Physical health and emotional and behavioral problems in maltreated children according to family economic status

Health problems of maltreated children in Korea

Jin Hee Jung, MD[a] [ID], Young Ho Kwak, PhD[b,*]

Abstract

Low family income is a risk factor for child maltreatment. However, there has been no comparative study on the association between child maltreatment and family income. The objective of this study was to investigate the physical health and emotional and behavioral problems of maltreated children according to the economic status of their family.

Cross-sectional nationwide study

Data from 2012 to 2014 was extracted from the Korean National Child Abuse Registry (age <18 years) operated by the National Child Protection Agency (NCPA). Demographic characteristics and 34 physical health and emotional/behavioral problems of maltreated children were compared by family economic status. Family economic status was classified into 2 groups: families receiving the National Basic Livelihood Guarantee (NBLG) and those not receiving the guarantee (non-NBLG group).

A total of 17,128 children were registered in the system. Mean age was 9.3 years (SD 4.8 years), 44.4% were females, and 29.2% were in the NBLG group. Poor hygiene, anxiety, and attention deficit were frequently reported physical and emotional health problems. Common behavioral problems included running away, rebelliousness/impulsivity/aggressiveness, maladjustment in school, learning problems at school, and frequent unauthorized absenteeism and truancy. Physical health problems (7 of 8 items) occurred more often in the NBLG group, and behavioral problems (6 of 17 items) occurred more often in the non-NBLG group.

Children in Korea who are maltreated have different physical health, emotional, and behavioral problems depending on their family income level. These results can be useful in approaching the recognition of and interventions for child maltreatment.

Abbreviations: NBLG = National Basic Livelihood Guarantee, NCPA = National Child Protection Agency, USD = US dollar.

Keywords: child abuse, family characteristics, health status, income, mental health, problem behavior

[a] Department of Emergency Medicine, SMG-SNU Boramae Medical Center, Seoul, Republic of Korea, [b] Department of Emergency Medicine, Seoul National University Hospital, Seoul, Republic of Korea.

* Correspondence: Young Ho Kwak, Department of Emergency Medicine, Seoul National University Hospital, 101 Daehak ro, Jongno-gu, Seoul, Republic of Korea (e-mail: yhkwak@snuh.org).

1. Introduction

The incidence of child maltreatment in Korea was 2.15 per 1000 children in 2016. After the introduction of the "Act on the Special Cases Concerning the Punishment, etc of Child Crimes,"[1,2] annual incidence increased from 0.73 per 1000 children in 2013 to 2.15 in 2016. With the introduction of this Act, mandatory reporters were required to be more vigilant when they met children. As poverty has been strongly linked with maltreatment and is also related to the severity of maltreatment, mandatory reporters were more suspicious of children with low socioeconomic status than other children.[3–5] Many guidelines and screening tools for physicians as mandatory reporters of child abuse include poverty as a risk factor. However, several studies have reported that physicians do not consistently screen for child abuse, even in high-risk situations.[6,7] Also, studies have shown disparities in screening practices related to patient characteristics, such as the type of health insurance, race, and status of a family.[8,9] Although child abuse occurs in families without risk factors as well as in families with risk factors, many studies have focused on the characteristics of maltreated children in low-income families.[10,11]

To our knowledge, there has been no study analyzing the characteristics of maltreated children according to family economic status. This study investigated multifactorial health problems of abused children in South Korea according to the level of family income.

2. Methods

2.1. Study design and setting

This cross-sectional study used the Korean National Child Abuse Registry, which was managed by the National Child Protection Agency (NCPA). A total of 57 child protection agencies reported the data of maltreated children to the registry in 2014. Data from the Korean National Child Abuse Registry from January 2012 to December 2014 were extracted. All the children were younger than 18 years old. The National Basic Livelihood Guarantee (NBLG) system is a social security system by which the Korean government provides for basic living expenses by offering benefits for expenses such as living costs, housing expenses, education expenses, and medical expenses for those who have health or financial challenges.[12] As the percentage of NBLG beneficiaries among all Koreans is approximately 3.2% (n = 1,630,614), households receiving NBLG have the lowest economic status in Korea.[13] This study was approved by the Institutional Review Board of Seoul National University Hospital and the necessity to obtain written consent was waived because of its retrospective nature (IRB number: 1507–006–683). The children in the registry and the public were not involved in this study.

2.2. Measurement

A counselor of a local child protection agency interviewed a child and the parents if they could be contacted. Using the official checklist of the registry, an interview was performed within 2 to 3 days at the child's house or the offices of a local child protection agency. The information obtained from the registry included:

1. demographic information (age, sex, type of family structure, health insurance, family income, and use of the NBLG);
2. maltreatment information (type of child maltreatment, onset and duration of child maltreatment, perpetrator);
3. physical health problems (malnutrition, physical developmental delay, language problem, problem with defecation, problem with craving or refusing food, poor hygiene, frequent illness, and suspicion of disability);
4. emotional problems (anxiety, attachment problem, helplessness, depression, low self-esteem, personality problem, tics, attention deficit, and hyperactivity);
5. behavioral problems (rebelliousness/impulsivity/aggressiveness, lying, stealing, running away, drug use, smoking, alcohol use, maladjustment in school, learning problems, violent behavior, juvenile delinquency, frequent unauthorized absenteeism and truancy, coming home late, unhealthy relationships or friendships, avoidance of personal relationships, internet addiction, and sexual problems); and
6. the disposition of children after the NCPA's intervention. The disposition of children was categorized into the following groups: return to the child's family, out-of-home protection or consignment, hospital admission, and death.

2.3. Data analysis

Data for 8 items reflecting physical health problems and 9 items reflecting emotional problems were analyzed for children of all ages, and the data from 17 items reflecting behavioral problems were analyzed for children who were 12 years old or older. The type of child maltreatment was categorized into neglect, physical abuse, emotional abuse, sexual abuse, and combined types.

Family income was categorized into 4 levels: < $1,000 US dollar (USD) ($1 USD converts to $1,000 Korean won), $1,000–$2,000 USD, $2,000–$3,000 USD, and $3,000 USD or more a month. Demographic characteristics, physical health, and emotional and behavioral problems were compared according to the NBLG eligibility of the child's family. Missing data was not imputed for analysis.

2.4. Statistical analysis

Microsoft Office Excel 2010 and SPSS version 20 (IBM Corp., Armonk, NY) were used for statistical analyses. Descriptive statistics calculated the frequencies, proportions, means, and standard deviation. Chi-Squared test and Fisher exact test were used to compare registry categorical variables by the type of child abuse. t test was used for continuous variables. A P value <.05 was considered significant.

3. Results

3.1. Demographics and characteristics of maltreated children for the NBLG and non-NBLG groups

A total of 17,128 children were included in the analysis, excluding 1805 children who with no information on NBLG status. Children in NBLG families represented 29.2% (n = 5006) of all participants. Figure 1 shows study participants and their disposition result. Table 1 Compares the demographics for the NBLG and non-NBLG groups. The mean age of the maltreated children was 9.3 years (SD 4.8 years), and the mean age of children was higher in NBLG families than in non-NBLG families (9.7 years vs 9.2 years, P <.001). The most common type of family structure was the single-parent family (47.7%) in the NBLG group and the 2-parent family (45.9%) in the non-NBLG group. For the household monthly income, 57.7% of NBLG families and 23.3% of non-NBLG families had income of less than $1,000 USD (approximately ₩1 million Korean won; the minimum salary was ₩957,220 won in 2012). The most common perpetrator was the father in both groups. The beginning age of child maltreatment was the same in both groups, but the duration of maltreatment was longer in the NBLG group (34.7 months vs 33.5 months, P <.001). The most common type of child maltreatment was the combined type (physical abuse and emotional abuse, 30.0%), followed by neglect (22.9%). Neglect was most frequent in NBLG families, and the physical and emotional combined type was most frequent in non-NBLG families. The disposition of children was the same for both groups (P =.881). Most of the children returned to their families (73.2% in NBLG group vs 72.6% in non-NBLG), and the mortality rate was 0.1% (n = 25).

3.2. Comparison of physical health, emotional, and behavioral problems of maltreated children in the NBLG and non-NBLG groups

Figures 2 to 4 Compare the characteristics of 3 categories of health problems, according to the NBLG status and age group. For the physical health problems of children, hygiene problems were the most common (9.0%). Language problems (6.1%), suspicion of disability (3.2%), and problems with craving or refusing food (3.2%) were also common. On 7 of the 8 items reflecting physical health problems, the NBLG group showed a
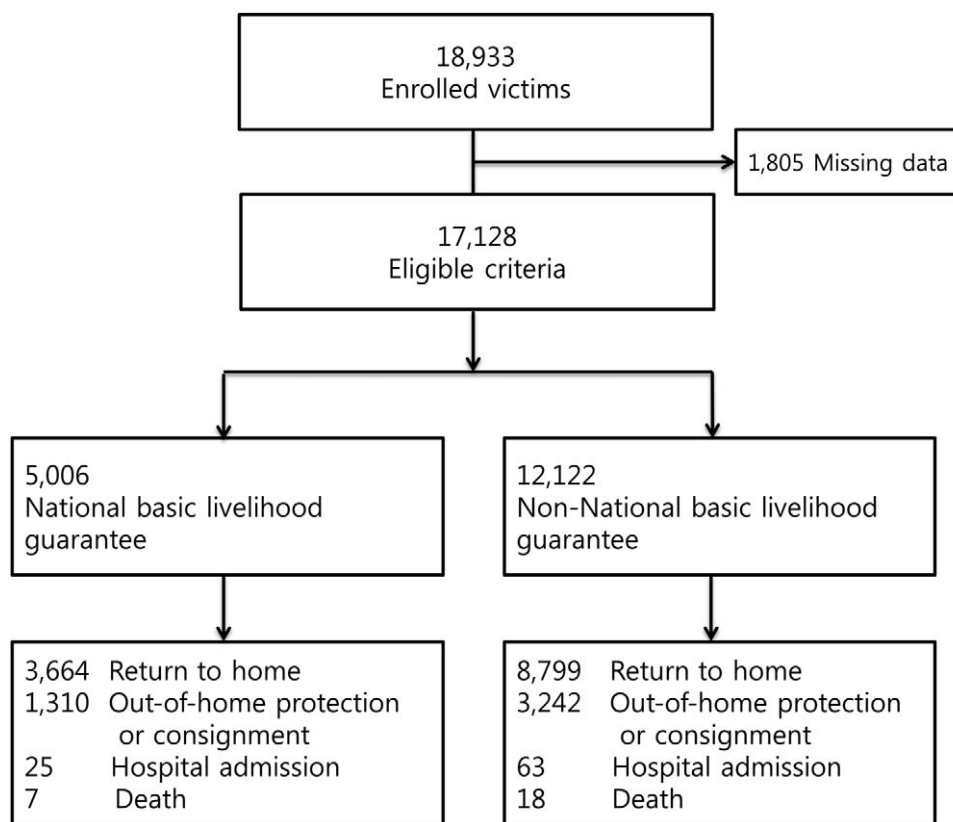
Figure 1. Study participants and outcomes. NBLG = National Basic Livelihood Guarantee.

Table 1

Characteristics of victims and families of child maltreatment according to National Basic Livelihood Guarantee.

	All victims n = 17,128	National Basic Livelihood Guarantee n = 5,006	Non-National Basic Livelihood Guarantee n = 12,122	P value
Age, mean (SD)	9.3 (4.8)	9.7 (4.5)	9.2 (4.7)	<.001
Age group, years old				
0–3	2,464 (14.4)	579 (11.6)	1,885 (15.6)	<.001
4–6	2,411 (14.1)	668 (13.3)	1,743 (14.4)	
7–12	6,942 (40.5)	2,142 (42.8)	4,800 (39.6)	
13–17	5,311 (31.0)	1,617 (32.3)	3,694 (30.5)	
Sex, female, n (%)	7,608 (44.4)	2,278 (45.5)	5,330 (44.0)	.066
Family character (n = 16,926)				<.001
Both parent family	6,828 (40.3)	1,328 (26.8)	5,500 (45.9)	
Single parent	6,788 (40.1)	2,366 (47.7)	4,422 (36.9)	
Remarried family	1,244 (7.3)	167 (3.4)	1,077 (9.0)	
Others family (relatives, foster, etc)	2,066 (12.3)	1,095 (22.1)	971 (8.2)	
Income, per month (n = 12,806)				<.001
< 1,000 USD	4,370 (34.1)	2,327 (57.7)	2,043 (23.3)	
1,000–2,000 less	4,785 (37.4)	1,473 (36.5)	3,312 (37.7)	
2,000–3,000 less	2,292 (17.9)	139 (3.4)	2,153 (24.5)	
≥ 3,000 USD	1,359 (10.6)	92 (2.3)	1,267 (14.4)	
Perpetrator				
Father	7,839 (45.8)	2,012 (40.2)	5,827 (48.1)	<.001
Mother	5,741 (33.5)	1,736 (34.7)	4,005 (33.1)	
Relatives	1,717 (10.0)	490 (9.8)	1,227 (10.1)	
others	1,821 (10.6)	766 (15.3)	1,055 (8.7)	
Characteristics of maltreatment				
Onset, months, mean (SD) (n = 14,509)	89.1 (55.7)	90.0 (56.8)	88.7 (55.2)	.212
Duration, months, mean (SD) (n = 14,257)	29.8 (33.9)	31.8 (34.7)	29.0 (33.5)	<.001
Type of maltreatment				<.001

(*continued*)

Table 1
(continued).

	All victims n=17,128	National Basic Livelihood Guarantee n=5,006	Non-National Basic Livelihood Guarantee n=12,122	P value
Physical abuse	1,779 (10.4)	469 (9.4)	1,310 (10.8)	
Emotional abuse	2,736 (16.0)	799 (16.0)	1,937 (16.0)	
Sexual abuse	563 (3.3)	185 (3.7)	378 (3.1)	
Neglect	3,929 (22.9)	1,362 (27.2)	2,567 (21.2)	
Physical abuse and emotional abuse	5,143 (30.0)	1,199 (24.0)	3,944 (32.5)	
Emotional abuse and neglect	1,181 (6.9)	414 (8.3)	767 (6.3)	
Others combination	1,797 (10.5)	578 (11.5)	1219 (10.1)	
Disposition of the victim				.881
Return to victim's family	12,463 (72.8)	3,664 (73.2)	8,799 (72.6)	
Out-of-home protection or consignment	4,552 (26.6)	1,310 (26.2)	3,242 (26.7)	
Hospital admission	88 (0.5)	25 (0.5)	63 (0.5)	
Death	25 (0.1)	7 (0.1)	18 (0.1)	

SD = standard deviation, USD = US dollar.

higher occurrence rate than the non-NBLG group. In addition, physical health problems varied by age group. For health problems, poor hygiene was most frequent in all age groups, but it was predominant when children were younger. Infants and toddlers (0–3 years old) in NBLG families presented more physical problems than in non-NBLG families (all P value <.001). A language problem was prevalent in children 4 to 6 years of age in both groups, and it was more frequent in children of NBLG families. For emotional problems in children aged 4

years or older, 16.0% had anxiety, 10.7% had attention deficit, 9.8% had low self-esteem, and 7.3% had attachment problems. Of the 9 items categorized as emotional problems, anxiety was more common in non-NBLG families ($P < .001$), and attention deficit and hyperactivity were more common in NBLG families ($P < .001$, $P = .003$) (Fig. 3). In older age groups, the prevalence of anxiety increased and attention deficit and hyperactivity decreased. Helplessness, depression, and low self-esteem also were more frequent in the adolescent group (over 10%)
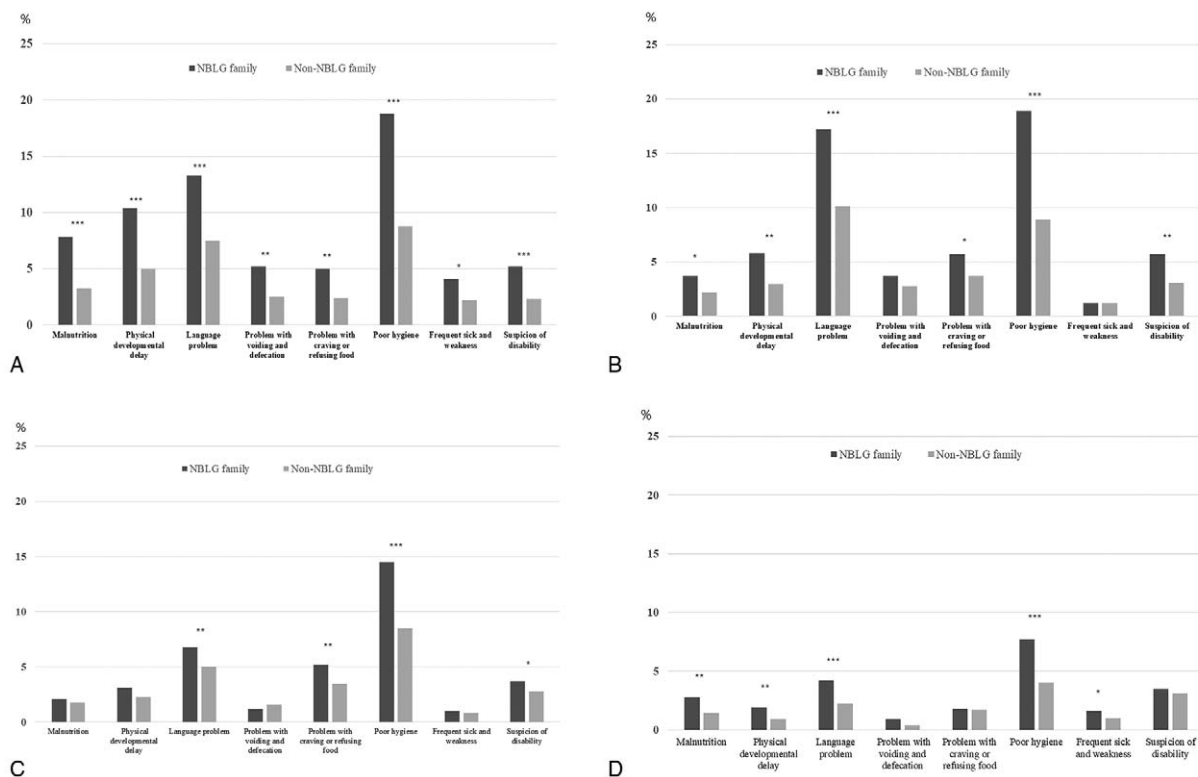

Figure 2. Physical health problems in maltreated children were significantly different by NBLG status and age group. In infants and toddlers, all physical health problems were more frequent in NBLG families (A). In preschool-age children, language problems and poor hygiene were more frequent in NBLG families (B). A, 0 to 3 years; B, 4 to 6 years; C, 7 to 12 years; D, 13 to 17 years. * $P < .05$, ** $P < .01$, *** $P < .001$.
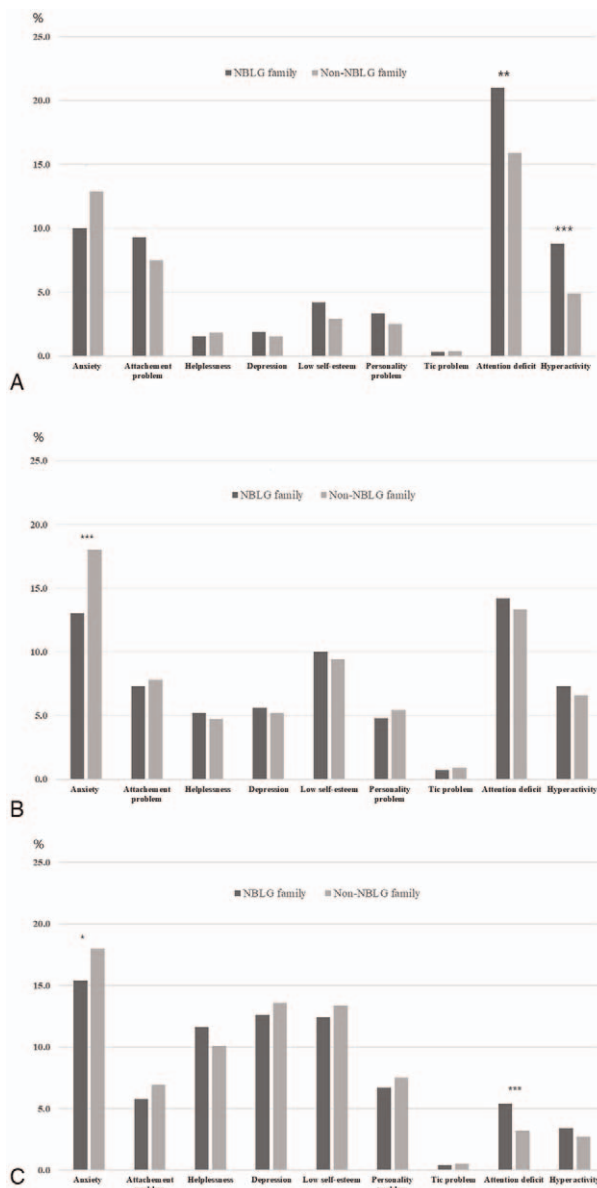
Figure 3. Emotional problems in children aged 4 years or older was significantly different by NBLG status. Anxiety was the most common emotional problem and was higher among children in non-NBLG families (7 years or older). Hyperactivity and attention deficit were more common among 4 to 6 year old children inf NBLG families. A, 4 to 6 years; B, 7 to 12 years; C, 13 to 17 years. NBLG = National Basic Livelihood Guarantee. * $P < .05$, ** $P < .01$, *** $P < .001$.

compared to the preschool and school age groups. Of the 17 items categorized as behavioral problems, running away was the most common problem (19.0%) in adolescents aged 13 years or older, followed by rebelliousness/impulsivity/aggressiveness (16.3%), maladjustment in school (14.8%), and frequent unauthorized absenteeism and truancy (12.5%). There were significant differences between the 2 groups in the seven items reflecting behavioral problems, and these seven items were more prevalent among children in non-NBLG families than children in NBLG families (Fig. 4).

4. Discussion

To our knowledge, this is the first study about physical health and emotional and behavioral problems of maltreated children according to the family's income status in Korea. In South Korea, physical health problems were more common among maltreated children in very low-income families, and behavioral problems were more common among children not in very low-income families.

In the NBLG group (representing families with extremely low economic status), children were more vulnerable to physical health problems than children in the non-NBLG group. The physical health problems included items addressing basic nutritional status, hygiene status, and whether the child was ill. These were the minimum conditions for children's normal development. In infants and toddlers, those in the NBLG group had significantly more physical health problems than those in the non-NBLG group. In the NBLG group, hygiene problems occurred at almost twice the rate, and language problems and hygiene problems were more significant. Emotional problems were more frequent than physical health problems in both groups. Anxiety had a prevalence of more than 10% in both groups. It increased in older children, and it was more common in non-NBLG families. Attention deficit and hyperactivity were more prevalent in NBLG families than in non-NBLG families, and these problems were more common in preschool-age children than in other age groups. Behavioral problems in children aged 13 years or older were more prevalent children in non-NBLG families. Children in non-NBLG families had more frequent behavioral problems such as unhealthy friendships, alcohol use, smoking, running away, lying, coming home late, and rebelliousness/impulsivity/aggressiveness. With the differences in characteristics of health problems between children in NBLG and non-NBLG families, it is important to be aware that the characteristics of maltreated children may differ depending on the family's economic status. As a result, the family's economic status should be considered when assessing child maltreatment or post-intervention outcomes. Those who interact with children in NBLG families may suspect child abuse when they find a hygiene problem or language problem. Correspondingly, those who work with children in non-NBLG families may recognize behavioral problems as a sign of abuse.

In this study, NBLG families constituted approximately 30% of total maltreated children in the National Child Abuse Registry of Korea. Maltreated children were more often in NBLG families that are approximately 3.2% of the population of South Korea.[13] Considering the high rate of NBLG in families of maltreated children, low family income as a risk factor of child maltreatment was found in this study as reported in previous studies.[3,4,10] Poverty and low economic status have already been shown to affect children's problem behaviors.[14] Conger et al suggested in the family stress model that financial hardships and stresses may exacerbate child maladjustment and parent's psychological distress. In these families, suboptimal parenting threatened the healthy development of children.[15] Disruptive parenting may affect a child by internalizing problems such as depression, anxiety, withdrawal, fearfulness, and inhibition.[15]

Interestingly, this study may demonstrate the differences in psychological effects from child abuse according to the family economic status. Abused children in families that were not very low-income had more emotional and behavioral problems than those in very low-income families. Difficulties such as anxiety,
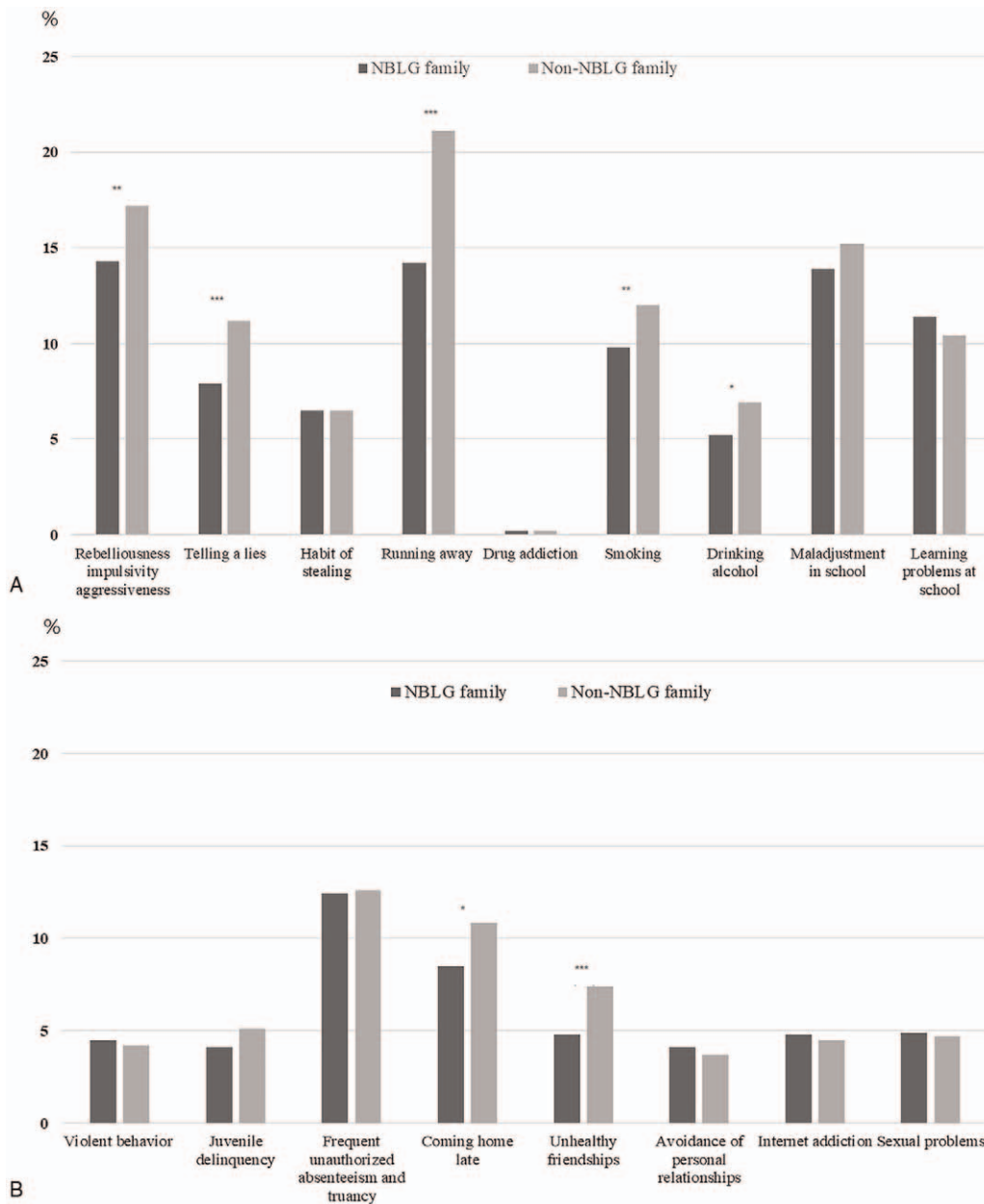
Figure 4. Behavioral problems in adolescents aged 13 years or older was significantly different by NBLG status. Of 17 items reflecting behavioral problems, seven items were more common in maltreated children in non-NBLG families. NBLG = National Basic Livelihood Guarantee. * $P < .05$, ** $P < .01$, *** $P < .001$.

some kinds of aggressiveness, running away, and coming home late may be considered as the temporary behavior of the adolescent period. Considering our findings, these symptoms can be also considered as signs of child abuse, as an adolescent child experiencing abuse may be reluctant to share their adverse experiences.

According to a longitudinal study about the effect of adverse childhood experiences in early childhood, any kind of abuse, parental divorce or separation, mental health issues, substance use, incarceration, and domestic violence may be associated with later behavioral outcomes from childhood to adolescence.[16] In addition, exposure to adverse childhood experiences by the age of 3 among poor children often result in behavioral problems at ages 3, 5, 9, and 15.[16] Even though our study was not a longitudinal

study, we also noted the association between several emotional problems (anxiety, attention deficit, and hyperactivity) and age.

Attention deficit and hyperactivity were significantly more prevalent in the NBLG group, which could be considered a sign of abuse in preschool-age children of very low-income families. Compared to the overall prevalence of Attention-deficit hyperactivity disorder among Korean children aged 7 to 12[17] (total 8.5%; 3.1% inattentive type, 0.7% hyperactive type, and 4.7% combined type), the prevalence of attention deficit and hyperactivity in this study in maltreated children aged 7 to 12 were higher (13.6% and 6.8%, respectively).

It was difficult to elucidate causality between child maltreatment and various health problems in this study. However, since the characteristics of physical and mental health problems in

children from infants to adolescents have been examined, it is possible to infer the long-term effects of maltreatment on children. A systematic review reported that pediatric health outcomes were associated with childhood adversity, which affected brain development and multiple body systems.[18] One meta-analysis concluded that depression, drug abuse, suicide attempts, sexually transmitted diseases, and dangerous sexual behavior were long-term sequelae of child maltreatment.[19] According to a study of the burden and consequence of child maltreatment in high-income countries, the results of specific children affected by abuse included low educational achievement, low skill levels, mental health problems (posttraumatic stress disorder, depression, attempted suicide, self-injurious behavior, alcohol problems, and drug misuse/dependence), and behavioral problems (prostitution/sex trading, teenage pregnancy, promiscuity, general adult health, chronic pain in adulthood, obesity, health care use/costs, and quality of life).[20] As many mental health problems and behavioral problems in adults may be caused by child maltreatment and may affect the individual for their entire life, the health problems of maltreated children should be evaluated in detail and managed by experts and specialized institutions. When we investigated the characteristics of maltreated children from NCPA registry, this study did not include several important items such as self-injurious behavior, suicide attempt, substance abuse and gambling problems as behavioral problems. Considering the high suicidal rate of teens in Korea,[21] we could suggest these variables be added to the NCPA registry as reportable behaviors. In the systematic review, studies show a significant positive association between abuse and later gambling problems (odds ratios for sexual abuse 2.01–3.65; physical abuse 2.3–2.8).[22] Studies that analyzed the correlation between poverty and behavior problems, although it is an adult study, found that problematic gamblers lived more in deprived area, and that the case of concurrent severe mental illness and substance abuse (cannabis) was higher in the poor group.[23,24]

This study had several limitations. First, because this study was a retrospective cross-sectional study, we could not determine the causality between characteristics of maltreated children and the family economic status. However, the results of this study may be applied to the treatment approach used with maltreated children and can be used to increase awareness of a suspected maltreated child. Second, the items analyzed in this study were assessed by the subjective judgment of the counselors, and there was no objective method to confirm the reliability of an evaluation. It will be necessary to revise the child abuse registry that has been used in Korea for several years to meet international standards. Third, it is difficult to compare the characteristics of the analyzed children who are maltreated with children not being maltreated. Because it was not a standardized evaluation item that was validated, we defined the abnormal level of each item as 5%– to 10%, but it is necessary to confirm the normal range of each item in children who have not been abused. Fourth, because reported children in the NCPA registry may be only small proportion of all abused children, the characteristics of children in the study cannot be generalized to all abused victims in Korea.

Children in Korea who are maltreated have different physical health, emotional, and behavioral problems depending on their family economic status. Physical health problems were more prevalent in very low-income families, and behavioral problems were more prevalent in children not in very low-income families. During the evaluation and intervention for child maltreatment, it may be necessary to consider the economic status of the child's family.

Author contributions

Conceptualization: Jin Hee Jung, Young Ho Kwak.
Formal analysis: Jin Hee Jung.
Funding acquisition: Young Ho Kwak.
Methodology: Jin Hee Jung, Young Ho Kwak.
Visualization: Jin Hee Jung.
Writing – original draft: Jin Hee Jung.
Writing – review & editing: Jin Hee Jung, Young Ho Kwak.

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