability to solve problems in a family; "communication" is used to assess the ability to exchange information effectively and directly in a family; "roles" is used to assess whether there is a clear and equal distribution of tasks among family members; "affective responsiveness" is used to assess the ability of family members to respond to emotions; "affective involvement" is used to assess family members' concern and interest in family members' activities and emotional state; "behavior control" is used to assess whether there is a clear discipline among

family members; “general functioning” is used to assess the overall function of a family (Chung, 1993).

This scale consists of 34 items organized into 7 subscales and is evaluated on a 4 - 4-point scale (1 = strongly agree; 2 = agree; 3 = disagree; 4 = strongly disagree). After reverse scoring positive items, a mean score was calculated by summing the item scores and dividing the total by the number of items. To compute the prevalence of poorly functioning households, the mean family functioning scores were dichotomized into well-functioning (scores ≤ 2) and poorly functioning families (scores > 2) (Renzaho et al., 2014). Higher mean scores indicated poorer family functioning (Miller et al., 1986). The estimate of internal consistency of the FAD functioning score for the study sample was adequate (for mothers, it was $\alpha = 0.84$, and among children, it was $\alpha = 0.81$).

4.5.4. Adverse Childhood Experiences

ACEs were used to assess adverse experiences occurring before adolescence among the children of North Korean defector mothers (Felitti et al., 1998). Adolescents were asked if they had experienced the ACEs category. ACEs category and items were as follows: 1) emotional abuse; 2) physical abuse; 3) sexual abuse; 4) lack of affection; 5) neglect; 6) abandonment; 7) domestic violence; 8) alcohol or drugs; 9) mental health issues; and 10) Imprisonment. The response for each category was ‘Yes’ or ‘No’. Counting each ACE as one, respondents were reported as having an ACE score of 0 to 10 (M.-S. Lee et al., 2020). In our study, internal consistency was measured using Cronbach's α. The Cronbach's α level for the total ACEs scale was 0.64.

4.5.5. Mental Health of North Korean Mother's Children

4.5.5.1. Mental Health Screening Tool for Depressive Disorders: MHS-D

The MHS-D is a brief screening assessment tool designed to detect depressive symptoms in the Korean population. The 12-item scale was rated on a 5-point Likert scale (0 = never, 4 = most of the time). The MHS-D was preliminarily validated and revealed a statistically significant positive correlation with the Center for Epidemiologic Studies Depression Scale (CES-D) and Patient Health Questionnaire-9 (PHQ-9) (Park et al., 2022). The internal consistency was established in this study (Cronbach's $\alpha = 0.87$).

4.5.5.2. Mental Health Screening Tool for Anxiety Disorders: MHS-A

The MHS-A is an 11-item self-report screening tool for Generalized anxiety disorder. The items were rated on a 5-point Likert scale (0 = never, 4 = most of the time). The total score ranged from 0 to 40 (Kim et al., 2018). The scale's internal consistency was high (Cronbach's $\alpha = 0.94$).

4.5.6. Demographic Information

The typical characteristics of North Korean defectors' mothers included age, duration of defection, duration of residence in South Korea, marital status, level of education attained in both North and South Korea, employment status, religious affiliation, household income, presence of physical illnesses, level of daily life stress, perceived health status, history of psychiatric medication usage within the last 6 months, experience of repatriation, and number of children.

The general characteristics of their children encompass age, gender, country of birth, educational level, type of school attended, religious affiliation, economic status, level of daily life stress, and perceived health status.

4.6. Data analysis

The independent variables were perceived mothers' PTSD symptoms. The dependent variable was the children's mental health (depression, anxiety). Family functioning and ACEs were the predicated mediator variables. In this study, the control variables for the mother include age, duration of defection from North Korea, length of residence in South Korea, educational backgrounds in North and South Korea, and marital status. For the children, the control variables are age, gender, and country of birth.

All data were analyzed using the Statistical Package for the Social Sciences (SPSS; 2020, version 27.0). In this study, we first conducted reliability testing of the measurement tools used. Descriptive statistics were utilized to examine the main variables' means, standard deviations, skewness, and kurtosis. Additionally, Pearson correlation analysis was performed to explore the relationships among the variables. The tests were used to determine if there was a significant relationship between mothers' PTSD symptoms and child mental health (depression, anxiety). Hayes' PROCESS macro software (2020. Version 3.5.3) was used as a regression path analysis modeling plug-in within SPSS that can be used to test for direct and indirect effects in simple and complex models of mediation and moderation (Hayes, 2018).

The analysis for each main research question is as follows: 1) Direct effect of mothers' PTSD symptoms on child mental health; 2) Impact of mothers' PTSD symptoms on children's perception of family functioning; 3) Influence of mothers' PTSD symptoms on child ACEs; 4) Relationship between family functioning and ACEs; 5) Mediation effects of family functioning and ACEs in the link between mothers' PTSD symptoms and child mental health. The significance of mediating effects was assessed using bootstrapping with 5,000 samples and a confidence level of 95%, verifying the overall significance of mediating pathways and individual mediating variables.

4.7. Ethical Considerations

The data collection for this study was conducted after obtaining approval from the Institutional Review Board (IRB) of the research-performing institution (IRB No. 4-2023-0619). The researchers explained the purpose and content of the study to the participants, enabling them to understand it sufficiently. After obtaining their consent to participate in the survey by signing an informed consent form, they were instructed to Complete the questionnaire.

The researchers took great care in explaining the study to the participants, ensuring they fully understood the purpose and content. Moreover, participants were empowered with the knowledge that they could withdraw from the study without facing any disadvantages. If participants experienced stress symptoms due to recalling past traumatic experiences during the research process, they were encouraged to discontinue completing the questionnaire immediately. With the participant's consent, they could seek counseling from a specialist in North Korean defector affairs or a mental health professional, and brochures providing this information were provided. Subsequently, after obtaining informed consent from the participants, they completed the questionnaire.

Given that the subjects of this study, the children of North Korean defectors, range from ages 12 to 24, including minors, their characteristics make them susceptible to being influenced in their voluntary participation decision. Therefore, efforts were made to ensure that no coercion or undue influence was exerted during the process of obtaining consent and conducting the research. However, it was acknowledged that participation in this study could potentially enhance adolescents' awareness and knowledge regarding mental health, which could lead to behavioral changes. Contact information for researchers was provided so that participants could freely inquire about any concerns related to the study.

5. RESULTS

5.1. General Characteristics of North Korean defector Mothers

The demographic characteristics of the North Korean defector mothers who participated in this study are summarized in Table 1.

Mothers' PTSD symptoms, assessed using the ITQ, were categorized as follows: non-PTSD, 65.5% (n = 74); PTSD, 16.8% (n = 19); and CPTSD, 17.7% (n = 20). The sample had a mean age of 48.6 ± 6.8 years (range: 34-66), with an average duration of escape from North Korea to South Korea of 3.8 ± 4.7 years and a residence duration in South Korea of 15.5 ± 4.5 years. Additionally, 52.2% (n = 59) were married. In terms of education experience in North Korea, six individuals (5.3%) had less than a high school education, 67.3% (n = 76) had graduated from high school, and 27.4% (n = 31) had attended vocational college or higher. Meanwhile, in South Korea, 38.9% (n = 44) had graduated from high school, 47.8% (n = 54) had attended vocational college or higher, and 13.3% (n = 15) had completed graduate school or higher.

Among the participants, 22.1% (n = 25) reported being employed. Their monthly household income was distributed as follows: less than 1 million won for 37.2% (n = 42), between 1 million won and less than 2.5 million won for 42.5% (n = 48), and 2.5 million won or more for 20.4% (n = 23). Furthermore, 38.1% (n = 43) of the participants reported having poor health status. Forty-seven participants (41.5%) indicated experiencing a high stress level daily. Additionally, 35.4% (n = 40) reported having taken psychiatric medication within the past six months, while the same percentage 35.4% (n = 40) stated experiencing forced repatriation.

Table 1. General Characteristics of North Korean defector Mothers' (*N*=113)

Variables	Total	Non-PTSD[1] (n=74)	PTSD[2] (n=19)	CPTSD[3] (n=20)	F or X^2	*p*-value *Sheffe*
Age	48.9±6.3	48.4±6.0	50.3±5.2	49.1±8.2	.720	.489
Period of defection (year)	3.8±4.7	3.8±4.9	3.0±3.0	5.0±5.4	.948	.391
Residence in South Korea (year)	15.5±4.5	15.4±4.6	16.2±4.6	15.4±3.8	.241	.786
Marital status					4.710	.095
Married	59(52.2)	44(59.5)	8(42.1)	7(35.0)		
Other	54(47.8)	30(40.5)	11(57.9)	13(65.0)		
Education in North Korea					3.687	.450
< Middle school	6(5.3)	6(8.1)	0(0.0)	0(0.0)		
≥ Middle school	76(67.3)	47(63.5)	14(73.7)	15(75.0)		
≥ College	31(27.4)	21(28.4)	5(26.3)	5(25.0)		
Education in South Korea					1.440	.837
> High school	44(38.9)	30(40.5)	6(31.6)	8(40.0)		
≥ College	54(47.8)	35(47.3)	9(47.4)	10(50.0)		
≥ University	15(13.3)	9(12.2)	4(21.1)	2(10.0)		
Religion					5.258	.072
Yes	51(45.1)	39(52.7)	5(26.3)	7(35.0)		
No	62(54.9)	19(47.3)	14(73.7)	13(65.0)		
Job					3.010	.222
Yes	88(77.9)	61(82.4)	14(73.7)	13(65.0)		
No	25(22.1)	13(17.6)	5(26.3)	7(35.0)		
Household Income (10,000 won)					9.450	.051
< 100	42(37.2)	23(31.1)	10(52.6)	9(45.0)		
< 100 - 250	48(42.5)	31(41.9)	6(31.6)	11(55.0)		
> 250	23(20.4)	20(27.0)	3(15.8)	0(0.0)		

Table 1. General Characteristics of North Korean defector Mothers (*N*=113) (Continued)

Variables	Total	non-PTSD[1] (n=74)	PTSD[2] (n=19)	CPTSD[3] (n=20)	F or X^2	*p*-value *Sheffe*
Perceived health status					11.494	.022
Good	17(15.0)	15(20.3)	1(5.3)	1(5.0)		
Fair	53(46.9)	38(51.4)	9(47.4)	6(30.0)		
Poor	43(38.1)	8(18.6)	9(47.4)	13(65.0)		
Perceived stress					37.433	.001
Extremely high	10(8.8)	2(2.7)	2(10.5)	6(30.0)		
High	37(32.7)	15(20.3)	12(63.2)	10(50.0)		
Moderate	54(47.8)	46(62.2)	5(26.3)	3(15.0)		
Low	12(10.6)	11(14.9)	0(0.0)	1(5.0)		
Taking psychiatric medication (last 6 months)	40(35.4)	15(20.3)	9(47.4)	16(80.0)	25.995	.001
Forced repatriation (yes)	40(35.4)	23(31.1)	8(42.1)	9(45.0)	1.783	.410
Number of trauma exposure	9.9±4.5	8.6±4.2	13.2±2.7	11.8±4.8	11.903	.001 1<2, 3

5.2. General Characteristics of the Children of North Korean defector Mothers

The general characteristics of the North Korean defector children who participated in this study are as follows (Table 2). The average age was 17.6 ± 3.4 years, with 47.8% (n=54) male and 52.2% (n = 59) female. The birth countries were North Korea, 15.0% (n = 17); China and other third countries, 40.7% (n = 46); and South Korea, 44.2% (n = 50). The current educational stages of the North Korean defector children who participated in this study are as follows: 23.0% (n = 26) were in elementary school, 32.7% (n = 37) were in middle school, and 45.1% (n = 50) were in high school. The types of schools they attended were general schools at 69.9% (n = 79), alternative schools at 25.7% (n = 29), and other types of schools at 4.4% (n = 5). Among the participants, 38.9% (n = 44) reported having a religion. The family's economic status was reported as high by 18.6% (n = 21), medium by 36.3% (n = 41), and low by 45.1% (n = 51). In terms of daily life stress, 28.3% (n = 32) reported feeling "much stress," and their current health status was reported as "good" by 59.3% (n = 67), "average" by 35.4% (n = 40), and "poor" by 5.3% (n = 6).

The average depression score was 5.3 ± 6.2, with 15.9% (n = 18) classified as mild, 10.6% (n = 12) as moderate, and 2.7% (n = 3) as severe. Children of mothers with PTSD and CPTSD exhibited higher levels of depression. The average anxiety score was 6.3 ± 7.9 points, with 24.8% (n = 28) classified as mild, 3.5% (n = 4) as moderate, and 1.8% (n = 2) as severe. Children of mothers with PTSD and CPTSD exhibited higher levels of anxiety.

Table 2. General Characteristics of North Korean defector Mothers' Children (*N*=113)

Variables	Total	non-PTSD[1] (n=74)	PTSD[2] (n=19)	CPTSD[3] (n=20)	F or X^2	*p*-value LSD
Age	17.6±3.4	18.0±3.6	17.5±2.6	16.6±3.2	1.288	.280
Gender					1.807	.405
Male	54(47.8)	32(43.2)	11(57.9)	11(55.0)		
Female	59(52.2)	42(56.8)	8(42.1)	9(45.0)		
Country of birth					6.234	.871
North Korea	17(15.0)	12(16.2)	3(15.8)	2(10.0)		
China, etc	46(40.7)	31(41.9)	8(42.1)	7(35.0)		
South Korea	50(44.2)	31(41.9)	8(42.1)	11(55.0)		
School grade					5.501	.240
Elementary	26(23.0)	17(23.0)	2(10.5)	7(35.0)		
Middle	37(32.7)	21(28.4)	9(47.4)	7(35.0)		
High	50(44.2)	36(48.6)	8(42.1)	6(30.0)		
Current school attending					2.785	.594
Regular school	79(69.9)	52(70.3)	13(68.4)	14(70.0)		
Alternative school	29(25.7)	19(25.7)	6(31.6)	4(20.0)		
Other	5(4.4)	3(4.1)	0(0.0)	2(10.0)		
Religion					2.304	.316
Yes	44(38.9)	29(39.2)	5(26.3)	10(50.0)		
No	69(61.1)	45(60.8)	14(73.7)	10(50.0)		
Socioeconomic status					1.225	.874
High	21(18.6)	15(20.3)	3(15.8)	3(15.0)		
Middle	41(36.3)	28(37.8)	7(36.8)	6(30.0)		
Low	51(45.1)	31(41.9)	9(47.4)	11(55.0)		

Table 2. General Characteristics of North Korean defector Mothers' Children (*N*=113) (Continued)

Variables	Total	non-PTSD[1] (n=74)	PTSD[2] (n=19)	CPTSD[3] (n=20)	F or X^2	*p*-value LSD
Perceived health status					10.547	.032
Good	67(59.3)	51(68.9)	6(31.6)	10(50.0)		
Fair	40(35.4)	19(25.7)	12(63.2)	9(45.0)		
Poor	6(5.3)	4(5.4)	1(5.3)	1(5.0)		
Perceived stress					8.113	.230
Extremely high	10(8.8)	7(9.5)	2(10.5)	1(5.0)		
High	22(19.5)	9(12.2)	6(31.6)	7(35.0)		
Moderate	60(53.1)	44(59.5)	8(42.1)	8(40.0)		
Low	21(18.6)	14(18.9)	3(15.8)	4(20.0)		
Depression	5.3±6.2	4.3±5.0	7.9±8.6	6.9±7.0	3.407	.037 1<2,3
None	80(70.8)	58(78.4)	9(47.4)	13(65.0)	8.414	.209
Mild	18(15.9)	9(12.2)	6(31.6)	3(15.0)		
Moderate	12(10.6)	6(8.1)	3(15.8)	3(15.0)		
Severe	3(2.7)	1(1.4)	1(5.3)	1(5.0)		
Anxiety	6.3±7.9	5.1±7.6	10.0±9.2	7.2±6.8	3.122	.048 1<2,3
None	79(69.9)	56(75.7)	10(52.6)	13(65.0)	5.339	.501
Mild	28(24.8)	15(20.3)	7(36.8)	6(30.0)		
Moderate	4(3.5)	2(2.7)	1(5.3)	1(5.0)		
Severe	2(1.8)	1(1.4)	1(5.3)	0(0.0)		

5.3. Descriptive statistics of mother's Traumatic exposure and PTSD symptoms

The North Korean defector mothers reported an average of 9.9 ± 4.5 traumatic experiences. Among the 17 items surveyed, the most frequently reported experiences were: ‘unwanted separation from spouse, parents, or siblings’ by 85.0% (n = 96), ‘sudden death of a family member or close person’ by 77.0% (n = 87), ‘threats to personal safety (e.g., surveillance by security agents, arrest by public security, threats from brokers, escape attempts, being watched by others)’ by 76.1% (n = 86), and ‘severe life-threatening hardships (e.g., starvation, extreme cold)’ by 71.1% (n = 81). Participants could respond to multiple traumas, and over 50% experienced 11 out of the 17 traumas listed (Table 3).

Table 3. Traumatic Exposure of North Korean defector mother (*N*=113)

Variables	Total	non-PTSD[1] (n=74)	PTSD[2] (n=19)	CPTSD[3] (n=20)	X^2	*p* - value
Unwanted separation from a spouse, parent, or sibling	96(85.0)	60(81.1)	19(100.0)	17(85.0)	4.234	.120
Sudden death of a family member or close friend	87(77.7)	53(72.6)	19(100.0)	15(75.0)	6.627	.036
Threats to personal security	86(76.1)	50(67.6)	19(100.0)	17(85.0)	9.955	.007
Extreme hardship that can risk one's life	81(71.1)	49(66.2)	16(84.2)	16(80.0)	3.240	.198
Natural disaster	78(69.0)	45(60.8)	17(89.5)	16(80.0)	7.178	.028
Witnessing the death of a family member or close friend	78(69.0)	47(63.5)	17(89.5)	14(70.0)	4.776	.092
Discrimination	73(64.6)	39(52.7)	18(94.7)	16(80.0)	14.201	.001
Unwanted separation from a child	64(56.6)	39(52.7)	10(52.6)	15(75.0)	3.336	.189
Witnessing the death of someone	68(60.2)	39(52.7)	17(89.5)	12(60.0)	8.530	.014
Divorce (own)	62(54.9)	35(47.3)	11(57.9)	16(80.0)	6.884	.032
Imprisonment	59(52.2)	34(45.9)	11(57.9)	14(70.0)	3.947	.139
Serious accident, fire, or explosion	55(48.7)	29(39.2)	15(78.9)	11(55.0)	9.802	.007
Verbal abuse	49(43.4)	21(28.4)	13(68.4)	15(75.0)	19.774	.001
Domestic violence	48(42.5)	23(31.1)	14(73.7)	11(55.0)	12.790	.002
Physical assault	48(42.5)	23(31.1)	12(63.2)	13(65.0)	11.411	.003
Torture	47(41.6)	26(35.1)	11(57.9)	10(50.0)	3.931	.140
Sexual assault	44(38.9)	25(33.8)	11(57.9)	8(40.0)	3.708	.157

5.4. Differences in Children's ACEs by Mothers' PTSD Symptoms

The average ACEs score for children was 1.1 ± 1.4, and children of mothers with PTSD and CPTSD tended to have significantly higher levels of ACEs (Table 4).

The ACEs were as follows: Abandonment, 48.7% (n = 55); Emotional abuse, 15.9% (n = 18); Mental health issues, 12.4% (n = 14); Lack of affection, 8.8% (n = 10). The cumulative number of ACEs was as follows: 0 experiences, 42.5% (n = 48); 1 experience, 28.3% (n = 32); 2 experiences, 15.9% (n = 18); 3 or more experiences, 13.3% (n = 15).

Table 4. The ACEs of North Korean defector mother's children (*N*=113)

Variables	Total	non-PTSD[1] (n=74)	PTSD[2] (n=19)	CPTSD[3] (n=20)	F or X^2	*p*-value
ACEs (M±SD)	1.1±1.4	0.9±1.2	2.0±1.9	1.4±1.4	5.811	.004
						1<2,3
Abandonment	55(48.7)	29(39.2)	13(68.4)	13(65.0)	7.764	.021
Emotional abuse	18(15.9)	9(12.2)	5(26.3)	4(20.0)	2.562	.278
Mental health issues	14(12.4)	6(8.1)	4(21.1)	4(20.0)	3.631	.163
Lack of affection	10(8.8)	5(6.8)	3(15.8)	2(10.0)	1.569	.456
Physical abuse	9(8.0)	4(5.4)	3(15.8)	2(10.0)	2.361	.307
Domestic violence	8(7.1)	3(4.1)	5(26.3)	0(0.0)	13.241	.001
Sexual abuse	5(4.4)	2(2.7)	2(10.5)	1(5.0)	2.207	.332
Alcohol or drugs in the home	4(3.5)	2(2.7)	0(0.0)	2(10.0)	3.294	.193
Neglect	3(2.7)	1(1.4)	2(10.5)	0(0.0)	5.587	.061
Imprisonment	3(2.7)	2(2.7)	1(5.3)	0(0.0)	1.046	.593
ACE scores (n)					12.503	.052
0	48(42.5)	37(50.0)	5(26.3)	6(30.0)		
1	32(28.3)	22(29.7)	3(15.8)	7(35.0)		
2	18(15.9)	9(12.2)	6(31.6)	3(15.0)		
3+	15(13.3)	6(8.1)	5(26.3)	4(20.0)		

5.5. Differences in Family functioning by Mothers' PTSD symptoms

The results of mothers' family functioning according to the three groups of mothers' PTSD symptoms are as follows (Table 5).

The average score of mothers' family functioning was 2.3 ± 0.5, and it was significantly higher in PTSD and CPTSD groups compared to the non- PTSD group, indicating a lower level of family functioning. Significant differences were observed in the subscales Roles ($F = 6.234$, $p = .003$), Affective Responsiveness ($F = 5.071$, $p = .008$), Affective Involvement ($F = 5.181$, $p = .007$), and General Functioning ($F = 10.017$, $p = .001$) based on mothers' PTSD symptoms.

The average score of children's family functioning was 2.0±0.4, indicating a general level of family functioning. Based on mothers' PTSD symptoms, significant differences were observed in the subscale of Affective Responsiveness ($F = 3.786$, $p = .026$). The FAD, with a clinical threshold of two, revealed that 68.1% of mothers (n = 77) and 54.0% of children (n = 61) were part of families not functioning properly. Furthermore, the prevalence of dysfunctional families was significantly higher among mothers with PTSD or CPTSD.

Table 5. Family functioning: Mothers' and Children's (*N*=113)

Variables	Total	non – PTSD[1] (n=74)	PTSD[2] (n=19)	CPTSD[3] (n=20)	F or X^2	*p*-value Scheffie
Mothers' Family functioning						
Family functioning (total)	2.3±0.5	2.1±0.5	2.4±0.4	2.5±0.3	6.234	.003 1<2,3
Problem-Solving	1.8±0.6	1.7±0.6	1.8±0.5	2.0±0.7	1.393	.253
Communication	1.7±0.5	1.7±0.5	1.7±0.5	1.8±0.6	.491	.613
Roles	2.5±0.7	2.3±0.8	2.7±0.5	2.8±0.6	5.071	.008 1<2,3
Affective Responsiveness	2.5±0.8	2.3±0.8	2.7±0.8	2.9±0.7	5.181	.007 1<2,3
Affective Involvement	2.4±0.8	2.3±0.8	2.6±0.7	2.9±0.6	4.491	.013 1<2<3
Behavior Control	2.6±0.6	2.6±0.7	2.6±0.5	2.5±0.5	.393	.676
General Functioning	2.1±0.6	1.9±0.6	2.3±0.5	2.5±0.5	10.017	.001 1<2,3
Healthy Family functioning	36(31.9)	30(40.5)	4(21.1)	29(10.0)	7.993	.018
Unhealthy Family functioning	77(68.1)	44(59.5)	15(78.9)	18(90.0)		
Children's Family functioning						
Family functioning (total)	2.0±0.4	2.0±0.4	2.1±0.4	2.2±0.5	2.719	.070
Problem-Solving	2.0±0.6	2.0±0.6	2.1±0.6	2.2±0.6	.910	.405
Communication	2.0±0.6	2.0±0.5	1.9±0.6	2.2±0.6	1.031	.360
Roles	2.1±0.6	2.1±0.6	2.2±0.6	2.3±0.6	1.258	.288
Affective Responsiveness	1.9±0.6	1.8±0.6	2.1±0.6	2.2±0.4	3.786	.026 1<2,3
Affective Involvement	2.0±0.7	1.9±0.6	2.1±0.7	2.2±0.7	1.400	.251
Behavior Control	2.3±0.5	2.2±0.6	2.4±0.5	2.4±0.4	1.171	.314
General Family Functioning	1.8±0.5	1.7±0.5	2.0±0.5	1.9±0.6	2.374	.098
Healthy Family functioning	52(46.0)	37(50.0)	9(47.4)	6(30.0)	2.552	.279
Unhealthy Family functioning	61(54.0)	37(50.0)	10(52.6)	14(70.0)		

5.6. Correlation between mothers' PTSD symptoms and Children's Mental health

The correlation and descriptive statistics analysis results of mothers' and child family functioning, ACEs, children's mental health (depression, anxiety), and demographics were presented in Table 7. In the correlation analysis, mothers' PTSD symptoms were found to be associated with the duration of defection (r = .235, $p < .05$), mothers' family functioning (r = .426, $p < .01$), children's family functioning (r = .235, $p < .05$), ACEs (r = .328, $p < .01$), and depression (r = .198, $p < .05$).

Mothers' family functioning showed a positive correlation with children's family functioning (r = .323, $p < .01$) and length of time since defection (r = .277, $p < .01$) while exhibiting a negative correlation with duration of residence in South Korea (r= -.234, $p < .01$). This indicates that a more extended period since defection and a shorter duration of residence in South Korea are associated with lower levels of family functioning.

Children's family functioning showed positive correlations with the mothers' length of time since defection (r = .268, $p < .01$), ACEs (r = .385, $p < .01$), depression (r = .455, $p < .01$) and anxiety (r = .483, $p < .01$). It exhibited negative correlations with mothers' duration of residence in South Korea (r = -.259, $p < .01$). These results suggest that as the mothers' length of time since defection increases, along with a higher number of ACEs, higher levels of depression and anxiety children's family functioning tends to be lower.

Multicollinearity refers to the degree of linear relationship among multiple independent variables. It is suspected when the correlation coefficient is between 0.6 and 0.8, and it is considered to exist when it is 0.8 or higher (Lee, 2014). This correlation analysis had no correlation coefficient of 0.6 or higher variables.

Table 6. Pearson's correlation between mothers' PTSD symptoms, Family Functioning, ACEs, Depression, and anxiety (N = 113)

Variable	1	2	3	4	5	6	7	8	9	10
1. Age (mother)	1									
2. Period of defection (mother)	.159	1								
3. Residence in South Korea (mother)	-.004	**-.261****	1							
4. Age (child)	**.314****	.145	-.157	1						
5. PTSD symptoms (mother)	.122	**.235***	-.106	-.085	1					
6. Family functioning (Mother)	.100	**.277****	**-.234***	-.033	**.426****	1				
7. Family functioning (Child)	.147	**.268****	**-.259****	.130	**.235***	**.323****	1			
8. ACEs (child)	**.223***	.042	**-.238***	.047	**.328****	.140	**.385****	1		
9. Depression (child)	.124	.150	-.138	-.003	**.198***	.086	**.455****	**.498****	1	
10. Anxiety (child)	**.197***	.139	-.141	.090	.145	.122	**.483****	**.545****	**.851****	1
M	48.9	3.8	15.5	17.6	21.09	2.26	2.02	1.14	5.34	6.30
SD	6.3	4.7	4.5	3.4	15.62	.49	.43	1.42	6.24	7.92

Note. * p<0.05, **p<0.01

5.7. Hypothesis testing

The independent variable used in this study is mothers' PTSD symptoms. For the mediation analysis, non-PTSD was dummy-coded as the reference category compared to PTSD and CPTSD. The mediating variables are children's perceived family functioning and ACEs. The dependent variables are children's mental health outcomes, including depression and anxiety. Control variables include mothers' age, length of time since defection, duration of residence in South Korea, educational level in both South and North Korea, and marital status. Children's control variables include age, gender, and country of birth. In the mediation model of this study, all variables except for mothers' PTSD symptoms were analyzed as continuous scores.

5.6.1. Mediation Model with Children's Depression as the Outcome Variable

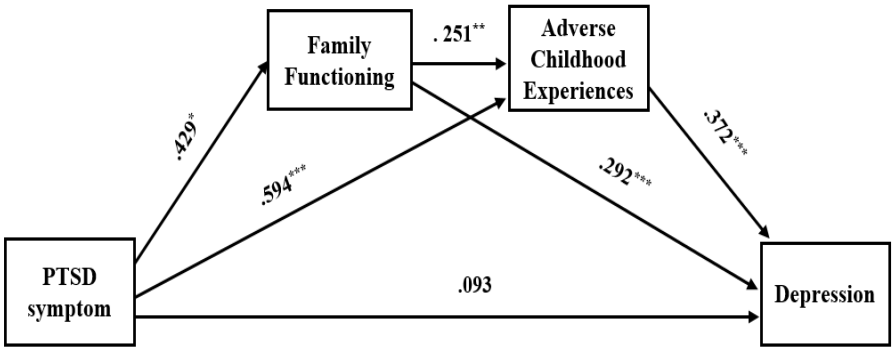

Figure 3. The mediating effect of Family functioning and ACEs in the relationship between mothers' PTSD symptoms and Children's Depression.
Notes: All effects are standardized. *$p < .05$, **$p < .01$, ***$p < .001$

In this model, the mediating effects of family functioning and ACEs on the relationship between PTSD symptoms in North Korean defector mothers and depression in their children were examined (Figure 3).

First, the results of the significance tests for each path are shown in Table 7. The mothers' PTSD symptoms of the mothers significantly affected the family functioning of their children, and this was statistically significant (β = .429, p = .0300). The mothers' PTSD symptoms significantly affected their children's ACEs, and this was statistically significant (β = .594, p = .0009). Family functioning statistically impacted ACEs (β = .251, p = 0.045). The direct impact of the mothers' PTSD symptoms on their children's depression was not statistically significant (β = .093, p = .6287). The impact of family functioning on children's depression was statistically significant (β =.292, p = .023), and the impact of ACEs on depression was also statistically significant (β = .372, p =.005).

Table 7. Mediation effect of Family functioning and ACEs on the association between mothers' PTSD symptoms and Children's depression

Path	β	S.E.	t	Standardized β	p-value	R^2
PTSD symptoms → Family functioning	.1845	.0838	2.2013	.4285	.0300	.2138
PTSD symptoms → ACEs	.8438	.2470	3.4155	.5944	.0009	.4060
Family functioning →ACEs	.8290	.2852	2.9069	.2514	.0045	
PTSD symptoms → Depression	.5771	1.1899	.4850	.0925	.6287	.3666
Family functioning → Depression	4.2326	1.3538	3.1265	.2921	.0023	
ACEs → Depression	1.6361	.4538	3.6057	.3723	.0005	

Bootstrap technique 5,000 indicated that the indirect effect of the influence of mothers' PTSD symptoms on depression through family functioning and ACEs was a significant total effect (β = 2.9889, p = .0186, 95% CI [.5100, 5.4677], R^2 = .1673) (Table 8). The total indirect effect of the mothers' trauma symptoms on their children's depression was significant (β = 2.4117, 95% CI [.9606, 4.2761]). The pathway through which mothers' PTSD affects children's depression, mediated by family functioning, was significant (β = .7809, 95% CI [.0111, 1.8010]). The pathway through which mothers' PTSD affects depression via ACEs was significant (β = 1.3806, 95% CI [.3573, 2.9972]). Finally, the sequential mediation pathway of mothers' PTSD through family functioning and ACEs on depression was also significant (β = .2502, 95% CI [.0029, .6644]).

Table 8. Significance Effect of Mediated Analysis of Family function and ACEs in the Relationship between mothers' PTSD symptoms and Children's depression

Effect	β	S.E.	95% LlCI	95% UlCI	R^2
Total effect of X on Y	2.9889	1.2497	.5100	5.4677	.1673
Direct effect(s) PTSD symptoms → Depression	.5771	1.1899	-1.7836	2.9379	
Indirect effect(s) of X on Y: Total	2.4117	.8617	.9606	4.2761	
PTSD symptoms → Family functioning → Depression	.7809	.4553	.0111	1.8010	
PTSD symptoms → ACEs → Depression	1.3806	.6692	.3573	2.9972	
PTSD symptoms → Family functioning→ ACEs → Depression	.2502	.1700	.0029	.6644	

Note: Number of bootstrap samples=5,000

5.6.2. Mediation Model with Children's Anxiety as the Outcome Variable

The mediating effects of family functioning and ACEs were examined on the relationship between mothers' PTSD symptoms of North Korean defector mothers and anxiety in their children (Figure 4).

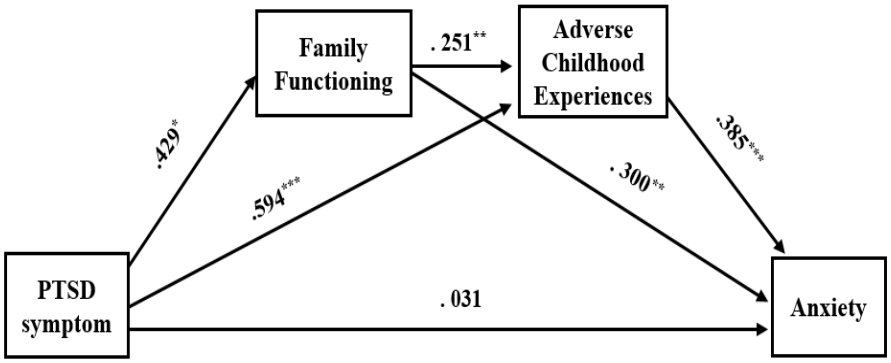

Figure 4. The mediating effect of Family functioning and ACEs in the relationship between mothers' PTSD symptoms and Children's Anxiety.

Notes: All effects are standardized. * $p < .05$, ** $p < .01$, *** $p < .001$

The results of testing the significance of each path are presented in Table 9. The direct impact of mothers' PTSD symptoms on their children's anxiety was not statistically significant (β = .031 $p = 0.8653$). The impact of family functioning on anxiety was statistically significant (β = .300, $p = 0.0012$) and the impact of ACEs on anxiety was also statistically significant (β = .385, $p = .0002$).

Table 9. Mediation effect of Family functioning and ACEs on the association between mothers' PTSD symptoms and **C**hildren's Anxiety

Path	β	S.E.	*t*	Standardized β	*p*-value	R^2
PTSD symptoms → Family functioning	.1845	.0838	2.2013	.4285	.0300	.2138
PTSD symptoms → ACEs	.8438	.2470	3.4155	.5944	.0009	.4060
Family functioning → ACEs	.8290	.2852	2.9069	.2514	.0045	
PTSD symptoms → Anxiety	.2474	1.4547	.1701	.0312	.8653	.4125
Family functioning → Anxiety	5.5238	1.6550	3.3377	.3004	.0012	
ACEs → Anxiety	2.1467	.5547	3.8699	.3848	.0002	

The bootstrap technique, with 5,000 iterations, indicated that the indirect effect of mothers' PTSD symptoms on anxiety through family functioning and ACEs was significant total effect (β = 3.4063, *p* = .0307, 95% CI [.3233, 6.4893], R^2 = .2005) (Table 10). The total indirect pathway of mothers' PTSD symptoms on children's anxiety was significant (β = 3.1588, 95% CI [1.2689, 5.4724]). The pathway through which mothers' PTSD symptoms affect anxiety via family functioning was significant (β = 1.0191, 95% CI [0.0484, 2.6246]). The pathway through which mothers' PTSD symptoms affect anxiety via ACEs was also significant (β = 1.8114, 95% CI [.5012, 3.5883]). Finally, the sequential mediation pathway of mothers' PTSD symptoms through family functioning and ACEs on anxiety was significant (β = 0.3283, 95% CI [.0111, 0.8415]).

Table 10. The mediating effects of Family functioning and ACEs in the relationship between mother's PTSD Symptoms and Children's Anxiety

Effect	β	S.E.	95% LlCI	95% UlCI	R^2
Total effect of X on Y	3.4063	1.5543	.3233	6.4893	.2005
Direct effect(s) PTSD symptoms → Anxiety	.2474	1.4547	-2.6386	3.1334	
Indirect effect(s) of X on Y: Total	.2474	1.4547	-2.6386	3.1334	
PTSD symptoms → Family functioning → Anxiety	3.1588	1.0698	1.2689	5.4724	
PTSD symptoms → ACEs → Anxiety	1.0191	.6634	.0484	2.6246	
PTSD symptoms → Family functioning → ACEs → Anxiety	1.8114	0.7878	.5012	3.5883	

Note: Number of bootstrap samples=5,000

6. DISCUSSION

In this study, we identified the impact of post-traumatic stress symptoms of North Korean defector mothers on the mental health of their adolescent children by analyzing paired data from mothers and their children. We also examined the mediating effects of family functioning and ACEs.

6.1. Direct effect of mothers' PTSD symptoms on their Children's Mental health

In this study, the PTSD symptoms of North Korean defector mothers did not directly affect their children's depression and anxiety. This finding is consistent with previous research on Rwandan mothers who experienced genocide and their children (Roth et al., 2014), as well as a study on Southeast Asian refugee families in the United States (Sangalang et al., 2017), where mothers' PTSD symptoms did not directly impact the mental health of their children.

However, this result contrasts with studies indicating that parental trauma exposure and PTSD symptoms are correlated with children's mental health (Leen-Feldner et al., 2011; Lester et al., 2016; Cho et al., 2021; Sell et al., 2021). It also differs from previous research findings that showed North Korean defector mothers' depression directly influenced their children's depression, social relationships, and school adjustment (Yu & Kim, 2021).

Among the pathways explaining the transmission of parents' psychopathological vulnerabilities to their offspring, the most substantiated is genetic and epigenetic mechanisms (Leen-Feldner et al., 2013). According to studies by Yehuda et al. (2000, 2007, 2011), in parents with chronic PTSD,

cortisol secretion was suppressed in both parents and children, providing a biological basis for the intergenerational transmission of trauma. However, our study did not measure such biomarkers, indicating a need for future research to investigate this aspect further.

Additionally, environmental factors (Ngameni et al., 2022) and maternal resilience (Pierre Fossion et al., 2015; Sexton et al., 2015) can mitigate or alter the impact of trauma. Positive factors such as the resilience or post-traumatic growth of North Korean defector mothers may have counteracted the direct effects of PTSD symptoms on their children (Kim & Kim, 2016; Lee et al., 2022; Yang, 2024).

6.2. Mediating effect of Family functioning on Children's Mental health

In this study, we found that mothers and their children separately indicated that mothers perceived higher levels of family dysfunction than their children. This finding is consistent with the results of a study of Australian immigrant and refugee parent-child dyad (Cyril et al., 2016) and a survey of Syrian forced migrant families residing in Switzerland (Darwiche et al., 2023). Both studies used the FAD. In our sample, 68.1% of North Korean defector mothers reported poor family functioning. Mothers suffering from PTSD or CPTSD reported significantly lower family functioning in subdomains such as roles, affective responsiveness, affective involvement, and general functioning compared to non-PTSD mothers.

In this study, children perceived family functioning as satisfactory in all areas except behavior control. However, it is noteworthy that children of mothers with PTSD or CPTSD scored significantly lower in the affective responsiveness domain. Adolescents achieve socio-emotional development and acquire the resources for interpersonal relationships through continuous

interactions with their parents (Kim et al., 2005). Emotional regulation disorders on parents can exacerbate conflicts with adolescent children, leading to negative impacts (Dorrington et al., 2019; Morosan et al., 2022). Parents with PTSD are known to have a higher likelihood of having emotional disorders in regulation, mood, behavioral, and cognitive regulation, which can transmit emotional distress to their children (Goodman & Gotlib, 1999; Leen-Feldner et al., 2013; Shulevitz, 2014). In such cases, parents may not recognize or accept their children's negative emotions in their children and struggle to regulate impulsive behaviors and emotions (Gratz & Roemer, 2004). They also have difficulty engaging in emotionally appropriate responses and adequate engagement of each other's activities and interests (Alderfer et al., 2009; van Ee et al., 2015; Sherman et al., 2016). Among refugee and forcibly displaced families who have experienced trauma, common factors of negative family functioning identified include deteriorated family relationships, impaired communication, reduced emotional availability, and accumulated family stress (Sangalang & Vang, 2017; Flanagan et al., 2020).

Additionally, children may perceive family interactions and assess family functioning differently from their mothers because they interpret these interactions through their experiences, psychological resources, and coping strategies (Uy et al., 2023). Generally, children possess more remarkable neural plasticity than adults, allowing them to adapt more easily to new situations and learn new cultural norms (Bergnehr, 2019). Some children of North Korean defectors live in full-time alternative education facilities instead of residing with their parents during the process of family disintegration and reunification (Do & Hwang, 2020). These external resources may help children maintain their mental health, whereas mothers may evaluate family functioning from their perspective (Reese et al., 2022).

Previous studies have shown that North Korean defectors with higher family cohesion exhibit

greater resilience and lower levels of depression (Nam et al., 2016). Additionally, family adaptability and family cohesion among North Korean defectors raising young children were found to influence their children's ego-resilience with the moderating effect of social support (Jo & Noh, 2015). However, North Korean defector mothers often perceive themselves as struggling more than their children, which can lead to anger and neglect in communication processes (Oh & Ro, 2020). North Korean defector parents receiving settlement education in South Korea tend to evaluate or criticize their children negatively and often engage in coercive and controlling behaviors such as corporal punishment (Lee et al., 2010; Lee & Jeon, 2016). North Korean defector mothers raising children aged 3-5 in the community tend to exhibit a strict and controlling parenting style, frequently using physical discipline (Jo & Kwon, 2013). The quality of family relationships is closely related to parenting behaviors and is a crucial factor of children's mental health and developmental processes (Daud et al., 2005; Dekel & Hadass Goldblatt, 2008; Kim & Ryu, 2016; Ryu & Yang, 2021c). Therefore, to promote the healthy socio-emotional development of North Korean defector children, it is necessary to establish support systems that can elicit positive emotional responses and communication for their parents (Bailes et al., 2023; Berona et al., 2023).

6.3. Mediating effect of ACEs on Children's Mental health

Parental trauma is known to increase the likelihood of ACEs in children (Narayan et al., 2021; Schickedanz et al., 2021). Among the ACEs experienced by the children of North Korean defector mothers, abandonment was most prevalent, followed by emotional abuse and mental health issues. The children of mothers with PTSD or CPTSD symptoms had significantly higher mean ACEs scores of 2.0 ± 1.9 and 1.4 ± 1.4, respectively, compared to the mean score of 0.9 ± 1.2 for children

of non-PTSD mothers (p = .004). Specifically, 48.7% (n = 55) of the children had experienced abandonment (p = .021), and 7.1% (n = 8) had experienced domestic violence (p = .001), with significantly higher rates among children of mothers with PTSD or CPTSD symptoms. The trauma and PTSD symptoms of the mother increase the likelihood of negative ACEs in children, and the severity of the mother's PTSD is positively correlated with the severity of the children's psychopathological symptoms, such as depression and anxiety (Castro et al., 2017; Jouriles et al., 2018; Plant et al., 2018; Hartzell et al., 2022).

As refugees often experience separation from their families during the migration process (Chandler et al., 2020), North Korean defectors also face family separation during their escape. North Korean defector women seek to establish new stability in South Korea through family reunification, but they encounter various conflicts within the family, including between parents and children and between biological and step children (Lee et al., 2014; Kim & Kim, 2023).

Children born in the third world countries such as China, often experience separation from their mothers at a young age and feel abandoned, leading to resentment. Even after reuniting with their mothers in South Korea, family bonds tend to remain weak (Baik et al., 2021), and some children live in protective facilities or dormitories of alternative schools instead of with their parents (Do & Hwang, 2020). Children of North Korean defectors experience ACEs or similar traumas as their parents due to separation from their parents, unstable family environments, and abuse (Na, 2014).

In this study, about 47% of North Korean defector mothers who reported not being currently married are likely to bear the burden of single parenting. Consequently, they experience higher levels of parenting stress compared to South Korean parents (Lee & Jeon, 2016; Jo & Kwon, 2020), and there is also a higher likelihood of child abuse (Kim & Ryu, 2016; Ryu & Yang, 2021a). Notably, children of mothers with PTSD or CPTSD were found to experience more domestic violence, consistent with previous research that reported a greater risk of physical abuse in children of parents

with high stress, depression, and PTSD (Jakupčević & Ajduković, 2011; Rhee et al., 2012; Ryu & Yang, 2021b).

In this study, family functioning influenced children's mental health through the sequential mediation of ACEs. However, the possibility that ACEs influence family functioning cannot be excluded. Previous research has indicated a positive correlation between ACEs and family functioning, with ACEs identified as a predictor of family functioning (Scully et al., 2020). Therefore, there is a need for further research to determine which variables precede others and have a greater impact on health outcomes. Studies exploring the cumulative effects of ACE scores on American adolescents' health and mental well-being have shown that family functioning has a moderating effect (Balistreri & Alvira-Hammond, 2016).

In summary, perceived family functioning by children and ACEs play crucial roles in the relationship between PTSD symptoms in North Korean defector mothers and their children's mental health. North Korean defector mothers with PTSD symptoms can transmit negative impacts to their children through emotional responses within family functioning. Children who have experienced family separation during the defection and resettlement processes in South Korea are at higher risk of elevated levels of depression and anxiety due to lack of caregiving and exposure to child abuse at a young age. Consequently, trauma and post-traumatic stress symptoms among North Korean defectors not only render them vulnerable in health and life but also negatively impact the mental health of their children through intergenerational transmission of trauma. Prevention may be the key to reducing mental health risks in North Korean defector's children who experience the intergenerational transmission of trauma (Isobel et al., 2019). To prevent intergenerational transmission of trauma, addressing parental trauma should take precedence, along with identifying multidimensional protective factors such as family mediation for relational stability between parents and children, promoting individual resilience, and fostering social support.

6.4. Limitations

This study contains several limitations.

First, this study focused solely on maternal trauma experiences and PTSD symptoms, so there may be differences in the impact on children's mental health depending on the father's trauma experiences and the presence of PTSD symptoms.

Second, objective indicators were not measured in this study. Future research should investigate the interaction between biological and psychological factors to elucidate the relationship between PTSD symptoms in North Korean defector mothers and their children's mental health outcomes.

Third, this study did not include variables that are known to have a protective effect on the intergenerational transmission of trauma, such as resilience and social support.

Fourth, individuals who chose to participate in this study may differ from those who did not. Therefore, potential self-selection bias needs to be considered while interpreting the results. Conversely, participants who declined to experience worse problems due to trauma (Lee et al., 2019).

Future follow-up studies, such as qualitative interviews and longitudinal research, are necessary to address these limitations.

6.5. Significance of the study

This study is one of the first studies conducted in South Korea that investigated the relationship and influencing factors between PTSD symptoms in North Korean defector mothers and their children's mental health. In this study, a comprehensive model was proposed to examine the mediating role of family functioning and adverse childhood experiences in the relationship between PTSD symptoms in North Korean defector mothers and the mental health of their adolescent children.

6.5.1. Nursing theory

This study modified the theoretical framework based on the Intergenerational Transmission of Trauma modified for North Korean defectors. In the traditional model of intergenerational trauma transmission, psychosocial mechanisms such as parent-child relationship, parenting, and family functioning were proposed to mediate the relationship between parental trauma and children's mental health. This study added ACEs to the existing model to provide a more comprehensive and integrated theoretical framework. This theoretical framework is significant as it enhances understanding among nurses and practitioners regarding the mechanisms underlying the relationship between parents with PTSD and their children's mental health. For future studies, this theoretical framework should be further validated with families who have experienced trauma and the increasing number of immigrant and refugee families in South Korea.

6.5.2. Nursing practice

This study highlights the necessity of including the trauma of both individuals and their families in trauma-related practice settings. Particularly, emphasizing the importance of intergenerational transmission of trauma in nursing education programs can enable early identification of risk factors among individuals with PTSD across health care and community settings. Multidisciplinary collaboration for preventing and intervening in intergenerational trauma can lead to more effective and sustainable outcomes.

6.5.3. Nursing research and policy

This study contributes to the development of knowledge by investigating the mental health of North Korean defectors, a unique group, through the inclusion of both mothers and children. The findings can be used to propose policies to enhance specialized support services for North Korean defector parents and children.

Efforts to prevent intergenerational transmission of trauma among North Korean defectors are expected not only to benefit those currently residing in South Korea but also to contribute to the mental health of future generations and the preparation for Korean peninsula reunification.

6.6. Suggestions for future studies

To provide clearer evidence regarding intergenerational transmission of trauma, future studies are warranted to examine the impact of parental PTSD symptoms on mental health outcomes of children who have not been exposed to trauma.

Although the direct influence of maternal PTSD symptoms on children's mental health was not confirmed in this study, future research should investigate the role of biomarkers such as cortisol and oxytocin and conduct cohort studies to ascertain the long-term effects of parental trauma on children's mental and physical health.

Efforts to effectively apply prevention and intervention programs for intergenerational transmission of trauma among North Korean defectors require identifying and exploring protective factors, such as resilience, on personal, organizational, and societal dimensions.

7. CONCLUSION

The purpose of this study was to investigate the impact of PTSD symptoms in North Korean defector mothers on their children's mental health and examine the mediating effects of family functioning and ACEs. Our results indicated that PTSD symptoms in North Korean defector mothers did not directly influence their children's mental health. However, family functioning and ACEs sequentially mediated the effects of the mother's PTSD symptoms on children's depression and anxiety. Notably, the family functioning perceived by mothers did not impact children's mental health.

This study underscores the importance of understanding family dynamics in North Korean defector families for their children's mental health. Furthermore, the findings emphasize the need for a multidimensional approach to address family functioning, including communication and parental behavior, to prevent the intergenerational transmission of trauma.

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APPENDICES

Appendix 1. Approval from the Institutional Review Board

연세의료원 세브란스병원 연구심의위원회
Yonsei University Health System, Severance Hospital, Institutional Review Board
서울특별시 서대문구 연세로 50-1 (우) 03722
Tel.02 2228 0430~4, 0450~4 Fax.02 2227 7888~9 Email. irb@yuhs.ac

심 의 일 자	2024년 5 월 23 일
접 수 번 호	2023-0529-006
과제승인번호	4-2023-0619

세브란스병원 연구심의위원회의 심의 결과를 다음과 같이 알려 드립니다.

Protocol No.	
연 구 제 목	북한이탈주민 어머니의 외상후스트레스장애와 자녀의 정신건강: 가족기능과 아동기 부정적 경험의 매개효과
연 구 책 임 자	추상희 / 세브란스병원 간호학과
의 뢰 자	(학)연세대학교
연구예정기간	2023.07.10 ~ 2025.07.09
지속심의 빈도	12개월마다
과 제 승 인 일	2023.07.10
위 험 수 준	Level I 최소위험
심 의 방 법	신속
심 의 유 형	중간보고 + 계획변경
심 의 내 용	- 첨부파일 : 2023-0529-002_1_ITT_ 인체유래물 연구 동의서.pdf - 첨부파일 : 2023-0529-002_2_2. ITT 대상자 설명문 및 동의서 (어머니용)_ver.1.0.pdf - 첨부파일 : 2023-0529-002_3_ITT 대상자 설명문 및 동의서 (미성년 자녀용)_ver.1.0.pdf - 첨부파일 : 2023-0529-002_4_ITT 대상자 설명문 및 동의서 (미성년 자녀용)_ver. 2.0 (중국어 포함)_중국어 검수 완료.pdf - 첨부파일 : 2023-0529-002_5_ITT_ 인체유래물 연구 동의서(중국어 버전_자녀용_최종).pdf - 첨부파일 : 2023-0529-005_1_2. ITT 대상자 설명문 및 동의서 (후속면담용_어머니) 0425(1).pdf - 스크리닝 310 명, 등록 대상자 310 명, 중도 탈락 0 명, 진행 중 0 명, 연구 절차 완료 310 명, 취약한 대상자 등록 여부 0 명, 비고 이 연구는 어머니와 자녀가 모두 참여하는 연구로, 각각 170명씩 340명을 모집하는 것이 목표임. 현재 어머니 140, 자녀 170명이 모집되었음. - 본원발생 보고사항 : 중대한 이상반응 0 건, 중대하고 예상하지 못한 이상약물반응 0 건, 예상치 못한 문제 0건 - 기타 보고 내용 : 지금까지 특이사항 없음.

Appendix 1. Approval from the Institutional Review Board (continued)

심 의 위 원 회	제1위원회
참 석 위 원	제1위원회 신속심의자
심 의 결 과	승인
심 의 의 견	-

※ 본 통보서에 기재된 사항은 세브란스병원 연구심의위원회의 기록된 내용과 일치함을 증명합니다.
※ 세브란스병원 연구심의위원회는 국제 임상시험 통일안(ICH-GCP), 임상시험 관리기준(KGCP), 생명윤리 및 안전에 관한 법률을 준수합니다.
※ 연구책임자 및 연구담당자가 IRB위원인 경우, 해당 위원은 위 연구의 심의과정에 참여하지 않았습니다.

연세의료원 세브란스병원

연구심의위원회 위원장

Appendix 2. Survey Questionnaire for Mothers

A. 대상자 스크리닝

1. 귀하는 북한이탈주민 여성입니까?	1. 예 2. 아니오
2. 만 12세 – 만24세 자녀가 있습니까?	1. 예 2. 아니오
3. 귀하의 자녀는 이 연구에 참여할 수 있습니까?	1. 예 2. 아니오
4. 남한 입국연도는 언제입니까?	_____년 _____월
5. 귀하의 하나원 기수를 기입해주세요.	_____기

B. 외상 경험

* 다음은 사람들이 일생 동안 겪을 수 있는 충격적인 사건이나 경험에 관한 질문입니다. 귀하께서 해당 사건을 경험하신 적이 있으신지, 있으시다면 어디에서 경험했고, 해당 경험으로 삶이 얼마나 힘들었는지에 대해서 답변을 해 주시면 됩니다. 경험 한 곳이 여러 곳이 경우에는 중복으로 기록해 주시고, 각 장소에서의 경험에 대해서 고통의 정도를 체크해 주시면 됩니다.
예를 들어서, 귀하가 심한 태풍을 경험하신 곳이 북한, 중국 등 제3국, 남한이라면 세 군데 모두 "예"로 체크해 주시면 됩니다.

1. 귀하께서는 심각한 자연재해 (예, 지진, 태풍, 홍수, 가뭄 등을 경험하신 적이 있습니까?	1. 예 2. 아니오	1. 북한 2. 중국 3. 한국
2. 귀하께서는 사고, 화재, 폭발사건 (예, 광산 폭발, 교통사고 등)을 경험하신 적이 있습니까?	1. 예 2. 아니오	1. 북한 2. 중국 3. 한국
3. 귀하께서는 가족이나 친한 사람의 갑작스러운 죽음을 경험하신 적이 있습니까?	1. 예 2. 아니오	1. 북한 2. 중국 3. 한국
4. 귀하께서는 가족이나 친한 사람의 죽음을 직접 목격하신 적이 있습니까?	1. 예 2. 아니오	1. 북한 2. 중국 3. 한국
5. 귀하께서는 다른 사람 (가족이나 친한 사람 외)의 죽음을 직접 목격하신 적이 있습니까?	1. 예 2. 아니오	1. 북한 2. 중국 3. 한국
6. 귀하께서는 생명이 위태로울 정도로 생활의 극심한 어려움(굶주림, 추위 등)을 경험하신 적이 있습니까?	1. 예 2. 아니오	1. 북한 2. 중국 3. 한국
7. 귀하께서는 신변 위협 (예, 보위부 감시, 공안체포, 브로커 협박, 도망/도피, 주변의 감시 등을 경험하신 적이 있습니까?	1. 예 2. 아니오	1. 북한 2. 중국 3. 한국
8. 귀하께서는 강제수감 (예, 교화소, 노동단련대, 강제수용소, 기타 감옥소, 제3국 감금 시설 등)을 경험하신 적이 있습니까?	1. 예 2. 아니오	1. 북한 2. 중국 3. 한국

B. 외상 경험 (Continued)

9. 귀하께서는 고문 (예, 보위부, 경찰, 군대 등 권력기관에 의한 신체적 또는 심리적 고문 등)을 경험하신 적이 있습니까?	1. 예 2. 아니오	1. 북한 2. 중국 3. 한국
10. 귀하께서는 가족 이외 다른 사람으로부터 폭력 (예, 심한 폭행, 흉기로 목숨을 위협, 총이나 칼에 맞기 등)을 경험 하신 적이 있습니까?	1. 예 2. 아니오	1. 북한 2. 중국 3. 한국
11. 귀하께서는 배우자 또는 동거인 등으로부터 폭력을 경험 하신 적이 있습니까?	1. 예 2. 아니오	1. 북한 2. 중국 3. 한국
12. 귀하께서는 이혼을 하신 적이 있습니까?	1. 예 2. 아니오	1. 북한 2. 중국 3. 한국
13. 귀하께서는 부부, 부모, 형제와의 원치 않은 이별을 경험 하신 적이 있습니까?	1. 예 2. 아니오	1. 북한 2. 중국 3. 한국
14. 귀하께서는 자녀와의 원치 않은 이별 또는 별거를 경험하신 적이 있습니까?	1. 예 2. 아니오	1. 북한 2. 중국 3. 한국
15. 귀하께서는 배신당한 경험(예, 사기, 고발/신고, 실연 등)이 있습니까?	1. 예 2. 아니오	1. 북한 2. 중국 3. 한국
16. 귀하께서는 언어폭력(예, 매우 심한 욕설, 멸시, 조롱 등의 말을 들음)을 경험하신 적이 있 습니까?	1. 예 2. 아니오	1. 북한 2. 중국 3. 한국
17. 귀하께서는 성폭력(예, 강간, 강간 시도, 인신매매 등)을 당하신 경험이 있습니까?	1. 예 2. 아니오	1. 북한 2. 중국 3. 한국

C. 외상후 스트레스 증상

* 자신을 가장 힘들게 하는 과거사건을 떠올리시고 이와 관련하여 다음 질문에 응답해 주십시오.

1) 이 경험을 간략하게 기술해 주십시오.

_____

2) 이 경험은 언제 일어났습니까? (아래 중 하나에 표시해 주십시오.)

① 6개월 안 됨	④ 5-10년 전
② 6-12개월 전	⑤ 10-20년 전
③ 1-5년 전	⑥ 20년 더 됨

C. 외상후 스트레스 증상 (Continued)

* 다음은 충격적이거나 스트레스가 되는 사건 후 사람들이 때로 겪을 수 있는 어려움입니다. 각 문항을 주의 깊게 읽고, 귀하가 지난 한 달 동안 해당 어려움으로 얼마나 괴로웠는지

알맞은 번호에 표시하십시오.

문 항	전혀 아니다	약간 그렇다	보통 그렇다	상당히 그렇다	극도로 그렇다
1. 사건 일부분이 반복되는 꿈 혹은 사건과 관련한 고통스러운 꿈을 꾸십니까?	0	1	2	3	4
2. 마치 사건이 지금-여기에서 다시 일어 나는 느낌을 주는 강렬한 심상과 기억이 마음속에 떠오릅니까?	0	1	2	3	4
3. 사건을 기억나게 하는 내면 상태 (예: 생각, 감정, 신체 감각)를 피하려 합니까?	0	1	2	3	4
4. 사건을 기억나게 하는 외부 상황 (예: 관련된 사람, 장소, 대화, 물건, 활동, 상황)을 피하려 합니까?	0	1	2	3	4
5. 극도로 각성되어 있거나, 조심하거나, 경계합니까?	0	1	2	3	4
6. 화들짝 소스라치거나 갑자기 잘 놀랩니까?	0	1	2	3	4
지난 한 달 동안 위와 같은 증상이 ...					
7. 대인 관계나 사회 생활에 영향을 주었습니까?	0	1	2	3	4
8. 일이나 업무 능력에 영향을 주었습니까?	0	1	2	3	4
9. 중요한 삶의 일부, 예를 들어, 자녀 양육, 학업 등 다른 중요한 활동에 영향을 주었습니까?	0	1	2	3	4

C. 외상후 스트레스 증상 (Continued)

* 다음은 스트레스 혹은 충격적인 사건을 경험한 사람이 때로 겪을 수 있는 문제나 증상입니다. 자기 자신에 대해 보통 느끼거나 생각하는 바, 혹은 내가 다른 사람과 보통 관계하는 방식에 관한 질문입니다. 각 문항이 평소 자신과 얼마나 일치한다고 생각하는지 알맞은 번호에 표시해 주십시오.

문 항	전혀 아니다	약간 그렇다	보통 그렇다	상당히 그렇다	극도로 그렇다
1. 마음이 고통스러워지면 진정하는 데 오랜 시간이 걸린다.	0	1	2	3	4
2. 느낌이 잘 안 느껴지고 감정이 막혀버린 느낌이다.	0	1	2	3	4
3. 나는 실패자 같다	0	1	2	3	4
4. 내가 무가치한 느낌이다.	0	1	2	3	4
5. 사람들로부터 멀어지고 단절된 느낌이다.	0	1	2	3	4
6. 사람들과 정서적으로 가깝게 지내기 어렵다.	0	1	2	3	4
지난 한 달 동안, 감정, 나 자신에 대한 생각, 관계에 관한 위와 같은 어려움이 …					
7. 대인 관계나 사회 생활에 문제나 괴로움을 주었습니까?	0	1	2	3	4
8. 일이나 업무 능력에 영향을 주었습니까?	0	1	2	3	4
9. 중요한 삶의 일부, 예를 들어, 자녀 양육, 학업 등 다른 중요한 활동에 영향을 주었습니까?	0	1	2	3	4

D. 가족기능 家庭职能 : 어머니와 자녀

문 항 问 题 * 우리 가족은 ... * 我的家人 ...	매우 그렇다 非常那样	약간 그렇다 有点那样	다소 그렇지 않다 多少不是这样	전혀 그렇지 않다 绝对不是那样
1. 서로를 잘 이해하지 못하기 때문에 우리가 해야 할 일을 계획하지 못한다. 因为互相不理解, 所以我们没有计划好要做的事情。	1	2	3	4
2. 누군가가 기분이 나쁘면 왜 그런지를 안다. 如果有人不高兴，知道是因为为什么。	1	2	3	4
3. 위기가 닥치면 서로에게 도와 달라고 부탁할 수 있다. 如果遇到困难, 可以互相请求帮助。	1	2	3	4
4. 갑자기 큰 일을 맞게 되면 어떻게 할 바를 모른다. 突然遇到大事不知所措。	1	2	3	4
5. 서로에 대한 애정표현을 하지 않으려고 한다. 不愿互相表达爱意。	1	2	3	4
6. 슬픈 일이 있어도 서로에게 그런 이야기를 하지 않는다. 即使有悲伤的事情, 也不会互相倾诉。	1	2	3	4
7. 자신에게 중요한 일일 때만 서로에게 관심을 가진다. 只有对自己重要的事情时，才会互相关心。	1	2	3	4
8. 집에서 할 일이 충분히 나누어져 있지 않다. 家务活分的不分明。	1	2	3	4
9. 규칙을 어겨도 그냥 지나간다. 违反规定也不追究。	1	2	3	4
10. 빗대어 말하기보다는 직접 솔직하게 얘기한다. 说话直接，不委婉。	1	2	3	4

D. 가족기능 家庭职能 : 어머니와 자녀 (Continued)

11. 감정적으로 반응하지 않는 식구들이 있다. 有些家人不感情用事。	1	2	3	4
12. 우리가 두려워하는 일이나 걱정에 대해 이야기를 꺼린다. 我们忌讳谈论我们担心或害怕的事情。	1	2	3	4
13. 각자의 역할을 다하지 못한다. 不能尽到各自的责任	1	2	3	4
14. 집안문제를 해결하려고 애쓴 후에 그것이 잘 되었는지 아닌지에 대해 얘기하곤 한다. 在努力解决家里问题后, 经常谈论它是否成功。	1	2	3	4
15. 지나치게 자기중심적이다. 过度地以自我为中心。	1	2	3	4
16. 서로에게 감정을 표현할 수가 있다. 可以互相表达感情	1	2	3	4
17. 화장실을 사용하는 방식이 정해져 있지 않다. 没有规定使用卫生间的方式。	1	2	3	4
18. 서로에 대한 사랑을 표현하지 않는다. 不表达对彼此的爱。	1	2	3	4
19. 우리에게 관계 있는 일에만 서로 관여하게 된다. 只关心和我们有关地事情。	1	2	3	4
20. 식구들이 개인적인 관심사를 알아볼 시간이 별로 없다. 家人没有时间了解个人关心的事情。	1	2	3	4
21. 개인적으로 얻는 것이 있다고 생각할 때 서로에게 관심을 보인다. 对自己有利的时候，互相联系对方。	1	2	3	4
22. (나쁜) 감정 문제가 나타나면 거의 풀고 지나간다. 如果出现（不好的）感情问题，几乎都会解决。	1	2	3	4
23. 다정다감한 편은 아니다. 对人不是很温柔。	1	2	3	4

D. 가족기능 家庭职能 : 어머니와 자녀 (Continued)

24. 어떤 이득이 있을 때에만 서로에게 관심을 보인다. 只有在某种利益的时候才会互相关心。	1	2	3	4
25. 서로에게 솔직하다. 对彼此坦诚。	1	2	3	4
26. 어떤 규칙이나 기준을 고집하지 않는다. 不固执于任何规定或原则。	1	2	3	4
27. 어떤 일을 부탁하고 나서 나중에 다시 일러줘야 한다. 有些事要拜托以后再提醒你。	1	2	3	4
28. 집에서 지켜야 할 약속들을 어기면 어떻게 되는 건지 잘 모른다. 如果违背在家中应该遵守的规定, 不知道会怎么样。	1	2	3	4
29. 함께 있으면 잘 지내지 못한다. 在一起不好相处。	1	2	3	4
30. 가족으로서 각자가 해야 할 일에 대해 불만을 가지고 있다. 作为家人, 对各自应该做的事情感到不满。	1	2	3	4
31. 좋자고 하는 것이지만 서로의 생활에 너무 많이 개입한다. 虽然是为了对方好，但是过多地介入彼此的生活。	1	2	3	4
32. 서로를 믿는다. 互相信任。	1	2	3	4
33. 누가 해 놓은 일이 마음에 들지 않으면 그 사람에게 말한다. 如果不喜欢别人做的事情，就和那个人说。	1	2	3	4
34. 문제를 해결하려고 할 때 여러가지 방법을 생각해 본다. 解决问题的时候会想各种办法。	1	2	3	4

E. 일반적 사항

1. 생년월일: _____ 년 ____월 ____일
2. 탈북시기 : 처음 탈북 _____ 년 ____ 월
   마지막 탈북 _____ 년 ____ 월
3. 북한교육 경험 (해당되는 곳에 따라 V 표시해주세요)
   1) 소학교(인민학교) 중퇴 2) 소학교(인민학교) 졸업 3) 고등중학교 중퇴
   4) 고등중학교 졸업 5) 전문학교 졸업 6) 대학교 졸업
4. 남한교육 경험 (해당되는 곳에 따라 V 표시해주세요)
   1) 검정고시(중학교 졸업) 2) 검정고시(고등학교 졸업) 3) 초등학교 졸업
   4) 중학교 졸업 5) 고등학교 졸업 6) 전문학교 졸업 7) 대학교 졸업
   8) 대학원 이상
5. 현재 종교 상태
   1) 무교(종교 없음) 2) 기독교 3) 천주교 4) 불교 5) 기타 _____
6. 현재 결혼 상태
   1) 미혼 2) 기혼 3) 이혼 및 별거 4) 동거 5) 사별 6) 기타
7. 귀하는 북송경험이 있습니까?
   1) 예 2) 아니오
   7-1 있다면 몇회입니까? (_____회)
8. 귀하는 탈북 과정에서 제3국 체류 경험이 있습니까?
   1) 예 2) 아니오
   8-1 있다면 체류기간을 입력해주세요. _____ 년 ____ 개월
9. 현재 직업은 어떻게 되십니까?
   1) 무직 2) 학생 3) 전업주부 4) 전문직 5) 사무직 6) 일용/근로직
   7) 자영업(예: 개인사업, 가게운영 등) 8) 기타
10. 현재 월 가계 수입은?
   1) 있음 2) 없음
   10-1 있다면 금액을 입력해주세요. (_____만원)

E. 일반적 사항 (Continued)

11. 귀하는 정신건강 상의 문제가 아닌 신체적 질병이나 신체적 장애가 있습니까?

1) 예 2) 아니오

11-1 질병이나 장애가 있다면 자세히 작성해주세요. (_____)

12. 귀하는 평상시 자신의 건강상태가 어떻다고 생각하십니까?

1) 매우 좋음 2) 좋음 3) 보통 4) 나쁨 5) 매우 나쁨

13. 평소 일상생활 중에 스트레스를 어느 정도 느끼고 있습니까?

1) 대단히 많이 느낀다

2) 많이 느끼는 편이다

3) 조금 느끼는 편이다

4) 거의 느끼지 않는다

14. 귀하의 자녀는 총 몇명입니까?

1) 1명 2) 2명 3) 3명 4) 4명 5) 5명 이상

15. 이 연구에 참여하는 자녀의 성별은?

1) 남자 2) 여자

16. 이 연구에 참여하는 자녀의 출생국은 어디입니까?

1) 북한 2) 중국 3) 남한 4) 기타

17. 자녀의 연구참여를 위해 자녀의 전화번호를 정확하게 입력해주세요.

자녀의 설문조사내용에는 <북한>과 관련된 내용이 전혀 포함되지 않습니다.

전화번호:_____

설문에 참여해 주셔서 감사합니다.

Appendix 3. Survey Questionnaire for Adolescent Children

A. 아동기 부정적 경험 (儿童期负面经验)

※ 다음은 지금까지 살면서 한번이라도 경험했던 일에 대한 질문입니다. 잘 읽고 해당하는 곳에 응답해주세요.

下面是关于至今至少经历过一次的事情的提问。 请仔细阅读并回答在相应的地方。

번호 号码	문 항 提 问	예 有	아니오 没有
1	집에서 부모님이나 어른이 여러분에게 자주 욕을 하거나, 기죽이거나, 망신을 준 적이 있나요? 아니면 때릴까 봐 무서워한 적이 있나요? 家里有没有父母或大人经常骂大家、泄气、让你丢脸？ 或者有害怕被打吗?	1	2
2	집에서 부모님이나 어른이 자주 당신을 밀거나, 잡고, 때리거나, 물건을 던진 적이 있나요? 아니면 맞아서 몸에 자국이 남거나 상처가 난 적이 있나요? 家里有没有父母或大人经常推你、抓你、打你、扔东西？ 或者被打后身上留下痕迹或受伤过吗？	1	2
3	여러분보다 적어도 5살 이상 많은 사람이나 어른이 성적으로 몸을 만지거나 괴롭힌 적이 있나요? 有没有比你大5岁的人或大人用性接触过身体或折磨过？	1	2
4	가족 중에서 아무도 나를 사랑하지 않다거나, 나를 중요하고 특별하게 생각하지 않는다고 자주 느끼나요? 아니면 우리 가족이 서로 얼굴을 보지 않거나, 가깝게 느껴지지 않고, 날 믿어주지 않는다고 생각하나요? 你经常觉得家里没有人爱我，或者认为我重要或特别吗？ 还是觉得我们家人互相不见面，不亲近，或者不相信我？	1	2

A. 아동기 부정적 경험 (儿童期负面经验) (Continued)

5	여러분이 느끼기에 밥을 자주 제때 못 먹거나, 깨끗하지 않은 옷을 입어야 했거나, 아무도 날 지켜주지 못한다고 생각한 적이 있나요? 아니면 내가 아파서 병원에 가야 되거나, 부모님이 나를 돌봐줘야 하는데 부모님이 술에 취해 있진 않았나요? 你有没有经常不能按时吃饭，或者不得不穿不干净的衣服，或者觉得没有人保护我？ 当你生病去医院， 需要爸妈照顾你时， 你爸妈有喝醉吗？	1	2
6	부모님이 별거나 이혼을 한 적이 있나요? 你父母有分居或离过婚吗?	1	2
7	어머니나 새어머니가 나를 자주 잡고 때리거나, 밀치거나, 물건을 던진 적이 있나요? 아니면 가끔 혹은 종종 발이나 주먹으로 나를 때리거나, 딱딱한 물건으로 때린 적이 있나요? 아니면 적어도 몇 분 동안 반복적으로 칼 같은 위험한 물건으로 위협한 적이 있나요? 妈妈或继母经常抓我，打我、推我、扔东西吗？ 或者偶尔或经常用脚或拳头打我，或者用硬物打我？ 或者至少用刀等危险物品反复威胁了几分钟？	1	2
8	가족 중에 알코올 중독이나 약물 중독인 사람이 있나요? 你的家人有酗酒或吸毒成瘾的人吗?	1	2
9	가족 중에 우울증이 있거나, 정신적으로 문제가 있거나, 자살을 시도한 사람이 있나요? 家人中有忧郁症、精神上有问题或试图自杀的人吗？	1	2
10	가족 중 교도소에 간 사람이 있나요? 家里有人去监狱吗?	1	2

B. 우울 抑郁症状

* **지난 2주간** 아래와 같은 **기분이나 증상**을 **얼마나 경험**하였는지에 대하여
'결코 그렇지 않다'부터 '매우 그렇다' 중에서 선택해 주세요.

在过去的2周里经历了多少以下的心情或症状,请从"绝对不是"到"非常"中选择。

문 항 问 项	결코 그렇지 않다 并非如此	약간 그렇다 略微如此	그렇다 那样	상당히 그렇다 相当那样	매우 그렇다 绝然
1. (지난 2주간) 하루 중 대부분의 시간 동안 울적했다. （过去两周）一天中大部分时间都很郁闷。	0	1	2	3	4
2. (지난 2주간) 즐겁게 생활하지 못했다. （过去2周）没能愉快地生活。	0	1	2	3	4
3. (지난 2주간) 불안하거나 과민했다. （过去2周）感到不安或过敏。	0	1	2	3	4
4. (지난 2주간) 말하거나 움직이기조차 싫었다. （过去2周）我都不愿意说话，甚至不想动弹。	0	1	2	3	4
5. (지난 2주간) 내 삶은 가치가 없다고 느꼈다. (过去2周)我觉得我的生活没有价值.	0	1	2	3	4
6. (지난 2주간) 이전보다 집중력이나 의사 결정 능력이 떨어졌다. （过去2周）注意力和判断能力比以前有所下降。	0	1	2	3	4
7. (지난 2주간) 살기가 귀찮고 죽어 버리고 싶다고 느꼈다. （过去2周）觉得活着很累，想死掉。	0	1	2	3	4
8. (지난 2주간) 덫에 걸려 빠져나올 수 없을 것 같은 기분이 들었다. （过去2周）感觉自己陷入了陷阱，无法自拔。	0	1	2	3	4

B. 우울 抑郁症状 (Continued)

9. (지난 2주간) 앞날에 대해 더는 기대할 것이 없다고 느꼈다. （过去2周）对未来感到没有什么可期待的了。	0	1	2	3	4
10. (지난 2주간) 평소보다 식욕이 줄었다. （过去2周）食欲比平时减少了。	0	1	2	3	4
11. (지난 2주간) 평소보다 식욕이 늘었다. （过去2周）食欲比平时有所增加。	0	1	2	3	4
12.(지난 2주간) 잠드는게 어렵거나 자주 깼다. （过去2周）很难入睡或经常醒来。	0	1	2	3	4

C. 불안 (不安)

*** 지난 2주간** 아래와 같은 **기분이나 증상**을 **얼마나 경험**하였는지에 대하여

'결코 그렇지 않다'부터 '매우 그렇다' 중에서 선택해 주세요.

在过去的2周里经历了多少以下的心情或症状,请从"绝对不是"到"非常"中选择。

문 항 问 项	결코 그렇지 않다 并非如此	드물게 그렇다 少见如此	때때로 그렇다 有时如此	자주 그렇다 屡次如此	항상 그렇다 一向如此
1. (지난 2주간) 이성적으로 참아보려고 해도 불안을 견디기 힘들었다. （过去2周）即使想理智地忍耐，也很难忍受不安。	0	1	2	3	4
2. (지난 2주간) 걱정하는 것을 조절하거나 멈출 수가 없었다. （过去2周）无法调节或停止担心。	0	1	2	3	4

C. 불안 (不安) (Continued)

3.(지난 2주간) 초조하고 안절부절 못했다. （过去2周）焦躁不安。	0	1	2	3	4
4. (지난 2주간) 피곤하여 다른 생각을 할 수 없었다. （过去2周）累得想不出别的。	0	1	2	3	4
5. (지난 2주간) 어떤 것에도 도무지 집중할 수 없었다. (过去2周)我根本无法集中精神做任何事情。	0	1	2	3	4
6. (지난 2주간) 주변에서 오는 모든 자극에 신경이 쓰였다. （过去2周）对周围的琐事感到烦躁。	0	1	2	3	4
7. (지난 2주간) 머리가 무겁고 목이 뻣뻣했다. （过去2周）头很重，脖子很僵硬邦邦的。	0	1	2	3	4
8. (지난 2주간) 잠을 잘 자지 못해서 오전 내내 피곤했다. (过去2周)因为没睡好觉，整个上午都很累。	0	1	2	3	4
9. (지난 2주간) 불안하고 초조해서 학교생활과 아르바이트 등 사회생활에 어려움이 있었다. （过去2周）因为不安和焦躁，在学校生活和 打工等社会生活上遇到了困难。	0	1	2	3	4
10. (지난 2주간) 갑자기 가슴이 답답해진 적이 있었다. （过去2周）我突然感到胸闷。	0	1	2	3	4
11. (지난 2주간) 긴장되거나 신경이 곤두섰다. （过去2周）紧张或神经紧张。	0	1	2	3	4

D. 일반적 사항 一般事项

1. 실제 생년월일이 언제입니까? _____년 _____월
   (实际出生年月日是什么时候？ _____年 _____月)

2. 성별은 무엇입니까? (性别是什么？) 1) 남 (男) _____ 2) 여 (女) _____

3. 귀하가 태어난 나라는 어디입니까? (您出生的國家是哪裏) _____

4. 현재 학업 과정은 어디에 해당합니까? (现在的学业课程属于哪门？)
   1) 초등학생 小学生
   2) 중학생 中学生
   3) 고등학생 高中生

5. 현재 다니는 학교의 유형은 무엇입니까? (你现在上的是什么类型的学校？)

   1) 일반학교 (普通学校)
   2) 대안학교 (代案学校)
   3) 자사고 (独立型私立高中)
   4) 특목고(영재, 과학, 외국어, 예술, 국제, 체육, 마이스터 등)
      (特殊目的高中 - 英才、科学、外语、艺术、国际、体育、专业等)
   5) 특성화고(직업학교, 대안학교 등) (特性化高中 - 业学校、代案学校 等)
   6) 기타 _____ (其他)_____

6. 종교 (宗教)
   1) 기독교 (基督教)
   2) 천주교 (天主教)
   3) 불교 (佛教)
   4) 기타 (其它)
   5) 무교 (없음) (无宗教)

7. 거주형태 (居住形态)

   1) 가족과 함께 살고 있음 (和家人一起生活)
   2) 하숙, 기숙사, 자취 (寄宿，宿舍，独居)
   3) 친척집, 보육시설(사회복지시설, 보육원)
      (亲戚家, 保育设施 - 社会福利设施、保育院)

D. 일반적 사항 一般事项 (Continued)

8. 가정 경제수준 (家庭经济水平)
   1) 상 (上)
   2) 중상 (中上)
   3) 중 (中)
   4) 중하 (中下)
   5) 하 (下)

9. 귀하는 평상시 자신의 건강상태가 어떻다고 생각합니까?
   (您平时觉得自己的健康状况怎么样？)
   1) 매우 좋음 (很好)
   2) 좋음 (好)
   3) 보통임 (一般情况下)
   4) 나쁨 坏
   5) 매우 나쁨 (坏透了)

10. 평소 일상생활 중에 스트레스를 어느 정도 느끼고 있습니까?
    (你平时在日常生活中感受到多少压力？)
    1) 대단히 많이 느낀다 (感到很大压力)
    2) 많이 느끼는 편이다 (感到一些压力)
    3) 조금 느끼는 편이다 (感到一点压力)
    4) 거의 느끼지 않는다 (几乎感觉不到)

설문에 참여해주셔서 감사합니다.
感谢您参与问卷调查。

KOREAN ABSTRACT

북한이탈주민 어머니의 외상후 스트레스 증상이 청소년 자녀의 정신건강에 미치는 영향 : 가족기능과 아동기의 부정적 경험의 매개 역할

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남한에 입국한 북한이탈주민은 탈북 과정에서 다양하고 극심한 외상을 경험하며 외상후 스트레스(PTSD) 유병률도 높다. 부모가 경험한 외상으로 인한 정서적 · 심리적 상처는 자녀의 어린시절뿐만 아니라 성인기의 신체건강 및 심리사회적 안녕에도 장기적으로 영향을 미칠 수 있다. 본 연구에서는 북한이탈주민 어머니의 PTSD증상이 청소년기 자녀의 정신건강(우울, 불안)에 미치는 영향을 파악하기 위해 가족기능과 아동기 부정적 경험의 매개역할을 확인하고자 하였다.

본 연구는 서술적 상관관계 연구로 남한의 지역사회에 거주하는 북한이탈주민 어머니와 청소년기 자녀를 한 쌍으로 모집하였으며, 총 113쌍의 자료를 분석하였다. 어머니는 외상경험과 PTSD 증상, 인지된 가족기능 수준을 측정하였고, 자녀는 인지된 가족기능, 아동기 부정적 경험, 우울, 불안을 주요 변수로 측정하였다.

통계분석을 위해 SPSS 버전 27.0과 SPSS PROCESS macro, 버전 3.5.3을 사용하였으며, 매개 분석의 경우 PROCESS macro 모델 6번을 사용하여 5,000개의 부트

스트랩 샘플을 기반으로 수행하였다.

본 연구에 참여한 북한이탈주민 어머니의 평균 연령은 48.6 ± 6.8로 탈북과정에서 9.9±4.5개의 외상을 경험하였다. 국제질병분류(International Classification of Diseases, 11th Revision: ICD-11)의 진단기준에 따라 PTSD 증상을 분류한 결과, PTSD 증상은 16.8% (n=19), 복합성 PTSD(CPTSD) 증상은 17.7%(n=20)로 확인되었다. 어머니가 인지한 가족기능은 평균 2.3 ± 0.5점으로, PTSD 또는 CPTSD가 있는 어머니의 가족기능은 PTSD 증상이 없는 군에 비해 유의하게 낮았다 (F=6.234, p = .003).

청소년 자녀가 인지한 가족기능은 평균 2.0 ± 0.4점이었으며, PTSD 또는 CPTSD가 있는 어머니의 자녀는 정서적 반응 하부요인에서 유의하게 낮았다(F = 3.786, p = .026). 자녀의 아동기 부정적 경험은 평균 1.1 ± 1.4개였으며, PTSD 또는 CPTSD가 있는 어머니의 자녀의 아동기 부정적 경험이 유의하게 많았다 (F = 5.811, p = .004). 자녀의 우울 점수는 평균 5.3 ± 6.2점이었고, 불안 점수는 평균 6.3 ± 7.9점이었다. PTSD 또는 CPTSD가 있는 어머니의 자녀는 우울(F = 3.407, p = .037) 및 불안 (F = 3.122, p = .048) 수준이 유의하게 높았다.

본 연구 결과, 북한이탈주민 어머니의 PTSD 증상은 자녀의 우울과 불안에 직접적으로는 영향을 미치지 않았으며, 어머니가 보고한 가족기능도 자녀의 우울과 불안에 영향을 미치지 않았다. 그러나 북한이탈주민 어머니의 PTSD 증상은 자녀가 인지한 가족기능과 아동기 부정적 경험을 순차매개하여 자녀의 우울(β = 2.4117, 95% CI [.9606, 4.2761])과 불안(β = 3.1588, 95% CI[1.2689, 5.4724])에 영향을 미치는 것으로 파악되었다.

본 연구에서는 북한이탈주민 어머니의 외상경험으로 인한 PTSD 증상이 청소년기 자녀의 정신건강에 간접적으로 영향을 미친다는 것을 확인하였다. 북한이탈주민의 외상의 세대간 전이 예방을 위해서는 북한이탈주민의 정신건강뿐만 아니라 가족을 포함한 통합적 지원이 필요하다.

핵심되는 말 : 북한이탈주민, 청소년 자녀, 외상경험, 외상후 스트레스증상, 가족기능, 아동기 부정적 경험, 정신건강, 우울, 불안