Critical Review of North Korean Women and Children's Health, 2000-2019: Physical and Mental Health Challenges with a Focus on Gender

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Women account for over eighty percent of recent North Korean defectors arriving in South Korea, yet there is dearth of gender-based research. Given the speed with which the dialogue on denuclearization with the Democratic People’s Republic of Korea (DPRK, North Korea) has progressed since 2017, there is a surprising gap in research on possible health threats. If sanctions are eased, interactions with these previously isolated people will increase leading to potential health problems. This article reviews studies published since 2000 to understand physical and mental health faced in DPRK, among North Korean defectors to South Korea, and to provide policy recommendations. A content analysis of ninety studies found that mental health challenges are severe for North Korean defectors, and that women suffer differently than men during defection and its aftermath. We recommend a more nuanced and gendered approach for future research in order to devise tangible solutions to improve the health of North Koreans in general, and defector women and children in particular.

Keywords: North Korea, DPRK, women’s and children’s health, North Korean defectors, mental health, maternal and child health

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I. INTRODUCTION

There is an urgent need to better understand the health of North Korean women and children, whose health status has been largely neglected in research and policy. In 2018, the share of women among the North Korean defectors entering South Korea reached an all-time high of eighty-five percent (Ministry of Unification 2019). With improvements in relations between the Republic of Korea (ROK, South Korea) and the Democratic People’s Republic of Korea (DPRK, North Korea), there is a growing need to understand the health of those in the DPRK, in transit, and defectors to South Korea. Given the possibility that interaction among the people of the two Koreas will increase in the near future, having an accurate assessment of the current health on the peninsula is vital.

We need to understand the reclusive nation of DPRK from a humanitarian perspective as well as in light of recent negotiations for denuclearization which could result in a sudden easing of sanctions against the DPRK, and increased interaction of people that could have unpredictable health consequences for both Koreas, not to mention other neighboring countries.

This article critically examines studies published in English or Korean on the topic of North Korean women and children’s health from 2000-2019. Women and children are grouped into three categories depending on their location, stage of defection, and settlement: (1) women and children in the DPRK; (2) women and children in transit out of the DPRK; and (3) women and children from the DPRK who have entered South Korea as defectors. We also reviewed reports on the health of women and children in the DPRK and among the defector population, which were published by the United Nations and other international organizations to understand the broader context.

Content analysis of the articles was conducted to examine shared patterns and differences in a systematic manner. Three broad questions guided the analysis: (1) do different groups of North Korean women and children show differences in health patterns; (2) is there any significant difference in studies published in Korean vs. English; and (3) implications for further research and policy recommendations.

II. RESEARCH METHODOLOGY

The health status of North Korean women and children is an intrinsically important topic for basic human rights, and since improvement in relations and increased interactions between the two Koreas will lead to short and long-term health consequences. There were only a few studies on North Korean health, and even fewer on women and children, despite the number of women defectors and
children entering South Korea has rapidly risen in recent years. We will focus on Korean and English sources due to lack of relevant studies in other languages. For example, keyword search on Web of Science for "North Korea Health" returned three hundred and thirty-seven articles, of which only one study was written in neither English nor Korean. Articles published since 2000 were reviewed, since earlier studies had a heavy focus on the 1990s’ famine and its impact on health in the DPRK with relatively little attention to broader health issues.

1. English Language Studies

We reviewed English language studies on the health of North Korean women and children in three stages. First, we searched the database PubMed, since this is acknowledged by the biomedical research community as “the primary tool” (Lu 2011, 2) as the most widely used database for studies related to health (Sood and Ghosh 2006). Initial search was conducted using phrases such as, “North Korean women and child health in North Korea” (7 results), “North Korean defector health” (5 results), “North Korean women’s health” (5 results), and “DPRK women health” (4 results). Second, the list of references of the studies selected through the PubMed search was used to screen for additional studies. And, finally Google scholar was searched for studies with a broader context including migration and trafficking. We excluded studies from the review if they did not have a specific focus on the health of North Korean women and children.

There were relatively few English studies that dealt with North Koreans directly, which was most likely due to the need for state approval for empirical research in the DPRK. Thus, most studies were about North Korean defectors. The People’s Republic of China (China) is an important part of many defectors’ migration journey, and a few of the studies are based in China. Although the North Korean defector population is very small in Japan, one article was included that compared North Korean defectors in Japan to Japanese workers of similar socio-economic status as well as to North Korean defectors in South Korea. Four review articles were included in our analysis. These studies provided useful data on the growth of children in South and North Korea, growth and nutrition of North Korean children, mental health of defectors, and an overall review of health in the DPRK (Park et al. 2019; Lee 2017; Lee, Lee and Park 2017; Schwekendiek and Pak 2009).

In total we reviewed forty-one articles in English, which included twenty-two on mental health, sixteen on physical health, and three on both mental and physical health. There were four review articles among the forty-one, which were useful for cross-reference.
2. Korean Language Studies

Korean language studies were reviewed for the period of 2000-2019 using the following databases (DBs): Korean Studies Information Service System (KISS) with a focus on peer-reviewed journals; Research Information Sharing Service (RISS) with a focus on Master’s and Ph.D. theses; and (3) online database of the Korean National Assembly (NANET) which was focused on government reports. Searching these DBs is a standard methodology in review studies for Korean research literature regarding health-related topics (Kwon, Kim and Nam 2019; Sim 2018; Kim, Cho and Jeon 2014).

We selected studies for review as follows: First, the DBs were searched with different combinations of keywords on DPRK women’s health which included North Korea, women, and health. Second, keywords describing DPRK refugees were used for the search - i.e., defecting from North Korea, North Korean defectors, and Saeteomin (North Korean settlers in South Korea) -- in conjunction with the keywords of North Korea, women and health. Third, we reviewed titles and abstracts of the studies to decide if the paper actually dealt with DPRK women’s health. If there was any doubt, we included the article for a full review. In addition, studies that dealt with North Korean defectors as a whole, but mentioned female/children as a meaningful unit of analysis were included. Fourth, studies that were included in the list of references of the studies selected for this review were also examined. Finally, a total of ten review articles were included in our analysis, which met the above standards of inclusion and exclusion.

In total, a total of forty-nine articles written in Korean, including ten review articles, were analyzed. A quick review of the studies indicated that there were relatively few studies on the DPRK and defector women and children’s health, and there was a dearth of studies that had a gender focus. Even some studies that covered both women and men’s health data pointed out that further female-focused research is needed (Ree, Ku and Han 2011; Keum 2015; Lim, Lee and Yang 2017).

III. KEY TRENDS IN THE STUDIES ON NORTH KOREAN AND NORTH KOREAN DEFECTOR WOMEN AND CHILDREN’S HEALTH

A content analysis was conducted for all the articles. Since the topic of women and children’s health has been largely neglected in the study of DPRK residents and North Korean defectors, we started with a breakdown based on the subject group - i.e., (1) North Korean women and children; (2) North Korean women and children in transit (migration); and (3) North Korean defectors who
have settled in South Korea. There were relatively few studies on the defectors who have settled in countries outside of South Korea, and thus, we limited our search to those settled in South Korea (see Figure 1 for selection process).

| English Literature (2000-2019) | Korean Literature (2000-2019) |
|-------------------------------|-------------------------------|
| • Search Engines:             | • Search Engines:             |
| - PubMed, Google Scholar      | - Korean studies Information Service System (KISS), |
| - The list of references of the studies through the | - Research Information Sharing Service (RISS), |
| PubMed search was used to screen for additional | - Online database of the Korean National Assembly (NANET) |
| studies             | • Keywords:                    |
| • Keywords:                  | - Different combinations of keywords on NK women’s health: |
| “North Korean women and child health in North Korea,” “North Korean defector health,” | - Defecting from North Korea, North Korean defectors, and Saetoomin |
| “North Korean women’s health,” | • 49 articles written in Korean (including 10 review articles) |
| “DPRK women health”          | • In total, 90 articles written in Korean and English were reviewed (including 14 review articles) |
| • 41 articles written in English (including 4 review articles) | |

**FIGURE 1. SELECTION PROCESS OF STUDIES REVIEWED**

First, we noted that the studies written in English and Korean were different in terms of content and subject group. The studies written in English had a much stronger focus on defectors compared to DPRK residents (Figure 2). Additionally, a comparison of mental vs. physical health studies in English vs. Korean showed that English sources were more on mental health, while there were more Korean studies on physical health (Figure 3).
In both Korean and English studies, more studies were about North Korean defectors to South Korea than people in DPRK, although Korean sources had a few more studies on DPRK residents compared to English. The reason for a relatively small number of English studies on DPRK is likely due to the need to acquire the DPRK government’s permit for empirical research, which would have been more prohibitive to researchers using English. Table 1 provides a breakdown of the categories of studies reviewed.
### TABLE 1. BREAKDOWN OF STUDIES REVIEWED BY STUDY POPULATION AND HEALTH TYPE

|                        | DPRK Residents | North Korean Defectors | DPRK Residents & Defectors | Sub-Total |
|------------------------|----------------|-------------------------|---------------------------|-----------|
| **English Language**   |                |                         |                           |           |
| Physical Health        | 7              | 8 (1 Review)            | 1 (1 Review)              | 16        |
| Mental Health          | 2              | 20 (1 Review)           |                           | 22        |
| Physical & Mental Health| 1              | 1                       | 1 (1 Review)              | 3         |
| **Sub-Total**          | 7              | 3                       | 29                        | 41        |
| **Korean Language**    |                |                         |                           |           |
| Physical Health        | 14             | 5                       | 1                         | 20        |
| Mental Health          | 1              | 15 (1 Review)           |                           | 16        |
| Physical & Mental Health| 2              | 10 (9 Reviews)          | 1                         | 13        |
| **Sub-Total**          | 16             | 1                       | 30                        | 49        |
| **Total**              | 23             | 4                       | 59                        | 90        |

It was noteworthy that English sources had a relatively small number of studies on physical health compared to mental health. This could be due to the unavailability of disaggregate data on the physical health of North Korean women and children, and/or greater severity of mental health challenges for this group. Further research is required to examine this issue.

#### 1. Physical Health of Women and Children

Analysis from the DPRK official data, and common international data sources, including reports from the UN, World Bank (WB), UNICEF, World Health Organization (WHO), and the World Food Programme (WFP) have indicated that empirical evidence and data on health problems in the DPRK may be underreported since official statistics have been limited to geographical areas where the government allows access. In spite of these limitations, studies revealed that the health status of North and South Koreans are strikingly different, with nearly a ten-year gap in life expectancy in 2018, up from just one-year in 1993 (Bahk, Ezzati and Khang 2018), and residents of DPRK and defectors have significantly shorter average heights (Pak 2010; Pak 2004).

We noted that there are relatively few studies on physical health. In English sources, we found that in gynecological health, forty-two percent of defectors receive cervical cancer screenings (also known as Pap smears or Pap tests), far lower than their South Korean peers for whom about seventy percent were screened (Park, Kim, Yang, Lee and Park 2018). Kim, Kim, and Chung (2017) found that defectors, who were concerned about cancer and had knowledge of free cervical cancer screening programs, were more likely to have...
Pap tests. We also noted that although female defectors who had Pap tests were relatively small compared to their South Korean counterparts, they were much greater than the DPRK women for whom only six percent received such screenings (Tran et al. 2011a). A study conducted in the DPRK showed that although there was very little rural vs. urban difference among healthcare providers in their knowledge and practices on cervical cancer and screenings, both areas suffered from inefficiencies and misunderstandings (Tran et al. 2011b). The study on defectors found that ten to twenty percent reported menstrual problems like amenorrhea, changes in the amount of blood clot, polymenorrhea, hypomenorrhea, and menorrhagia, and that these were correlated with anxiety, depression, and somatization (Kim, Kim, and Kim 2017). A recent study of sixty-one female defectors found that a mobile video program could significantly increase knowledge and behavioral confidence regarding vaginitis and cervical cancer (Lee and Shin 2018).

A few studies were conducted on the dental health of children in DPRK, ranging from six to thirteen years old, which showed that dental caries were positively associated with having sweet snacks and were reduced after the children participated in a state sponsored intervention program, but the authors noted that this could have been due to the loss of primary teeth (Tarvonen et al. 2016; Tarvonen et al. 2017).

North Korean defectors showed that their stature was smaller than South Korean counterparts even after spending years in South Korea, since most have defected when they were adults (Cho, Lee, Koh, Kim and Kim 2015; Choi, Park and Joung 2010; Pak 2010; Pak 2004). Height, weight, and body surface area were found to be significantly lower across gender and age, except among female defectors over 50 years old (Cho et al. 2015). An examination of defector children and adolescents upon their entry to South Korea shows similar results (Pak 2010). North Korean defectors also appear to have weaker muscle strength (Cho et al. 2015).

Korean language studies showed a diversity of findings among different surveys of North Korean women and children (Park, Lee and Kim 2014). First-hand data collected from a 2004 study showed that South Koreans are taller and heavier than those in the DPRK, even from before the famine; and the health situation has aggravated in the DPRK since the late 1980s, based on a study of Hanawon1 residents’ Body Mass Index (BMI) (Moon et al. 2004). Another study showed that age was associated with a low risk for Subclinical Hypothyroidism (SCH), the opposite result from South Koreans, which is possibly due to severe famine during their period of growth (Kim et al. 2012). A 2015 study using medical records showed a high occurrence of Hepatitis B and C, parasite, tuberculosis (TB), anemia, sexually-transmitted diseases (STD), and human papilloma virus (HPV) compared to South Koreans (Ahn, Ryou, and Kim 2015;
Moon et al. 2015). A recent study by Wee (2018) showed that a 1981-1990 cohort of women were smaller by 1.1-1.2cm (male 1.9-2.0cm) than those from 1966-1970, who finished growing before the great famine in the DPRK.² It is interesting to note that although we limited our search to studies published since 2000, traces of the great famine were still felt in the health status of North Korean women, children and defectors in South Korea.

2. Mental Health of Women and Children

Most of the English sources were about mental health showing that over half of North Koreans examined exhibited significant mental health problems (Cha, Surkan, Kim, Yoon, Robinson, Cardozo and Lee 2018; Lee, Min and Jeon 2009; Lee, Lee, Chun, Lee and Yoon 2001; Jeon 2000).

Many studies showed that depression is experienced by a large number of defectors (Cha, et al. 2018; Kim, Kim and Kim 2017; Nam, Kim, DeVylder and Song 2016; Jeon et al. 2009; Lee, Min and Jeon 2009; Lee et al. 2001; Jeon 2000). A few studies went beyond the presence of the symptom of depression and examined its correlates. Um, Chi, Kim, Palinkas and Kim (2015) found that perceived discrimination was positively correlated with depression. Another study found that income was correlated with depression – i.e., families with very low family income of under 1.0 million Korean Won showed six times greater likelihood of depression compared to families with moderately low income of under 1.5 million Korean Won (Jeon et al. 2009). On the other hand, Kim, Kim, Choi and Nam (2017) did not find a significant effect between sexual victimization and depression or post-traumatic stress disorder (PTSD). A study in China of defectors in protective facilities found that females had higher levels of depression, anxiety and schizophrenia compared to males (Yu and Jeon 2008).

Another study showed that defectors with PTSD symptom dropped dramatically in a follow-up study conducted seven years later (Jeon, Eom and Min 2013). The number of traumatic experiences was not always found to be a clear and significant indicator of PTSD (Park, Jun, Lee, Kim, Lee, Yoo and Kim 2015; Jeon et al. 2005). Rather, Park et al. (2015, 81) found that the “role of alexithymia in the development of PTSD is likely to be more prominent in victims of multiple traumatic experiences.” In a study of female defectors, the most prevalent symptom of PTSD was somatization, which was linked with having an income under 1.0 million Korean Won (Shin and Lee 2015).

Experiencing trauma, including the violation of their economic or political human rights, was found to have a significant negative relationship with mental health (Cha et al. 2018; Lim and Han 2016; Kim, Cho and Kim 2015; Lee et al. 2001). The majority of defectors experienced at least one type of trauma, with some studies reporting over ninety percent experiencing trauma (Lee et al. 2001).
Such trauma could be part of the reason why adolescent defectors may greatly internalize their problems and have significantly higher levels than their South Korean peers for anxiety, depression and social dysfunction (Lee, Shin and Lim 2012). Jeon, Yu, Cho, and Eom (2008) found a drop in the trauma rate of recent defectors compared to new defectors to South Korea based on a questionnaire conducted in 2004.

Although most studies did not examine suicidal ideation, income was shown to have a significant effect on suicidal ideation (Kim, Kim, Cho and Nam 2017), while income was shown to be strongly correlated with depression (Jeon et al. 2009), which has previously been noted to be a predictor of suicide (Stack 2000). Comparing suicidal ideation of defectors with South Koreans, Shin, Lee, and Park (2016, 595) found that defectors who “had longer durations of stays abroad, more than two escape attempts from North Korea, and longer durations of stays after entering South Korea all showed higher rates of suicidal ideation.”

Studies also showed that acculturation is a significant problem since stress from integration into their host community can also decrease self-efficacy and mental well-being (Lim and Han 2016; Kim, Cho and Kim 2015). It is important to understand health from a gendered approach in both mental and physical health, especially in light of the notorious trafficking of North Korean women (Choe 2019; Ochab 2019). Traffickers are said to use rape as well as physical and psychological abuse to control these women, although the long-term effects have not yet been studied thoroughly (Kim, Yun, Park and Williams 2009). Thus, a more nuanced, longer-term, and gender-based research during the experience of leaving the DPRK, in transit as well as settlement in South Korea should be conducted in future research.

A few studies recommended solutions for dealing with mental health challenges. Resilience was shown to be very important for defectors’ mental health (Lim and Han 2016; Kim, Cho and Kim 2015), and ego resiliency was shown to mediate acculturation stress among the young defectors (Kim, Cho and Kim 2015). Socio-cultural adjustment has been found to be positively associated with psychological adjustment (Kraeh, Froese and Kim 2016). Um, Chi, Kim, Palinkas and Kim (2015) found higher levels of adaptation correlated with lower levels of depression, and Emery, Lee and Kang (2015) found that higher levels of family order and attachment to both parents were associated with lower levels of self-reported depression in a study of defector youth and adolescents born in China by defector mothers.

Length of stay in South Korea was generally positively correlated with improved mental health (Pak 2010; Pak 2004). However, not much information was provided of the length of stay if it was interrupted with transit through a third country. In some studies, defector women’s mental health improved with a stay of over four years in South Korea (Cho et al. 2015), while other studies showed
that mental health variables are negatively correlated with the length of stay (Shin, Lee and Park 2016; Jeon et al. 2005).

In sum, studies written in English investigated a range of psychological characteristics, with depression and PTSD among the most pressing mental health challenges facing the defector community, but did not provide much in the way of policy recommendations (Cha et al. 2018; Kim, Kim and Kim 2017; Nam et al. 2016; Emery, Lee and Kang 2015; Park et al. 2015; Um et al. 2015).

Korean language studies were largely on refugee women and children and assumed that the subjects would have incurred severe trauma in the process of leaving the DPRK, and/or migrating through a third country, and settling in South Korea as a defector. Many studies showed that defectors have overall poor mental health, and this was more acute for women due to sexual violence and trafficking (Yang and Yun 2017; Kang and Chang 2009; Kang 2005; Cho and Jeon 2005). Another study found that 45.5 percent of female defectors had suicidal thoughts in the past year, which was much higher than the South Korean adult average of 3.7 percent (Kim et al. 2013).

An overwhelming share of female defectors (86.4%) had sexual dysfunction, compared to 50-60 percent of South Korean women (Rhee, Ku, and Han 2013). About half of female defectors had depression (48.5% for women defectors vs. 21.5% for South Korean women) (Kim, Ryu, and Kim 2014). However, there was an unexpected finding that married women currently living with a spouse had more mental health difficulties than single women or married women not living with a spouse (Cho and Jeon 2005). Exposure to sexual violence and trafficking was negatively associated with anxiety and fear (Yeun 2005). Long-term adaption was more strongly correlated with depression and anxiety compared to PTSD itself (Cho and Kim 2010), while PTSD mattered more than trauma itself in determining sexual autonomy (Lee and Kim 2019). It was found that defectors with 1-3 years since settlement had the worst levels of depression and guilt (Kim 2012).

It is important to study the defector children's mental health. A growing number of defector children are increasingly born in third countries, and not in the DPRK. According to statistics from the Ministry of Education in 2017, 64.8 percent of elementary defector children were born in third countries. They face additional difficulties since they were born in challenging circumstances that made their parental and family environment very difficult for a normal childhood (Lee 2012). Since most mothers entered South Korea before their children came, the children tended to develop unstable attachment to their mothers once they were reunited, and the trauma and depression experienced by many female defectors during the defection process had a negative impact on their children's mental health (Do 2018). Children often did not receive proper school education in third countries, so they had difficulty adapting to South Korean schools. They
were also exposed to rejection by South Korean students since they had poor Korean language ability (Eun and Cho 2015). Considering these aggravated mental health problems for defector children, Noh and Oh (2018) recommended that school-based mental health programs be established to enhance defector children’s mental health.

In sum, although it is true that female defectors suffer severely from mental health challenges, it seems that what matters more is what comes after the trauma than the experience itself. Married female defectors tend to show a higher tendency for mental health problems, possibly due to double marriage or spousal abuse. Thus, more nuanced studies are needed that take into consideration the full context of their life circumstances. In addition, several studies indicated that there are acculturation challenges in settling in South Korea. Although one may assume that the defectors would face less problems in settling in South Korea since they speak the same language, the reality was different. Not only has the Korean language changed in DPRK since the two Koreas were divided which made it challenging for the defectors to easily settle in South Korea, but there were reports of harassment and mistreatment of defectors which contributed to their mental health challenges. Thus, more in-depth studies of defectors’ experience settling in South Korea including real and perceived discrimination is needed.

We noted that studies on North Korean women and children’s health did not provide much in terms of healthcare delivery and policy recommendations in both the English and Korean studies. Only two Korean studies provided policy recommendations (Hwang 2012; Park and Lee 2013). More multidisciplinary studies are needed since the health challenges are complex and show both physical and mental health difficulties, along with complex circumstances that contributed to the ill health. Perceived discrimination and acculturation stress hurt defectors’ mental health, therefore it is important to support defectors with depression, and also to educate South Koreans in order to promote a more welcoming host community environment (Lim and Han 2016; Um et al. 2015; Jeon 2000). Another study called for improvements in how South Korea handles challenges of its entire population – i.e., society-wide problems of high suicide rate and alcohol consumption – since they also affect the defector community (Kim, Kim, Choi and Nam 2017).

IV. CONCLUSION

Our study began with an alarming note that there is a lack of understanding about the health status of North Korean women and children, even when the number of women defecting to South Korea has risen dramatically in recent years. Around eighty percent of defectors arriving in South Korea in the
last five years, and seventy-two percent of all arrivals in the last twenty years are female (Ministry of Unification 2019). This is due to two reasons: first, women dominate in the thriving *jangmadang* (black market), where they can get access to the network of defection brokers and information about the outside world (Maresca 2017; Ernst and Jurowetzki 2016); and second, growing preference for female defectors over males in China, the most popular transit country. Male defectors are increasingly viewed as a source of crime and violence, while females are welcomed as petty laborers and potential spouses to Chinese locals (Yoon, Park, and Im 2014).

Our review of both English and Korean studies showed some interesting patterns. First, there was a greater focus on North Korean defectors to South Korea than women and children in the DPRK. This was likely due to the limits of disaggregated data in the DPRK and the DPRK government’s reluctance to allow for empirical research. Second, the impact of the great famine in the DPRK was evident in the small stature and other health status of North Koreans compared to both their South Korean counterparts as well as to North Koreans who were not affected by the famine. Third, there was a clear gender difference in health among the people in the DPRK and defectors, which suggests that gender-based research is needed (Pak 2010; Jeon et al. 2008). In particular, some mental health challenges were significantly higher in female than male defectors, but did not go further to examine why this difference occurred from a gender-based analysis. A gendered approach is also needed for defector women in transit since trafficking is a serious problem (Choe 2019; Ochab 2019). Trafficking has serious consequences on both physical and mental health challenges, and thorough research is needed to examine the current status of the problem, causes, and possible solutions (Kim, Yun, Park and Williams 2009).

Since there is very little known about the health status of North Korean women, it is difficult to assess whether the studies reviewed in this paper reflect correctly the status of mental and physical health of North Korean women. However, empirical studies on North Korean defector women showed that a high level of stress was related to their migration experience and adjusting in the South Korean society. What is clear is that we need more empirical research on the health of North Korean women in the DPRK as well as those in transit and settlement in South Korea. In addition, this paper highlights the importance of including mental health as well as physical health in assessing the health of the North Korean and North Korean defector women.

As the DPRK is in discussions with the US, South Korea, and China, the time for the easing and removal of sanctions against the DPRK may come very quickly, not allowing for much preparation. Our study suggests that we need to have better empirical research on various health variables in the DPRK and defectors from both a humanitarian perspective, and from the viewpoint of
working with the DPRK through global, regional and inter-Korean cooperation. Our review has shown that health challenges faced by North Koreans and defectors are complex, and warrants that further research to be multidisciplinary to tackle the compounded nature of health challenges and solutions. The complexities of international politics, migration, mental and physical health, integration, abuse, and trafficking cannot be looked at in isolation. Finally, with the growing number of North Korean women who are defecting to South Korea, it is critical that more research focus on the health challenges of women and children from a gendered approach in order to understand the context and determinants of their health challenges and to develop tangible policy recommendations to improve their health.

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### APPENDIX. Summary of the Reviewed Papers

**<ENGLISH LANGUAGE STUDIES>**

| Author          | Year | Topic                                                  | Data Source                             | Sample                                                                 | Outcomes                                                                                                                                                                                                 |
|-----------------|------|--------------------------------------------------------|-----------------------------------------|------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Jeon            | 2000 | Problems in adaptation of defectors to South Korea    | Interview                              | 32 defectors (58 interviews)                                          | 4 problem areas: defectors' suspiciousness, different ways of thinking, searching for new values, and prejudice of the people in South Korea.                                                           |
| Lee et al.      | 2001 | Trauma experience of defectors in China                | Interviews                             | 170 defectors in China                                                | 100% had trauma, 56% had PTSD, 90% had anxiety and 81% had depression.                                                                                                                                   |
| Pak             | 2004 | The biological standard of living in the two Koreas    | Height data of defectors and South Korea controls | 2384 defector adults, 283 children and youth                         | North Koreans did not experience an increase in physical stature in latter 20th century; gap with South Korea started from people born in late 1940s, more pronounced thereafter.        |
| Goe et al.      | 2005 | Prevalence of untreated dental caries among DPRK children | Oral health survey                    | 854 children in DPRK                                                  | 70.1% had dental caries; the oral health in DPRK was comparable to the countries with similar Social Economic Status (SES).                                                                               |
| Jeon et al.     | 2005 | Correlation of traumatic events and PTSD among defectors in South Korea | Interviews, survey              | 200 defectors                                                        | Overall PTSD rate among defectors was 29.5%, with a higher occurrence for women.                                                                                                                           |
| Jeon et al.     | 2008 | Traumatic experiences and mental health of defectors in South Korea | Survey                              | 62 defectors                                                          | High levels of mania and schizophrenia among defectors; men had higher levels of alcohol problem and had less social support.                                                                          |
| Rim et al.      | 2008 | Iron fortification of nursery food on iron status of DPRK infants | Blood test results                         | 234 infants in DPRK                                                   | Ferrous sulphate added to rice lowered the prevalence of iron deficiency and anaemia among DPRK infants.                                                                                                  |
| Yu and Jeon     | 2008 | Mental health of defectors in protective facilities in China | Survey                              | 65 defectors in China                                                  | Women had more anxiety, depression, and schizophrenia; longer stay in China worsened mental health.                                                                                                       |
| Jeon et al.     | 2009 | Depressive symptoms among defectors in South Korea for more than one year | Survey                              | 367 defectors                                                        | 30.5% among men and 34.7% among women had depressive symptoms; 33.1% among men and 36.1% among women had severe distress.                                                                                |
| Kim et al.      | 2009 | Cross border DPRK women trafficking and victimization in DPRK/China | Interview                            | 77 female defectors in China/Thailand                               | Compared to other countries, DPRK women victims had a wider age range and were more educated; trafficking takes places in certain "hot spots" near the border.                                           |
| Lee et al.      | 2009 | Mental health and quality of life of defectors in Japan | Survey                              | 30 defectors in Japan, 138 Japanese, 151 defectors in Korea          | Lack of fluency in Japanese, unemployment, unclear nationality and the limited support system lead to poor mental health among defectors in Japan.                                                   |
| Author          | Year | Topic                                                                 | Data Source                      | Sample                                      | Outcomes                                                                                                                                                                                                 |
|-----------------|------|------------------------------------------------------------------------|----------------------------------|---------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Schwekendiek and Pak | 2009 | Recent growth of children in the two Koreas: a meta-analysis          | UN surveys, body measurements    | 135 defector children (preschool)          | 2002 body measurements show same weight gap but slightly larger height gap from 1997; defector children have smaller gaps compared to DPRK children.                                                            |
| Choi, Park, and Joung | 2010 | Poor nutrition and physique of young adult defectors in South Korean | 3-day food records               | 103 defectors, 309 South Korean youths     | DPRK subjects significantly shorter (4.9 to 10.8 cm) and lighter (6.0 to 12.5 kg) and eating poorer; BMI results were only different for men.                                                            |
| Pak             | 2010 | The growth status of defectors, age 6 to 19 years                    | Body measurements, interviews    | 1,406 measurements from defectors (youth), 55 interviews | Gap in height and weight were the smallest in pre-teen years, peaked in mid-teens, but decreased again in late-teens; girls' disparity was smaller.                                                        |
| Kim et al.      | 2011 | Prevalence and correlates of psychiatric symptoms in defectors        | Survey                           | 144 defectors (124 females)                | Somatization and depression were the two most prevalent mental issues; susceptibility to acculturation stressors aggravates them.                                                                      |
| Tran et al.     | 2011a| Knowledge and attitude toward cervical cancer screening in DPRK       | Survey, rural vs. urban          | 200 women in DPRK                         | Despite having the overall knowledge on preventive care, DPRK women are not taking screening services; no rural/urban gap on this.                                                                      |
| Tran et al.     | 2011b| Knowledge and attitude toward cervical cancer screening in DPRK       | Survey, rural vs. urban          | 201 women in DPRK                         | Awareness on national cervical cancer policy was lower in rural areas; only 4%(rural) and 21%(urban) of practitioners provided cytology.                                                                 |
| Lee, Shin, and Lim | 2012 | Psychological problems of defectors living in South Korea            | Survey                           | 102 defectors (youth), 766 South Korean controls | Mental health of defectors was the most severe in internalized problems.                                                                                                                                     |
| Jeon, Eom, and Min | 2013 | A 7-year follow-up study on the mental health of defectors in South Korea | Interview                       | 106 defectors                             | PTSD decreased during the 7 year stay; current culture-related stress is the most important for mental health of defectors in South Korea.                                                                 |
| Cho et al.      | 2015 | Body composition and muscle strength of defectors in South Korea     | Hand grip test, survey           | 158 defectors                             | Defectors had smaller physiques and weaker muscle strength than the controls.                                                                                                                             |
| Emery, Lee, and Kang | 2015 | Mental health and abuse of defector children/youth                   | Interview (or those with a defector parent) | 82 defectors                             | Family order is a protective factor against depression, which weakened past abuse-depression relationship.                                                                                               |
| Kim, Cho, and Kim | 2015 | Ego resiliency between stresses and mental health of defector youth in South Korea | Survey                           | 144 defectors (youth)                      | Ego resiliency mediates acculturation stress (but not trauma) and mental health outcome.                                                                                                              |
| Author                      | Year | Topic                                                                 | Sample   | Data Source       | Outcomes                                                                                                                                 |
|-----------------------------|------|----------------------------------------------------------------------|----------|------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| Park et al.                 | 2015 | Alexithymia and PTSD following multiple traumatic exposures among defectors | Survey   |                  | To be able to clearly identify and express emotions for people with trauma is crucial for reducing PTSD symptoms.                     |
| Shin and Lee                | 2015 | Mental health and PTSD in female defectors                            | Survey   |                  | Mental health and PTSD levels were moderate, help needed for successful socio-cultural transition.                                       |
| Lim et al.                  | 2015 | The role of perceived discrimination for defectors adapting to South Korean life | Survey   |                  | Poor socio-cultural adaptation and perception of discrimination were associated with depression.                                         |
| Frosé and Kim               | 2016 | Socio-cultural/psychological adjustment and physical health among defectors in South Korea | Survey, medical examinations |                  | Socio-cultural adjustment process to South Korea reduces physical health, while actively improves mental health.                         |
| Lim and Han                 | 2016 | Defectors’ adaptation to South Korean society: resilience to trauma   | Survey   |                  | Defectors resilience can be improved through self-efficacy.                                                                           |
| Nam et al.                  | 2016 | Mental health of defectors in South Korea: a case-control study       | Survey   |                  | 44% had depression, but family cohesion and resilience help mitigate it.                                                               |
| Shin, Lee, and Park         | 2016 | Anxiety, depression, and somatization among defectors in South Korea  | Survey   |                  | Depression, anxiety, and suicidal ideation were prevalent among defectors, females, and those who are single had higher suicidal ideation. |
| Kim, Kim, and Chung         | 2016 | Factors associated with Pap test use among defector victims of sexual violence | Interview|                  | Defectors had little knowledge and perceived need for preventive services, costs prevent them from receiving Pap tests.            |
| Tarvonen et al.             | 2016 | Change in dental caries status in different intervention groups in DPRK | Dental test results |                  | Dental caries decreased due to deciduous teeth exfoliation and dental treatment; early intervention had better results.              |
| Kim, Kim, and Chung         | 2017 | Mental health conditions among female defectors                        | Survey   |                  | Anxiety, depression, and somatization were correlated with mental health.                                                            |
| Kim et al.                  | 2017 | Mental health conditions among female defectors                        | Survey   |                  | Mental health conditions among female defectors were associated with Pap test use among defector victims of sexual violence.        |
| Lee                         | 2017 | National nutrition, children’s nutrition and growth assessment surveys | Review of published reports |                  | National nutrition assessment surveys in South Korea are significantly more prevalent for those women who experienced sexual violence. |
| Lee, Lee, and Park          | 2017 | Mental health of defectors in South Korea, 10 year review             | Review of peer-reviewed papers |                  | High prevalence of PTSD and depression among defectors; 9 risk factors. More longitudinal studies are needed.                         |
| Author               | Year | Topic                                                                 | Data Source                     | Sample                          | Outcomes                                                                 |
|----------------------|------|----------------------------------------------------------------------|---------------------------------|---------------------------------|--------------------------------------------------------------------------|
| Tarvonen et al.      | 2017 | Oral health habits and dental caries among children in DPRK           | Survey, dental examination results | 492 children in DPRK            | Frequent sweet snacking increased dental caries; tooth brushing and drinking water (instead of sugary beverages) were found to be unrelated. |
| Bahk, Ezzati, and Khang | 2018 | Life expectancy gap between DPRK and South Korea                      | DPRK/ South Korea census data    | Secondary data                  | Life expectancy gap grew from 1 year in 1993 to 10 years in 2008. Reason: circulatory diseases, digestive diseases, infant mortality, external causes, cancers and infectious diseases. |
| Cha et al.           | 2018 | Mental health consequences of the human rights violation              | Survey                          | 383 defectors in South Korea    | Defectors had high levels of anxiety, depression and PTSD, which are associated with exposures to both political and economic rights violations. |
| Lee and Shin         | 2018 | A mobile video intervention for health of female defectors            | Survey                          | 61 female defectors             | Knowledge and behavioral confidence on vaginitis and cervical cancer increased after educational intervention. |
| Park et al.          | 2018 | Cervical cancer screening and associated factors among defectors in South Korea | Survey                          | 638 defectors                  | Defectors less likely to get cervical cancer screening, especially those who are 30–39 years old and are married. |
| Park et al.          | 2019 | Recent growth of children in the two Koreas: a meta-analysis         | Review of peer-reviewed papers  | 465 papers                      | Most studies were on defector children, especially on mental health of defectors. Only 165 were on DPRK; research gaps on social/environmental determinants of health and defector children. |
| Author       | Year | Topic                                                                 | Data Source                      | Sample                           | Outcomes                                                                                                                                                                                                 |
|-------------|------|----------------------------------------------------------------------|----------------------------------|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Park        | 2000 | The effects of food crisis on DPRK children’s growth and development | WFP reports                      | Reports                         | Medical system in DPRK broke down from late 80s, which resulted in massive deaths when famine hit. Women can get pregnant despite severe undernourishment; many unhealthy babies were born. |
| Moon et al. | 2004 | Anthropometric measurements of defectors: comparison with South Korea | BMI measurements                 | 864 defectors (615 females)     | South Koreans taller and heavier, even from before the famine; DPRK status aggravated in late 80s–90s. DPRK females 20–24 years old are 7 cm smaller; 12 years old, 23.5 kg lighter. |
| Cho and Jeon| 2005 | Female defectors’ adaptation to South Korean life                    | Interview                        | 11 female defectors with marriage experiences | Many had chronic diseases. Married women currently living with a spouse had more mental issues than single women/married women not living with a spouse. |
| Kang        | 2005 | Stress coping style and mental health of the female defectors in China| Survey                           | 100 female defectors in China   | Existence of a family member in DPRK increased anxiety; double-marriage and arrest experience by Chinese police increased hostility. Exposure to sexual violence/trafficking negatively associated with anxiety/fear. |
| Kimm        | 2007 | Overview of the nutritional status in DPRK                          | UNICEF, WFP, EU, DPRK surveys    | Reports                         | Although 2004 data shows decrease in malnutrition, infants who experienced famine in late 1990s show delayed growth in 2004. Large regional differences. |
| Lee et al.  | 2007 | Review of health care system and women’s health status               | WHO, CBS statistics, UNICEF reports | Reports                         | Prenatal care has a wide coverage but low in quality; high levels of maternal death and abortion. Poverty leads to increased burden for females in particular. |
| Shim et al. | 2007 | Early childhood & maternal nutrition in DPRK and South Korea         | DPRK Nutrition Survey, KATS survey for South Korea | Reports                         | 30% of 30–35 months are underweight (10 times of South Korea), 50% of 54–59 months have stunted growth (4–18 times of South Korea). Age 30–34 females’ protein-energy malnutrition is 21 times higher than in South Korea. |
| Kang and Chang | 2009 | Psychological understanding of Saeteomin through MMPI results        | Survey                           | 69 defectors (45 females)       | Women suffer more from sexuality/paranoia/antisocial-hypomania/hysteria/obsessive-compulsiveness/introversion than men. |
| Cho and Kim | 2010 | Predictors of mental health risks in female defectors               | Interview                        | 401 female defectors (less than 1 year in South Korea) | Depression/anxiety are more negatively related to successful adaptation than PTSD itself. Long-term depression from the difficulty in adjusting to South Korea is also very damaging. |
| Author          | Year | Topic                                                                 | Data Source                  | Sample                          | Outcomes                                                                                                                                 |
|-----------------|------|----------------------------------------------------------------------|-------------------------------|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| Hwang           | 2010 | DPRK health indicators                                               | 2008 DPRK Census              | Reports                         | DPRK maternal/infant mortality rate is 5 times higher than South Korea; life expectancy is 10+ years less. Divorce rate is higher for females due to economic empowerment. |
| Kim             | 2010 | Defense mechanism & mental health problems of female defectors        | Survey                        | 283 female defectors            | Mature and Narcissistic Defense mechanism are more widely used, compared to Immature and Neurotic Defense mechanism for female defectors.      |
| Kim             | 2010 | Impact of DPRK’s famine on fertility and reproductive health         | Interview, survey, HR documents from DPRK | 20 interviews (defectors), 202 survey results (defectors), 442 HR documents | After mid-1990s, maternity care system in DPRK did not function. Children are similar until age 7–9, but starts to differ in physical development after age 10. 34.4% Hana-won had gender-related diseases. |
| Rhee, Ku, and Han | 2011 | Women's distinguishable experience among defectors                   | Review of peer-reviewed papers | 403 papers in Korean            | Only 8.22% of all study on defectors focus on women. Studies have narrow scope, high ratio of direct research, low ratio of clinical program evaluation. |
| Park and Kang   | 2011 | A Study on female defectors: Trends, Issues, Tasks                   | Critical literature review, including reports/thesis | Korean papers: number unspecified | More females (65%) responded they are not healthy than males (47%). Females are twice more likely to have mental/cardiac diseases. Female defectors have much more mental issues than Korean women. |
| Park and Kang   | 2011 | Marriage and Family Relationships of Female defectors                | Critical literature review, including reports/thesis | Korean papers: number unspecified | 20% of female defectors had OB-Gyn related diseases. Females in their 30s–50s had the most somatization, compared to women younger than 30.            |
| Hwang           | 2012 | Identifying MDG goals and challenges in DPRK health sector           | Governmental reports          | Reports                         | Infant mortality rate 19.3(2008); worsened situation in the past 20 years. Vaccination rate high but dependent on UNICEF support. Lack of basic medicine and emergency care. |
| Kim             | 2012 | Depression and stress on parenting behaviors: DPRK vs. South Korean women | Survey                        | 219 female defectors, 100 controls | Female defectors had more depression, parenting guilt and stress, and negative parenting behaviors. 1–3 years of settlement had the worst level of depression/guilt. |
| Kim et al.      | 2012 | Thyroid Dysfunction of North Korean Women in South Korea            | Survey, medical examinations  | 327 female defectors            | Age was associated with a low risk for Subclinical Hypothyroidism (SCH); opposite result from South Korea. This is due to severe famine at the period of growth for defectors. |
| Author          | Year | Topic                                                 | Data Source                      | Sample          | Outcomes                                                                                                                                 |
|-----------------|------|-------------------------------------------------------|----------------------------------|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| Kim and Lee     | 2012 | Trend of North Korean women researches                | Review of books, peer-reviewed   | 182 works       | Started in 1970s, became active in 1990s, qualitative growth in 2000’s. Only 6 papers on health/public health/beauty/fashion.           |
| Um              | 2012 | Social capital, community integration, and depression in female Saeteomins | Survey                           | 114 female defectors | Having a job or not, income, and physical health were related to depression, among which physical health having the strongest impact. Higher social capital lowered depression. |
| Kim et al.      | 2013 | Stress, social support and suicidal ideation of female defectors in South Korea | Survey                           | 156 female defectors | 45.5% of female defectors had suicidal thoughts in the past 1 year (South Korean average 3.7%). 26.9% had depression and 58.3% had PTSD. Social support mitigates suicidal ideation. |
| Rhee, Ku, and Han | 2013 | Factors for female sexual dysfunction of female defectors | Survey                           | 110 female defectors | 86.4% of female defectors had sexual dysfunction, compared to 50~60% South Korean women. Sexual function level was higher for women with more education and who didn't experience rape. |
| Park and Lee    | 2013 | Healthcare status and health aid strategies in DPRK   | North-South Cooperative Fund, UN reports | Reports         | South Korean government mainly have supported nutrition projects for infant, children, pregnant females; mother-child support projects can strengthen DPRK's public health system. |
| Kim, Ryu, and Kim | 2014 | Impact of trauma on stress/depression of female defectors | Surveys                          | 200 female defectors | 48.5% of female defectors have depression (South Korean women 21.5%). They are exposed to much stress; having trauma aggravates depression caused by the stress. |
| Kwak            | 2014 | Birth experience of DPRK women (experience back in DPRK) | Interviews                       | 12 female defectors | DPRK Policy first encouraged(post-war), and discouraged(70~80’s), then encouraged childbirth(1990’s). Yet in 2010 birth rate was 1.85 (world average, 2.52). No sex education. |
| Park, Lee, and Kim | 2014 | Status of mother-child health in DPRK and aid strategies | WHO, UNICEF, UNFPA reports      | Reports         | Neonatal mortality rate, maternal mortality rate, under age 5 child mortality rate improved after mid-1990’s, but have stalled after mid-2000’s. Large differences across surveys. |
| Ahn, Ryu, and Kim | 2015 | Clinical characteristics of defectors                 | Hospital exam records            | 169 defectors (163 females) | Defectors showed high rates of chronic hepatitis B, chronic hepatitis C, pulmonary tuberculosis with multidrug resistance and parasite infection. |
| Keum            | 2015 | Literature review of psychology research on defectors  | Critical literature review, peer-reviewed articles | 50 Korean papers | Despite their importance, not much work is done on health and women: 2 and 10 respectively. Defectors often point to health as their most urgent need. |
| Author               | Year | Topic                                                                 | Data Source                        | Sample                             | Outcomes                                                                                                                                                                                                 |
|---------------------|------|----------------------------------------------------------------------|------------------------------------|-----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Kim, Lee, and Park  | 2015 | DPRK’s maternal and newborn health management                        | Survey                             | 110 female defectors              | Delivery: hospital (67.3%) and home (32.7%). 38.2% had serious emergency situations and needed to transfer; among them, 40.5% couldn’t. 30.9% received postpartum care. |
| Moon et al.         | 2015 | Health conditions of the women defectors & the married immigrant women | Medical examination records       | 138 female defectors, 81 immigrant women | 32.8% had anemia, 11.8% had hepatitis B antigen positive rate, 48.6% had osteopenia or osteoporosis. 4.1% of pap smear showed abnormal findings, 29.1% had HPV positive rate, 4.5% had STDs. |
| Suh, Shin, and You  | 2015 | Health-related fitness and quality of life in female defectors        | Interview, physical test           | 80 female defectors (short vs. long stay) | Female defectors who were in South Korea over 3 years had significantly better physical and social functions, quality of life measures than those who had been in South Korea for less than 6 months. |
| Shin                | 2015 | South Korea-DPRK co-research in public health/medical R&D            | World Bank, UNICEF Reports         | Reports                           | WB had indicators on life expectancy, infant/child mortality rate, under-5 mortality rate; UNICEF SOWC data has more maternal-child health related indicators.                                                   |
| Lee, Jun, and Chang | 2016 | Perceived discrimination, stress, depression in defectors            | Survey                             | 87 defectors                      | Higher perceived discrimination caused acculturation stress, which led to higher depression; but not as much for those who preferred DPRK culture over South Korea.                                                   |
| Cho                 | 2016a| Major health indicators in South Korea and DPRK                      | UN, KOSIS, UNSD data               | Reports                           | Infant mortality rate in DPRK lower than world average, except in 1995. Maternal mortality rate in DPRK is decreasing, yet is still 8.8 times that of South Korea.                                                   |
| Cho                 | 2016b| Infant/child mortality and humanitarian aids to DPRK                 | UN, UNICEF, WHO reports; KOSIS data | Reports                           | Grain production and vaccination rate significantly impacted infant/child mortality; more than half of child mortality is from infectious disease. Vaccination needs to be the priority.                                                   |
| Kim, Kim, and Kim   | 2016 | Traumatic experience and menstrual regularity among female defectors  | Survey                             | 131 female defectors              | 35.1% of female defectors had irregular menstruation. Menstruation irregularity was associated with higher levels of traumatic experiences.                                                                 |
| Kim and Ryu         | 2016 | Cycle of child abuse among female defectors: effects of spouse abuse  | Survey                             | 129 female defectors (with children) | 65.7% female defectors experienced spousal abuse, which leads to child abuse. DPRK women were more abusive towards their children in all areas than South Korean women.                                                   |
| Kim and Park        | 2016 | Reproduction-related legislations and women’s experience in DPRK      | Interview                          | 16 female defectors               | One’s social and economic status determines reproductive experiences; DPRK government emphasizes the superiority of working mothers with healthy babies through laws.                                                   |
| Yun, Kwon and Yoon  | 2016 | Status of maternal nutrition in South Korea and DPRK                  | DPRK Report, KATS report(South)    | Report                            | Striking difference: anemia 2-3 times and maternal protein-energy malnutrition 2-2.5 times higher in DPRK; much less consumption of protein-rich foods in DPRK.                                                   |
| Author               | Year | Topic                                                                 | Data Source                        | Sample                      | Outcomes                                                                                                                                 |
|---------------------|------|----------------------------------------------------------------------|------------------------------------|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| Jung and Choi       | 2017 | How escape length, repatriation impacts psychological state of female defectors | Survey (2 points of time)          | 416 female defectors        | Qualitative studies on the main stream (61 vs. 36 papers). Among female defectors, depression/anxiety matters more in adjusting.       |
| Lim, Lee, and Yang  | 2017 | Research trend on the defectors' health                               | Review of peer-reviewed papers     | 140 Korean papers           | 45.9% experienced trauma in the process of coming to South Korea; the period of stay in transit countries negatively affects psychological symptoms of female defectors. |
| Yang and Yun        | 2017 | Review on the mental health studies on Female defectors               | Review of peer-reviewed papers     | 142 Korean papers           | PTSD anxiety, depression, PTSD anxiety among female defectors. Only 19 papers out of 140 were on adult females, need more gender-focused research. |
| Jeon et al.         | 2018 | Sexual knowledge, sexual attitude, stress coping, and resilience of female defectors | Review of peer-reviewed papers     | 131 female defectors        | Among 11 papers on female defectors, 76% were on adults, 42% were on depression anxiety/PTSD. Only 11 papers out of 142 were on female defectors. |
| Lee and Shim        | 2018 | Trends in qualitative studies on Female defectors                     | Review of peer-reviewed papers     | 36 Korean papers            | Qualitative studies on the main stream (61 vs. 36 papers). Among female defectors, depression/anxiety matters more in adjusting.       |
| Yong and Kim        | 2018 | Research trends on defector children                                  | Review of peer-reviewed papers and theses | 127 Korean papers and 4 papers | There is a need to expand research on defector children in early childhood (29 papers out of 127) and in medical pharmacy areas.        |
| Wee                 | 2018 | The impact of famine on body size: height by cohort of female defectors | Health exam records                | 10,536 female defectors (45,50 men) | Qualitative studies on the main stream (61 vs. 36 papers). Among female defectors, depression/anxiety matters more in adjusting.       |
| Lee and Kim         | 2019 | Traumatic events, PTSD & sexual autonomy among female defector college students | Survey                            | 103 female defectors in college | Qualitative studies on the main stream (61 vs. 36 papers). Among female defectors, depression/anxiety matters more in adjusting.       |
| Park                | 2019 | Main food sources of nutrient in DPRK                                | Food Balance Sheet data on Food KREI Reports |                      | Qualitative studies on the main stream (61 vs. 36 papers). Among female defectors, depression/anxiety matters more in adjusting.       |
| Shin                | 2019 | Research trends of oral studies on DPRK migrant women                 | Critical literature review of oral studies |                      | Qualitative studies on the main stream (61 vs. 36 papers). Among female defectors, depression/anxiety matters more in adjusting.       |
ENDNOTES

1 Hanawon is the settlement support center for North Korean refugees run by the Ministry of Unification. Since its establishment in July 1999, it has been running a 12-week program aimed at helping the refugees adjust to the life in South Korea. Its curriculum include education on capitalism and market economy, basic job training and improve emotional stability (The Institute for Peace Affairs 2009).

2 The great famine, also known as the “Arduous March” period, refers to the severe poverty DPRK experienced in 1996-2000. There is some controversy over how many passed away during this time, but more recent statistics from KOSIS estimates the number to be around 330,000 (Lee 2016). According to Lee (2011), 300,000 is a conservative estimate, and some sources claim even 3 million deaths, when including the indirect effects of the famine (Lee 2011, 23).