

Factors influencing children's emotional and behavioral problems perceived by North Korean refugee mothers: a descriptive study

In-Sook Lee¹, Jeong-Hee Jeon²

¹Professor, Department of Nursing, Hannam University, Daejeon, Korea

²Visiting Professor, College of Nursing, Ewha Womans University, Seoul, Korea

Corresponding author

In-Sook Lee

Department of Nursing, Hannam University, 70 Hannamro, Daedok-gu, Daejeon 34430, Korea
TEL: +82-42-629-8472
FAX: +82-42-629-8472
E-MAIL: is2009@hnu.kr

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Purpose: The study investigated the relationships between key variables, including the level of parenting knowledge, acculturative stress, depression, and the strengths and difficulties associated with their children's emotions and behavior, among North Korean refugee mothers who faced the challenging task of adapting to Korean society while raising their children. **Methods:** A descriptive study design was used. Data were collected from 130 North Korean refugee mothers between September and November 2023. **Results:** The participants had very limited parenting knowledge, and 82.3% of them scored 21 or higher on the depression scale used in community epidemiological studies. Higher levels of parenting knowledge and lower levels of depression were associated with lower levels of acculturative stress. Moreover, higher levels of depression were associated with more emotional and behavioral difficulties in children. Maternal depression, age, and employment status were identified as factors that influenced emotional and behavioral problems in preschool-aged children. **Conclusion:** These findings underscore the importance of providing parent education and mental health support programs for North Korean refugee families in order to improve parents' parenting skills and emotional well-being.

Keywords: Parenting; Depression; Problem behavior; Refugees; Democratic People's Republic of Korea

INTRODUCTION

Parenting knowledge refers to a mother's understanding of the realities of parenting [1]. During childbirth and child-rearing, it is crucial for mothers to be knowledgeable about their child's normal growth and development, as well as healthcare. A mother's parenting knowledge significantly influences her parenting behaviors and expectations, which in turn impact the child's development [2]. When a mother possesses accurate developmental knowledge about her child, she can better understand their behavior, engage with them effectively, and foster their development by setting re-

alistic expectations for their abilities. Additionally, a mother's insight into her child's development enables her to apply appropriate parenting techniques and provide environmental stimulation that aligns with their developmental stage [3]. Knowledge about parenting is crucial for creating a high-quality parenting environment. Therefore, parenting knowledge plays a pivotal role in shaping maternal parenting behaviors and influencing children's development. It has also been reported that accurate parenting knowledge is linked to positive parenting behaviors and beneficially affects child development [4].

Women who defect from North Korea have been reported

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to face significant acculturative stress when integrating into South Korean society, resulting in specific psychological and mental symptoms such as post-traumatic stress disorder, depression, and anxiety [5,6]. North Korean refugee women often report conflicts with their children and difficulties in raising them within South Korean society. These challenges with their children are major factors affecting the acculturation of North Korean refugee women [7]. After entering South Korea, these women face various burdens, such as caring for or bringing their remaining family members, including children from North Korea or China, into the country. They also experience challenges in raising children and solving financial difficulties, all of which negatively impact their mental health [8]. Maternal psychological and emotional characteristics also play a significant role in children's development. It has been observed that mothers with unstable and depressive tendencies have lower levels of positive parenting attitudes, which they transmit to their younger children. This, in turn, leads to a variety of behavioral issues in these children and increases the likelihood of them mirroring their mothers' emotional tendencies [9].

Meanwhile, problem behavior in early childhood is a significant predictor of later maladaptive and regressive development. This term refers to behaviors that deviate from societal norms or are inappropriate for a specific environmental context [10]. Such behaviors are maladaptive and manifest across various developmental areas, including a child's physical, cognitive, emotional, moral, and social skills [11]. Problem behavior in young children is not confined to childhood alone but also affects subsequent developmental processes. Therefore, it is crucial to identify the causes early and prevent these behaviors at a young age [12]. To understand problem behaviors in children, it is essential to consider the environmental context in which the child is situated [13]. The most influential environments are typically the child's home and the parents. The parent who has the closest relationship with the child often has the most significant impact. Factors related to this parent are likely to play a crucial role [9]. It has been suggested that the psychological characteristics and environment of the parents are particularly significant for children in early childhood, as they develop social skills within their surrounding environment [14]. Thus, identifying the psychological characteristics of parents that influence a child's problem behavior is a critical aspect of understanding these issues [15].

North Korean refugee mothers often struggle to adjust to South Korean society and face challenges in raising their children [7]. These difficulties stem from cultural differences, psychological anxieties such as depression, and economic hardships. Unfortunately, these struggles can negatively impact their ability to effectively raise their children. Additionally, the stress caused by their unstable lives can lead to problematic behaviors in their children [16]. Therefore, this study aims to investigate the relationship between North Korean refugee mothers' caregiving knowledge and psychological characteristics, including acculturative stress and depression, and their children's problem behaviors. This research is particularly important as these mothers face the dual challenges of adapting to South Korean society and raising their children. It also aims to provide a foundation for developing programs that will assist North Korean women in overcoming psychological difficulties and raising healthy children. Furthermore, it seeks to support parents and family members in improving their mental health and aiding their psychological adjustment.

The objective of this study was to assess the parenting knowledge, acculturative stress, depression, and emotional and behavioral problems of preschool-aged children among mothers who have defected from North Korea. The findings will provide foundational information for developing an educational program aimed at promoting the healthy growth and development of their children. The specific objectives are as follows: 1) To assess the levels of parenting knowledge, acculturative stress, and depression among North Korean refugee mothers; 2) To identify the emotional and behavioral problems exhibited by children of North Korean refugee mothers; 3) To explore variations in parenting knowledge, acculturative stress, depression, and children's emotional and behavioral problems based on the general characteristics of North Korean refugee mothers; and 4) To analyze the factors influencing children's emotional and behavioral problems.

METHODS

Ethical statements: This study was approved by the Institutional Review Board (IRB) of Hannam University (No. 2023-01-10-0804). Informed consent was obtained from all participants.

1. Study Design

This descriptive survey study examined the levels of knowledge about parenting, acculturative stress, depression, and children's emotional and behavioral problems among North Korean refugee mothers with preschool-aged children, and also analyzed the correlations between major variables. This study was reported according to the Reporting of Observational Studies in Epidemiology (STROBE) reporting guidelines [17].

2. Participants

The target population for this study consisted of North Korean refugee mothers registered at local community centers for North Korean refugees. Eligible participants were those who understood the study's aims, methods, and questionnaires, and who voluntarily agreed to participate. The selection criteria included: (1) women (over 18 years old) with preschool-aged children; (2) ability to communicate effectively; and (3) absence of chronic disabilities, diseases, or psychological issues. The sample size was determined to account for potential invalid data due to errors and omissions in self-report questionnaires. Using the G*Power 3.1 program, a sample size of 129 was calculated based on a significance level of .05, an effect size of .25, a power of .95, and the requirement of 4 predictors for regression analysis. To accommodate an anticipated dropout rate of about 10%, the sample size was adjusted to 142. Of the 142 North Korean refugee women who met the selection criteria, data from 130 respondents were analyzed. This analysis followed the exclusion of 12 questionnaires due to insincere survey responses.

3. Study Tools

1) Parenting knowledge

The parenting knowledge of North Korean refugee mothers was assessed using the same tool employed in a previous study by Lim [18]. This tool comprises 29 questions designed to evaluate personal knowledge regarding the emotional, cognitive, physical, and social development of infants and toddlers from birth up to 3 years of age. Each question is scored 1 for a correct answer and 0 for an incorrect one, allowing for a total score ranging from 0 to 29. Higher scores indicate a more comprehensive understanding of infant and toddler development. The reliability of the parenting knowl-

edge scale from Lim's study [18] was determined using Cronbach's α , which yielded values of .57 for emotional development, .59 for cognitive development, .42 for physical development, and .42 for social development. Additionally, the overall reliability for all items, as measured by Cronbach's α , was .77. In the current study, the overall Cronbach's α improved to .85, with scores of .69 for emotional development, .61 for cognitive development, .66 for physical development, and .77 for social development.

2) Depression

The depression scale used in this study is the Center for Epidemiological Studies-Depression Scale (CES-D), a 20-item self-report screening tool originally developed by the National Institute of Mental Health in the United States. This scale has been adapted from the Korean revised version by Chon et al [19]. Participants rated the frequency of depressive symptoms they experienced over the past week using a 4-point Likert scale, which ranged from "extremely rarely (0 points)" to "almost every day (3 points)." Items 4, 8, 12, and 16 were reverse-scored due to their positive connotations. The total possible score on the scale ranges from 0 to 60, with higher scores indicating greater depression. Initially, a score of 16 or more was considered indicative of clinical depression, but community epidemiological studies in Korea have suggested a threshold of 21 or more [20]. Cronbach's α coefficients were .89 in both the original study by Chon et al. [19] and in the current study.

3) Acculturative stress

Acculturative stress was assessed using the acculturative stress scale for international students, originally developed by Sandhu and Asrabadi [21]. This scale was later modified and expanded by Lee [22] to comprise a total of 33 items. The instrument includes seven sub-scales: six items address perceived discrimination, four cover homesickness, five assess perceived hostility, three focus on culture shock, four relate to fear, two pertain to guilt, and nine items evaluate social isolation, inferiority, mistrust, communication, and other factors. Responses are recorded on a Likert scale ranging from 1 to 5. To avoid confusion, negative statements were rephrased as positive ones. The language of the scale was carefully chosen to resonate with the characteristics of the target audience. After modifications, the scales were reviewed and approved by an educator experienced with North Korea and North Korean refugees. Initially, the reliability of the scale was demon-

strated by a Cronbach's α value of .94; in this study, Cronbach's α was .83.

4) Emotional and behavioral problems of children

To measure children's emotional and behavioral problems, we used a parent-reported questionnaire known as the Korean version of the Strengths and Difficulties Checklist (SDQ-Kr) [23]. The SDQ-Kr scale comprises 25 questions, divided equally among five categories: prosocial behavior, hyperactivity, emotional symptoms, conduct problems, and peer problems. Prosocial behavior is categorized as a strength, whereas hyperactivity, emotional symptoms, conduct problems, and peer problems are considered difficulties. The term "hyperactivity" refers to traits such as an inability to stay still for extended periods or being easily distracted. "Emotional symptoms" encompass internalizing symptoms such as depression and anxiety. "Conduct problems" represent common externalizing issues closely associated with antisocial behavior in children and adolescents. "Peer problems" include challenges in forming peer relationships and experiences of rejection. Parents evaluate each item using a three-point rating scale: "not at all" (0 points), "somewhat true" (1 point), and "definitely true" (2 points), reflecting their child's behavior over the previous six months. The maximum total score for strengths is 10 points, with higher scores indicating more positive behavior. Conversely, the maximum possible total score for difficulties is 40 points, with each difficulty subscale having a maximum of 10 points. For difficulties, lower scores here suggest more favorable behavior. The SDQ-Kr is designed to be unaffected by the educational level of the parents, as it employs short and straightforward sentences. The reliability of the tool was initially established with a Cronbach's α of .74, and in this study, Cronbach's α was .87.

4. Data Collection

Data were collected through self-report questionnaires between September and November 2023. Prior to data collection, permission was obtained from the heads of the South-North Hana Centers, a network that provides medical counseling and resettlement support to North Korean refugees, after explaining the purpose of the study. Participants were recruited through both online and offline posters. Participants' identities were not disclosed to the heads of the individual centers, and the survey was conducted in the confer-

ence or counseling rooms of each center with the assistance of staff members. The purpose of the study, participant anonymity and confidentiality, the use of survey results for academic purposes only, and the participants' right to withdraw from the study at any time were explained to the women. The questionnaires were distributed by the principal investigator and a pre-trained assistant, who then immediately retrieved the completed questionnaires. If the participants needed assistance in filling out the questionnaire, the research director or assistant provided help. The questionnaires were collected immediately after completion, and each participant was informed that they could withdraw from the survey without any disadvantages. It took approximately 20 minutes to complete the questionnaire. Each participant received a small token of appreciation after completing the questionnaire.

5. Data Analysis

The data were analyzed using SPSS version 23.0 (IBM Corp.). Differences in the dependent variables (knowledge of parenting, acculturative stress, depression, and emotional and behavioral problems of children) according to the general characteristics of the mothers were presented as frequency, percentage, mean, and standard deviation. Analysis of variance and the Scheffé test were used to determine the relationships between the dependent variables. Pearson correlation coefficients were used to analyze intervariable correlations. Time series regression was conducted to identify the factors that influence children's emotional and behavioral problems.

RESULTS

1. Participants' General Characteristics and Differences in Variables according to General Characteristics

Almost half (47.7%) of the participants were aged 31 to 40 years, 39.2% were aged 41 years or older, and 13.1% were aged 30 years or younger. In terms of education, 62.3% had completed high school or junior high, while 25.4% held a college or university degree or higher. Employment status showed that 57.7% were unemployed or on leave, 32.3% were employed part-time, and 10.3% were full-time workers. Regarding duration of residence in the country, 11.5% had been there for 5 years or less, 56.2% for 5 to 10 years, and 32.3% for more than 10 years. Family composition was as fol-

lows: 54.6% had one child, 37.7% had two children, and 7.7% had three or more children. Additionally, 52.3% were single-parent families, 36.2% were nuclear families, and 11.5% were extended family members living alone or with parents. A substantial proportion (82.3%) scored 21 or higher on the CES-D, indicating clinical depression.

The scores for children’s emotional and behavioral strengths differed by participants’ age. Although the significance of the relationship with the age group was not confirmed in post hoc testing, the scores for children’s emotional and behavioral strengths were significantly higher in the 30 years and under age group ($F=4.91, p=.009$). The scores for children’s emotional and behavioral difficulties were significantly different by participants’ age and occupation. The significance of the relationship with age group was not confirmed in post hoc testing, but the score for children’s emotional and behavioral difficulties was significantly higher in the 41 years or older age group ($F=5.57, p=.005$), as well as in the part-time and unemployed or off-work groups com-

pared to the full-time group ($F=6.19, p=.003$) and in participants with a CES-D score above the cutoff of 21 ($t=-2.68, p=.008$) (Table 1).

2. Parenting Knowledge, Depression, Adjustment Stress, and Children’s Emotional and Behavioral Problems (Strengths/Difficulties)

The average score for participants’ parenting knowledge was 12.50 ± 4.03 out of 29 points. In terms of sub-areas, physical development had the highest item-level mean of 0.55 ± 0.24 out of 1 (total subscale score: 2.19 ± 0.97), followed by emotional development with an item-level mean score of 0.48 ± 0.20 out of 1 (total subscale score: 3.83 ± 1.64), cognitive development with an item-level mean score of 0.43 ± 0.20 out of 1 (total subscale score: 3.46 ± 1.56), and social development with an item-level mean score of $0.34\pm0.17/1$ (total subscale score: 3.05 ± 1.50).

A high proportion of participants (82.3%) exceeded the

Table 1. General Characteristics, Differences in Children’s Emotional and Behavioral Problems (Strengths/Difficulties) according to General Characteristics ($N=130$)

Variables	Categories	n (%)	Children’s emotional and behavioral problems (strengths)		Children’s emotional and behavioral problems (difficulties)	
			M±SD	t/F or χ^2 (p)	M±SD	t/F or χ^2 (p)
Age ^{a)} (year) (20.0–55.0)	≤30	17 (13.1)	4.88±2.20	4.91 (.009)	15.82±3.80	5.57 (.005)
	31–40	62 (47.7)	3.95±1.81		13.87±4.47	
	≥41	51 (39.2)	5.02±1.86		16.67±4.74	
Education level	≤Elementary school	16 (12.3)	4.07±1.88	1.88 (.157)	14.94±4.15	0.06 (.946)
	Middle-high school	81 (62.3)	4.36±2.06		15.32±4.36	
	≥College or University	33 (25.4)	5.03±1.57		15.12±5.64	
Employment	Employees (including blue-collar workers, office workers, and professional workers)	13 (10.0)	5.38±1.45	1.60 (.206)	11.08±3.88 ^a	6.19 (.003) a<b
	Part-time	42 (32.3)	4.48±1.82		15.64±3.94 ^b	
	Unemployed or leave of absence	75 (57.7)	4.35±2.06		15.71±4.84 ^b	
Duration of residency in South Korea ^{b)} (month) (25–241)	≤60	15 (11.5)	5.00±2.04	2.25 (.109)	14.80±3.84	2.49 (.087)
	>60, ≤120	73 (56.2)	4.18±1.89		14.56±4.65	
	>120	42 (32.3)	4.86±1.95		16.52±4.76	
Number of children	1	71 (54.6)	4.54±1.95	0.24 (.786)	15.39±4.57	1.44 (.241)
	2	49 (37.7)	4.37±1.90		14.57±4.77	
	≥3	10 (7.7)	4.80±2.25		17.20±4.49	
Family type	Nuclear family	47 (36.2)	4.38±1.88	2.18 (.118)	14.19±4.36	1.85 (.162)
	Single-parent family	68 (52.3)	4.35±1.91		15.85±4.75	
	Others (extended family or single-person household)	15 (11.5)	5.47±2.10		15.60±4.87	
Depression score	≤20	23 (17.7)	4.74±2.07	0.67 (.504)	12.91±5.04	-2.68 (.008)
	≥21	107 (82.3)	4.44±1.92		15.72±4.44	

^{a)}M±SD: 39.81±7.37 years; ^{b)}M±SD: 104.12±45.01 months; M, mean; SD, standard deviation.

depression threshold of 21 or above on the CES-D instrument. The participants' acculturative stress was measured at 105.44 ± 10.46 out of a possible 165 points, which corresponds to 3.20 ± 0.32 on a 5-point scale. Among the sub-scales, nostalgia scored the highest at 3.85 ± 0.79 , followed by guilt at 3.37 ± 0.61 . Other categories included social isolation or feelings of inferiority at 3.21 ± 0.44 , perceived discrimination at 3.10 ± 0.43 , fear at 2.97 ± 0.48 , and culture shock at 2.96 ± 0.58 .

The score for children's emotional and behavioral strengths was 4.49 ± 1.94 out of 10, equivalent to 2.96 ± 0.56 on a 5-point scale. The score for children's emotional and behavioral difficulties was 15.22 ± 4.66 out of 40, with an average of 3.80 ± 1.17 . The sub-scores included 4.63 ± 1.52 for hyperactivity, 3.99 ± 1.28 for peer problems, 3.53 ± 1.99 for emotional symptoms, and 3.07 ± 1.28 for behavioral problems. Parents reported that their children were most likely to be distracted or unable to sit still for extended periods (Table 2).

3. Relationships among Parenting Knowledge, Depression, Acculturative Stress, and Children's Emotional and Behavioral Problems (Strengths/Difficulties)

The following correlations were found among the main

variables: parenting knowledge had a negative correlation with acculturative stress ($r = -.24, p = .006$), depression had positive correlations with acculturative stress ($r = .35, p < .001$) and children's emotional and behavioral difficulties ($r = .38, p < .001$), and children's emotional and behavioral strengths had a negative correlation with acculturative stress ($r = -.33, p < .001$). In other words, higher parenting knowledge and lower depression were associated with lower acculturative stress. Lower maternal acculturative stress was associated with higher scores for children's emotional and behavioral strengths, and lower depression was associated with lower infant emotional behavior difficulties (Table 3).

4. Factors Influencing Children's Emotional and Behavioral Problems (Difficulties)

To investigate the factors influencing children's emotional and behavioral problems, we conducted an analysis using various variables. The primary variable, depression, was included along with age and employment status (represented as dummy variables), which exhibited significant variations in general characteristics. In testing the basic assumptions of regression analysis, we checked for residual autocorrelation, residual normality and linearity (using normality P-P plots

Table 2. Parenting Knowledge, Depression, Acculturative Stress, and Children's Emotional and Behavioral Problems (Strengths/Difficulties) (N=130)

	Categories	M ± SD	Range (Min–Max)	Item M ± SD
Parenting knowledge	Total (29)	12.50 ± 4.03	3–21	0.43 ± 0.14
	Emotional development	3.83 ± 1.64	0–8	0.48 ± 0.20
	Cognitive development	3.46 ± 1.56	0–7	0.43 ± 0.20
	Physical development	2.19 ± 0.97	0–4	0.55 ± 0.24
	Social development	3.05 ± 1.50	0–7	0.34 ± 0.17
Depression	Total (20)	28.01 ± 8.80	4–53	1.40 ± 0.44
Acculturative stress	Total (33)	105.44 ± 10.46	69–125	3.20 ± 0.32
	Perceived discrimination	18.65 ± 2.58	11–25	3.10 ± 0.43
	Homesickness	15.39 ± 3.17	7–20	3.85 ± 0.79
	Perceived hostility	14.98 ± 2.16	10–20	3.00 ± 0.43
	Fear	8.90 ± 1.45	5–13	2.97 ± 0.48
	Culture shock	11.85 ± 2.31	5–17	2.96 ± 0.58
	Guilt	6.74 ± 1.23	2–10	3.37 ± 0.61
	Others (social isolation and inferiority, mistrust, and communication)	28.92 ± 3.97	15–37	3.21 ± 0.44
Children's emotional and behavioral strengths (5)	Prosocial behavior	4.49 ± 1.94	0–9	4.49 ± 1.94
Children's emotional and behavioral difficulties (20)	Hyperactivity	4.63 ± 1.52	0–9	
	Emotional symptoms	3.53 ± 1.99	0–11	
	Conduct problems	3.07 ± 1.55	0–7	
	Peer problems	3.99 ± 1.28	1–8	
	Difficulties total	15.22 ± 4.66	4–28	3.80 ± 1.17

M, mean; SD, standard deviation.

Table 3. Correlations among Parenting Knowledge, Depression, Acculturative Stress, and Children's Emotional and Behavioral Problems (Strengths/Difficulties) ($N=130$)

	Parenting knowledge	Depression	Acculturative stress	Children's emotional and behavioral strengths
	r (p)			
Depression	-.12 (.181)			
Acculturative stress	-.24 (.006)	.35 (<.001)		
Children's emotional and behavioral strengths	.10 (.257)	.01 (.872)	-.33 (<.001)	
Children's emotional and behavioral difficulties	.07 (.404)	.38 (<.001)	.12 (.177)	.14 (.118)

and histograms), and the homogeneity of residuals (using scatter plots). Additionally, the tolerance for checking multicollinearity of errors in this study's model ranged from .53 to .91, with a variance inflation factor between 1.01 and 2.94, well below the threshold of 10. This confirmed that the basic assumptions were met. However, the residual autocorrelation revealed a Durbin-Watson statistic of 1.53. Therefore, a time series regression analysis was conducted. The Ljung-Box Q (18) for the model yielded a value of 24.65 with a significance probability of .103, indicating the absence of autocorrelation in the residuals and confirming the model's significance. The combined effects of depression, age, and employment status (part-time, unemployed, or on leave) accounted for 30.0% of the emotional and behavioral problems observed in children. In other words, we found that parents who experienced higher levels of depression, were older, and worked part-time were more likely to have children with emotional and behavioral problems (Table 4).

DISCUSSION

This study investigated the knowledge and psychological characteristics of North Korean refugee mothers, particularly in relation to their care for infants and toddlers. These mothers confront the dual challenge of adapting to South Korean society and raising children. Additionally, the study examined how acculturative stress and depression affect the emotional and behavioral problems in children, with a specific focus on difficulties.

The participants' parenting knowledge scored 12.50 out of a total of 29 points. The assessed sub-domains included physical development (0.55 points), emotional development (0.48 points), cognitive development (0.43 points), and social development (0.34 points). In a previous study [18], the group that participated in parent education scored 18.88 points, while the group that did not participate scored 17.32 points. These scores were higher than those obtained in this

study, indicating that the parenting knowledge of North Korean refugee mothers was lower than that of South Korean mothers.

Research suggests that knowledgeable parents are more adept at creating environments that cater to their children's abilities and fostering healthy development [2]. They are also better at recognizing early signs of mental delays or abnormalities, enabling timely interventions that are vital for the overall health and prevention of diseases in children [24]. Therefore, improving parental knowledge about child-rearing can significantly contribute to the normal growth and development of children. It is advisable for parents to receive education during regular visits throughout the pregnancy and childbirth process to ensure they have access to accurate information about child development.

In this study, the average depression score among the participants was 28.01 out of 60. Using 21 points as the threshold, 82.3% of the participants were classified as depressed, a significantly higher percentage compared to a previous study [25], where only 33.5% of female marriage immigrants were classified as such. Furthermore, when using a threshold of 16 points, the depression score among mothers of young children in certain regions of Korea reached 93.1%, far exceeding the 37.8% observed among all mothers [26]. According to research by Lee and Kim [27], which analyzed depression levels in 1,332 mothers over 5 years, 59.9% of those in the 'risk of depression' group experienced depression at least once within the first 5 years postpartum, with the prevalence increasing annually. Raising infants and young children significantly limits personal freedom, affecting interpersonal relationships and hobbies, and can lead to feelings of burden, psychological frustration, or depression. Additionally, the physical demands of childcare, such as caring, monitoring, putting to sleep, waking, feeding, and dressing children, predominantly fall on mothers, significantly influencing their mental health [28]. For mothers who defected from North Korea, the participants of this study, the dual burden of motherhood,

Table 4. Time Series Regression of Variables Influencing Children's Emotional and Behavioral Problems among North Korean Refugee Mothers (N=130)

Variables	B	SE	t	p	Ljung-Box Q (18)			R ²
					F	df	p	
AR (1)	0.24	0.09	2.70	.008	24.65	17	.103	.30
Depression	0.18	0.05	4.09	<.001				
Age	0.12	0.05	2.31	.023				
Employment (ref.: full-time or self-employed) ^{a)}								
Part-time	3.54	1.25	2.83	.005				
Unemployed or on leave	4.29	1.17	3.68	<.001				

^{a)}Dummy variable; AR, autoregression; SE, standard error.

compounded by the unique challenges faced by North Korean refugees, is presumed to have a significant impact on their depression levels. Depressed mothers may become insensitive to their children's cues and react helplessly, or they might display overly strict or controlling behaviors, complicating smooth interactions. Specifically, depression in mothers of young children affects not only the child's physical and mental development and academic performance but also their readiness for school during the preschool years [29]. Therefore, there is a pressing need for programs aimed at reducing and preventing depression among women with preschool-aged children. The presence of multiple and unique environmental stressors can heighten women's vulnerability to depression. These stressors include poverty, discrimination, multigenerational exposure to poor housing, limited access to healthcare, and unequal access to resources that facilitate social mobility [9]. When these are combined with strained relationships with young children, the impact can be even more profound. To tackle this issue, it is essential to provide education and programs for women with preschool children, focusing on reducing depression and enhancing their understanding of the condition. Additionally, these women require a support system that can effectively treat depression when it arises and assist them in learning preventive measures for their mental health.

Participants experienced acculturative stress, with a mean score of 3.20 out of 5. The sub-domains had varying scores: 3.85 for nostalgia, 3.37 for guilt, 3.21 for other social isolation or feelings of inferiority, 3.10 for perceived discrimination, 2.97 for fear, and 2.96 for culture shock. These scores were similar to the overall average score of 3.35 in a previous study by Lee et al. [6], but there were differences in the sub-domains. Nostalgia had the highest score (3.85 points) in the previous study [6] but the lowest score in this study (2.84 points). Additionally, the previous study found higher scores for perceived hostility, discrimination, culture shock, and

fear, whereas in this study, only guilt and other social isolation and inferiority categories showed slightly higher than average scores.

In the past, there was a lack of social acceptance and understanding toward North Korean refugees and immigrants due to insufficient multicultural policies. However, as Korean society has begun to emphasize multicultural values, discrimination and hostile attitudes have decreased, leading to a shift in perceptions toward North Korean refugees and immigrants. It is believed that their perceived hostility and sense of discrimination have also diminished. According to the 2023 North-South Social Integration Survey [30], 16.1% of respondents reported experiences of discrimination or being ignored, marking a 3.4 percentage point decrease from 2022. This result indicates that 24.4% of people experienced discrimination in 2016, with a steady decline observed since then. Rather than quickly adapting to new cultures and values, there appears to be an increase in longing for one's hometown. The acculturation stress experienced by parents from multicultural families often makes it challenging to provide appropriate attention and support to their children. This stress can lead to a neglectful parenting attitude and hinder their children's adaptation to school life by making it difficult to gather education-related information and guide their learning [31]. Therefore, it is crucial to actively intervene and provide support to North Korean mothers to facilitate their acculturation and ensure the well-being of their children.

The score for children's emotional and behavioral strengths was 4.49 out of 10, while the difficulty score was 15.22 out of a possible 40 points (average 3.80). The sub-scales had the following scores: 4.63 for hyperactivity, 3.99 for peer problems, 3.53 for emotional symptoms, and 3.07 for conduct. A study by Yang and Yim [32] using the same tool reported a strength score (socially oriented behavior) of 7.09 for Korean preschool children aged 4 to 6 years and 6.66 for children from multicultural families. For difficulties, the average

scores were 2.13 for Korean preschool children and 2.39 for children from multicultural families. These differences indicate that North Korean refugee mothers in this study perceived their children's strengths as lower and difficulties as higher compared to the previous study [32]; however, caution is advised in interpretation. Although a higher total difficulty score suggests psychosocial problems, it does not alone justify whether psychotherapy is needed [33]. Immigrant parents may retain cultural influences from their countries of origin, which could affect how they report on their children's behavior, potentially due to differing social norms [34]. This is because expectations for child behavior and developmental milestones vary, and the likelihood of reporting problem behaviors may depend on the social desirability of those behaviors [35]. Research focusing on diverse global populations is still limited, making it difficult to confirm cultural differences. In the future, if norms vary across countries, comparing respondents to each country's norm scores and calculating a weighted norm score from these may offer more meaningful insights. This approach is relevant because psychosocial functioning is known to vary by country and culture [36]. In our study, despite potential differences in parental response styles and social norms, the use of the SDQ-Kr, a widely recognized tool for mental health screening, allows for meaningful comparisons among North Korean refugees. Future studies will be necessary to confirm these findings.

Additionally, this study found that the children's emotional and behavioral strengths varied based on the general characteristics of the participants, specifically maternal age. Mothers under 30 years of age reported higher levels of emotional and behavioral strengths in their children, while mothers over 40 years of age reported significantly higher scores for emotional and behavioral difficulties. Specifically, mothers under 30 years gave higher ratings for socially oriented (prosocial) behavior and lower ratings for hyperactivity, depression, anxiety, behavior, and peer problems. This suggests that even among the same group of North Korean refugees, there are differences based on age. It can also be inferred that there are differences in norms and parenting values between different generations, especially among mothers over 40 years. Moreover, the study revealed a significant difference in the child's scores for emotional and behavioral difficulties based on the mother's occupation. Scores were significantly higher among children of mothers who were part-time workers, unemployed, or on leave, compared to those whose

mothers worked full-time. These findings support previous research suggesting a correlation between children from economically disadvantaged families and emotional issues [37]. It is speculated that North Korean mothers who are unemployed or on leave may experience higher levels of stress and distress due to their unstable financial situation. Additionally, mothers who are unemployed or on leave may be more attuned to their children's emotional and behavioral problems because they spend more time with them compared to mothers who work full-time.

The correlations between the main variables observed in this study suggest that greater parenting knowledge and lower depression are linked to lower acculturative stress. Furthermore, lower maternal acculturative stress was found to be correlated with greater emotional and behavioral strength in children, while lower depression was associated with lower scores for emotional and behavioral difficulties. These findings are consistent with previous research [16,38], which identified a positive correlation between maternal depression and externalizing problem behaviors in preschool children.

Furthermore, higher parental knowledge of child development and parenting practices has been shown to significantly reduce reported child maltreatment 3 to 5 years later, improve children's behavioral problems, and decrease maternal anxiety and depression [39]. Additionally, a study involving Syrian refugees in Lebanon demonstrated that increased stress due to poverty, inadequate housing, and other environmental stressors resulted in negative changes in child-rearing practices and heightened behavioral and emotional problems in children, corroborating earlier findings [40]. Given that adapting to South Korean society can increase the psychological burden, there is a need for intervention measures to improve the parenting knowledge of North Korean refugee mothers and to alleviate their acculturative stress.

Several previous studies have shown that maternal depression is highly correlated with infant problem behavior. Specifically, maternal depression is a significant positive predictor of children's problem behavior [9,14]. This study also identified depression as a significant predictive factor for children's emotional and behavioral problems, reinforcing earlier research findings. Previous research has indicated that mothers with high levels of depression tend to exhibit less responsive and nurturing parenting behaviors towards their children. This, in turn, contributes to the development of externalizing and internalizing problem behaviors in their chil-

dren [9,16]. Therefore, it is crucial to provide support for the psychological health, including depression, of North Korean refugee mothers. However, this study did not observe the impact of acculturative stress experienced by mothers on the emotional and behavioral problems of their children, contrary to the findings of previous research [16]. The length of time since the participants arrived in South Korea ranged from 2 years to over 10 years. As individuals adapt to South Korean society, their perception of children's issues may also evolve. Additionally, the relationship between acculturative stress and children's behavioral problems may be influenced by the varying lengths of time mothers have spent in South Korea. These findings should be further examined in future replication studies.

In terms of general characteristics, children whose mothers were older and either employed part-time, unemployed, or on leave exhibited higher scores for emotional and behavioral difficulties compared to those whose mothers worked full-time or were self-employed. Older mothers might be less engaged in economic or social activities than their younger counterparts. Furthermore, older mothers may face physical or mental constraints that hinder their ability to care for their children effectively. This could lead to insufficient supervision or educational support, thereby increasing the likelihood of emotional and behavioral difficulties in children.

Moreover, more than 70% of North Korean refugees are women, many of whom are single mothers. These mothers face numerous challenges in raising their children [6,7]. North Korean refugee women who have endured prolonged periods of living on the run, along with experiences of marriage and childbirth, may face significant career interruptions and attrition. Upon resettlement in South Korea, they often confront an unstable labor market characterized by limited job opportunities due to their lack of skills. Consequently, the harsh realities of employment and economic instability [30] can lead to stress in their daily lives and in parenting, potentially affecting their children's emotions and behaviors.

It is crucial for North Korean refugees to integrate quickly into our society and establish stable family lives and economic activities to become independent members of society. Providing a foundation for stable settlement and independence for women refugees ensures that their children are neither neglected nor marginalized. These children will grow up with the appropriate protection of their parents and society, become active members of society, and shape the future era of unification. Therefore, it is necessary to develop specific

and systematic policies that address the needs of North Korean refugees.

The limitations of this study and suggestions for follow-up research are as follows:

First, this study focused exclusively on parents with infants and toddlers aged 1 to 6 years. Consequently, future research should explore differences among parents of infants under 1 year old, who are at a higher risk of developing postpartum depression. Second, one of the measurement tools used in this study assessed parenting knowledge, which gauges an individual's understanding of the emotional, cognitive, physical, and social development of infants and toddlers from birth to age 3 years. However, gathering data from mothers of 36-month-old infants and toddlers proved challenging. Therefore, we expanded the scope of the measure to include mothers of children up to 5 years old. Although this approach does not reflect the current ages of their children, it remains a valuable resource for policy development, especially considering the ongoing influx of North Korean women into the country. For instance, it can enhance parenting education programs for North Korean women by assessing their knowledge levels and identifying areas where they lack information, which may affect their future decisions regarding childbearing and parenting. Third, this study did not consider various factors such as the unique circumstances and living environments of North Korean defectors, as well as the personality and temperament traits of their children. As a result, the potential influence of these external variables on their children's problem behaviors was not taken into consideration.

In light of these points, we propose the following suggestions. First, more in-depth qualitative research is required to better understand the emotional and behavioral problems of children from North Korean refugee families. Second, it is essential to examine not only the home environment but also factors such as counseling, psychological support, policies, and other forms of social support to determine their influence on the emotional and behavioral problems of these children. Furthermore, it is crucial to develop and evaluate practical interventions and support programs based on the findings of this research.

CONCLUSION

This study investigated the relationship between parenting knowledge, acculturative stress, and depression, and chil-

dren's emotional and behavioral strengths and difficulties in North Korean refugee mothers with preschool children.

The participants demonstrated notably low parenting knowledge, with an average score of 12.50 out of 29. Their depression scores averaged 28.01 out of 60, with 82.3% of participants scoring 21 or higher, a threshold for depression as suggested by community epidemiological studies. The acculturative stress score among the participants was 105.44 out of 165. Regarding the children's emotional and behavioral assessments, the strength score was 4.49 out of 10, and the difficulties score was 15.22 out of 40. The findings indicated that higher parenting knowledge and lower depression levels were linked to reduced adaptive stress. Furthermore, lower acculturative stress in mothers correlated with higher emotional and behavioral strength scores in their children. Conversely, higher maternal depression was associated with increased emotional and behavioral difficulties in children. The study also identified maternal depression, age, and employment status as significant factors influencing emotional and behavioral issues in preschool children. Given the significant role of depression in the development of emotional and behavioral problems in children, especially in economically unstable families, it is essential to improve parenting skills and emotional stability among parents in North Korean refugee families. This improvement can be facilitated through targeted parent education and mental health support programs. Implementing such measures is crucial for promoting the healthy growth and development of children in these families.

These findings emphasize the importance of improving parenting skills and emotional stability among parents through educational programs and mental health support for North Korean refugee families. It is also essential to explore methods to bolster social and economic support for mothers and to alleviate stress in the home. Furthermore, this study emphasizes the necessity of early identification of emotional and behavioral problems in children, which can have enduring adverse effects, and highlights the critical need for interventions and support to mitigate behavioral difficulties.

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Authors' contribution

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view and editing: all authors; Final approval of published version: all authors.

Conflict of interest

No existing or potential conflict of interest relevant to this article was reported.

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Data availability

Please contact the corresponding author for data availability.

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ORCID and ResearcherID

In-Sook Lee <https://orcid.org/0000-0003-4156-9685>
<https://researcherid.com/rid/JHT-0304-2023>
Jeong-Hee Jeon <https://orcid.org/0000-0002-8045-7064>
<https://researcherid.com/rid/JHT-4813-2023>

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