

An exploratory study of maternal predictors affecting the health status of married women's children in East Asia

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Objectives: Although maternal characteristics are important predictors with regard to population-based health promotion, they have not been fully identified in many countries and cultures. This study explores the effects of maternal capacity and health communication behaviors on children's health statuses in Korea, China and Japan. **Methods:** The dataset came from a survey of respondents drawn from a nationally representative online sample of women in East Asia. We conducted computer-assisted web interviews with married women in their 20s-40s holding South Korean, Chinese, or Japanese nationality (n=1580). We designed a cross-sectional study to examine the effects of certain maternal capabilities, in this case self-efficacy, empowerment, and e-health literacy, on the low health status of the participants' children with health-information-seeking behavior (HISB) as a potential moderator. **Results:** The results showed that the likelihood of belonging to the low health status group among children was a mother with low self-efficacy, a mother who was poorly empowered, and a mother who had poor e-health literacy. However, a positive association was found between active HISB by the mother and low health status of the child. **Conclusion:** Factors constituting maternity capacity differentially influenced children's health status according to the social context of East Asian countries.

Key words: child health, maternal health, East Asia

I. Introduction

The socio-contextual characteristics of parents are known to have a wide range of influences not only on biological indicators such as height and weight of children, but also on the possibility of their child's acquired disease, future educational attainment and income (Marmot, 2007). Through this intergenerational transfer mechanism, social inequality also tends to be passed on from parent to child (Marmot, 2015). However, it is not yet known whether health inequality has a long-term impact over generations. It has been reported that certain socio-economic characteristics of parents, such as their education level (Calhoun et al.,

2014; Ueda, Kondo, Takada, & Hashimoto, 2014), poverty (Galarce, Minsky, & Viswanath, 2011), and age (Danis, Georgakopoulou, Stavrou, Laggas, & Panagiotopoulos, 2010) may be associated with their child's health status. However, more studies are needed to determine which mechanisms affect parental characteristics and children's health. In addition, little is known about how the social characteristics of the father and mother contribute to determining their children's health when genetic and predisposition factors are held constant.

One hypothesis is that inequality in maternal use of health care services regarding their children is related to individual economic, educational, and empowerment status (3Es) (Ahmed, Creanga, Gillespie, & Tsui, 2010).

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These 3Es are indispensable for realizing the MDGs (Millennium Development Goals), because undesirable social environments can weaken the effects of public health interventions and consolidate inequality (Gillespie, Ahmed, Tsui, & Radloff, 2007). In developing countries, a diverse set of delays (e.g., obtaining medical services, arriving at medical institutions, and providing medical services) can adversely affect child' health (Thaddeus & Maine, 1994). Delays related to health and medical care directly contribute to maternal and child mortality, which is related to the level of 3Es.

The other hypothesis is that maternal capacity affects children's health through health communication (Jung, Lin, & Viswanath, 2013; Jung, Lin, & Viswanath, 2015). Because mothers are often more involved in raising the children compared to fathers, if mothers have strong ability to control themselves, the result may be a positive impact on their children's health. In other words, even if parents in different households have similar socio-economic statuses, if certain maternal capacities, such as empowerment, self-efficacy, and health literacy, are high, the health of the children in such households is more likely to be protected from health risk factors (Prata, Tavrow, & Upadhyay, 2017). Conversely, if these maternal capacities are low, the children may be exposed to the health risks caused by their parent's poor socioeconomic status.

Maternal capacity, consisting of the aspects of self-efficacy, empowerment, and e-health literacy, may be a potential maternal predictor that had a significant effect on the general health of children (Kotch, 2012). In particular, empowerment of women is a process of providing power to woman to become free from control by others, that is, to assume the power to control their own lives and determine their own conditions (Ehrhardt, Sawires, McGovern, Peacock, & Weston, 2009). Women's empowerment may also be understood as a process of providing equal rights, opportunities, responsibilities and power positions to

women so that they can play a role in society on par with men (Allendorf, 2007). However, although maternal empowerment and proper health communication are important predictors in studies of population-based health promotion, these factors have not been fully identified in many countries and cultures (Kusuma, Kumari, Pandav, & Gupta, 2010; Thorpe, VanderEnde, Peters, Bardin, & Yount, 2016). In particular, there is a lack of research in the East Asian region, where patriarchal and Confucian characteristics remain. This study explores the effects of maternal empowerment and health communication behaviors on children's health status in Korea, China and Japan.

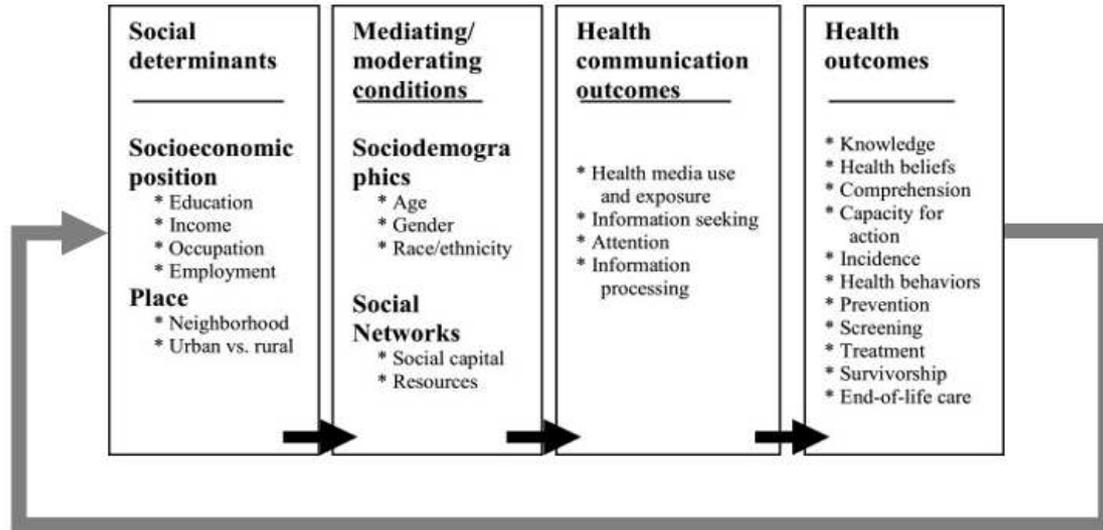
II. Methods

1. Study design

The research question of this study is to explore whether maternal empowerment and health communication behaviors have the potential to affect the general health status of children. We thus designed a cross-sectional study to examine the effects of mothers' maternal characteristics on low health status of their children with health-information-seeking behavior as a potential moderator. A recursive version of the structural influence model (SIM) was applied here as the study model (Lin, Jung, McCloud, & Viswanath, 2014; Viswanath, Ramanadhan, & Kontos, 2007). SIM is a model that explains communication inequalities, assuming that social determinants such as socio-economic status, race, ethnicity, and residential/demographic characteristics affect information access, exposure, and utilization. The model considers the factors of knowledge, risk perception, and disease prevention behaviors. The recursive model of SIM refers to the reproduction of this model in the context of a social structure. This study established maternal

health-information-seeking behavior (HISB) and e-health literacy as preventive factors with regard to

children's health status (Jung et al., 2015; Norman & Skinner, 2006a; Norman & Skinner, 2006b).



[Figure 1] Structural influence model: A recursive version

Source. Viswanath, Ramanadhan, & Kontos (2007)

2. Sample

The dataset came from a survey of respondents drawn from a nationally representative online sample of women in East Asia, 2016. We developed a question compatible with the Demographic Health Survey (<https://dhsprogram.com/>) question with the support of the National Research Foundation of Korea. The questionnaire was translated into each country's language and cross-validated. The on-site survey was conducted by a survey company with the largest sales volume in Korea. We conducted computer-assisted web panel interviews with married women in their 20s-40s who are living in Seoul, Beijing and Tokyo. We excluded 124 cases of premature infants and 74 cases of low-birth-weight infants (weighing less than 2500g at birth). The final sample consisted of 1580 mothers who had underage children (580 Korean; 566 Chinese; 434 Japanese). Respondents received a nominal cash incentive (USD \$2.00) to participate when they

completed the surveys. We excluded respondents who did not answer survey questions on key analytical variables using a pairwise method. For reference, in the sample of this study, the average number of children given birth was 1.67 ± 0.642 in Korea, 1.18 ± 0.386 in China, and 1.58 ± 0.674 in Japan. The average weight at birth of children was 3.20 ± 0.436 kg in Korea, 3.49 ± 0.621 kg in China, and 2.92 ± 0.440 in Japan. If the children were premature or underweight during childbirth, we excluded them from the study because they are separately managed according to the domestic maternal and child health guidelines. In addition, if there are two or more underage children, the general health status of the youngest child was measured.

3. Measures

1) Dependent variables

The health outcome of this study is the general

health status of married women's child. Respondents were asked to rate their child's health status on a five-point Likert type scale ranging from very good to very poor by responding to the question "How is your child's health in general?" (If respondents have more than one underage child, this item was measured based on the youngest child.) The answers were eventually grouped into two categories. Respondents reporting "very bad" or "bad" for health status were coded as 1 and were considered as the low group, while those reporting "very good," "good" or "average" health status were coded as 0 and were considered as the high group. In prospective studies, this general health question was validated as a good predictor of morbidity and mortality (DeSalvo, Bloser, Reynolds, He, & Muntaner, 2005; Idler & Benyamini, 1997).

2) Independent variables

The independent variables in this study are three aspects of maternal capacity, termed here empowerment, self-efficacy, and e-health literacy.

First, maternal empowerment is widely acknowledged as a process by which those who have been disempowered are able to make life-enhancing decisions and obtain control over resources (Kabeer, 2001; Malhotra, Schuler, & Boender, 2002). We assessed maternal empowerment based on the participants' decision-making authority regarding their own lives (Kawaguchi et al., 2014). In the present study, we measured maternal empowerment according to responses to the following five statements: "I am free to make important choices in my life." "I have strengths as a woman." "I express my appearance proudly as a woman." "I try to make time to look after my health." "I consistently do exercises that work for me." There were five possible responses: (1) Strongly disagree, (2) Disagree, (3) Neutral, (4) Agree, and (5) Strongly agree.

Second, maternal self-efficacy refers to a mother's

ability, confidence, success, perceived competence in infant care, perception of the motherhood role, and self-esteem (Azmoode, Jafarnejade, & Mazlom, 2015). For this study, we measured maternal self-efficacy by assessing responses to the following five statements: "I can achieve my ideal by setting important goals." "I can do my job as planned." "I am confident." "If I have something to do, I start doing it right away." "Even if something goes wrong in the first place, try to the end." There were five possible responses: (1) Strongly disagree, (2) Disagree, (3) Neutral, (4) Agree, and (5) Strongly agree.

Third, e-health literacy is defined as the ability to browse, understand and evaluate reliable health information in the Internet environment (Norman & Skinner, 2006a). In this study, a tool developed by Norman and Skinner (2006b) was used. In this case, responses to the following four statements were assessed to measure e-health literacy: "I know where to find useful health information on the Internet." "I know how to use the health information I find on the Internet." "I can tell if the health information I find on the Internet is of good quality." "I am confident in using Internet health information to make health-related decisions." There were five possible responses: (1) Strongly disagree, (2) Disagree, (3) Neutral, (4) Agree, and (5) Strongly agree.

We conducted a principal component analysis with the three independent variables to assess the empowerment as defined above of the respondents multi-dimensionally. The factors used to construct the empowerment index presented eigenvalues greater than 1 and factor loadings greater than 0.40. The single factor of *empowerment* accounted for 68.0% of the total variance (Cronbach's alpha = 0.836). The single factor of *self-efficacy* accounted for 57.4% of the total variance (Cronbach's alpha = 0.703), and the single factor of *e-health literacy* accounted for 77.9% of the total variance (Cronbach's alpha = 0.905).

3) Moderator

Health-information-seeking behavior (HISB) is the moderating variable in this study. The mediator acts separately between the independent and dependent variables over time. On the other hand, the moderator has a strong and contingent effect between the independent and dependent variables (Sheikh, Abelsen, & Olsen, 2014). Therefore, moderating variable can be used to understand the nature of causal relationships in cross-sectional studies. In this study, we measured HISB using the following single question: "How actively do you usually seek health information?" There were five possible responses: (1) Very passively (2) Passively (3) Average (4) Actively (5) Very actively. We looked at how the impact of maternal empowerment on children's health status can vary through HISB using a hierarchical multivariable regression model.

4) Potential confounders

It has been reported that child and maternal health are related to demographic characteristics (Arba, Darebo, Koyira, 2016; Jung et al., 2015). Accordingly, the age, socio-economic position (i.e., educational attainment and household income), and health behaviors of the mothers were considered as covariates in this study. Educational attainment levels were grouped into the following categories: high school/associate degree or less, bachelor's degree, and graduate school or higher. Annual household income levels were also grouped, as follows: below \$16000, \$16001~\$33000, \$33001~\$49000, \$49001~\$66000, \$66001~\$82000, and \$82001 or more in US dollars. Answers to smoking and drinking alcohol were recorded as "yes" or "no." Body mass index (BMI) was calculated by using the respondent's height and weight, with these data grouped into the following categories: underweight (≤ 18.4), normal (18.5~24.9), overweight (25.0~29.9), and obese (≥ 30.0).

4. Statistical analyses

First, we described the general characteristics of the sample for each country in East Asia, including the children's health status. Second, we undertook a principal component analysis to extract the maternal empowerment factors. Third, we conducted a hierarchical multivariable regression analysis to examine the relationships between the maternal empowerment factors, HISB, and the children's health status after adjustments for potential confounders. Finally, we assessed the associations between maternal empowerment and the children's health status stratified by nationality (South Korea, China, and Japan). We performed all statistical analyses using STATA v. 14.0 (STATA, College Station, TX, USA).

5. Ethics statement

Approval for the study was granted by the Policy Institutional Review Board of the Korea National Institute for Bioethics (P01-201611-21-009). All participants provided written informed consent to participate. During the investigation process, we collected no information that could distinguish individual participants.

III. Results

1. Descriptive statistics of the sample

Table 1 shows the South Korean, Chinese, and Japanese women's subjective evaluation of their underage children's general health status, socioeconomic characteristics, health behaviors, and HISB. First, among the respondents' education levels, those of the Chinese mothers were highest, with a rate of 93.9% for high education (college/university graduates and above) compared to a rate of only 70.1%

for the Japanese mothers. However, annual household income was US \$66001 or above for 45.0% of the Japanese respondents, making them wealthier than their South Korean and Chinese peers. Next, the rate of smoking was highest among Japanese women at 10.1%, and the rate of drinking was highest among

Korean women at 80.9%. The overweight group (BMI of 25.0 or higher) had the highest proportion of Korean women at 19.5%. Third, the proportion of the group actively seeking health information was very high at 88.8% among Chinese women.

〈Table 1〉 General characteristics of the sample

						Unit: n(%)
	Categories	Korea	China	Japan	Total	Chi-square (p-value)
Age	20~24	7(1.2)	8(1.4)	6(1.4)	21(1.3)	333.864 (p<.001)
	25~29	56(9.7)	258(45.6)	47(10.8)	361(22.8)	
	30~34	185(31.9)	199(35.2)	130(30.0)	514(32.5)	
	35 or older	332(57.2)	101(17.8)	251(57.8)	684(43.3)	
Education	High school or less	89(15.4)	35(6.2)	130(30.0)	254(16.1)	138.617 (p<.001)
	Bachelor's degree	443(76.4)	516(91.2)	278(64.1)	1,237(78.3)	
	Graduate school or higher	48(8.3)	15(2.7)	26(6.0)	89(5.6)	
Annual income	≤16,000	17(2.9)	31(5.5)	7(1.6)	55(3.5)	269.611 (p<.001)
	16,001~33,000	157(27.1)	174(30.8)	43(9.9)	374(23.7)	
	33,001~49,000	188(32.4)	156(27.6)	83(19.1)	427(27.1)	
	49,001~66,000	113(19.5)	94(16.6)	106(14.4)	313(19.8)	
	66,001~82,000	73(12.6)	98(17.3)	96(22.2)	267(16.9)	
	≥82,001	32(5.5)	13(2.3)	99(22.8)	144(9.1)	
Smoking	No	559(96.4)	536(94.7)	390(89.9)	1,485(94.0)	19.452 (p<.001)
	Yes	21(3.6)	30(5.3)	44(10.1)	95(6.0)	
Drinking alcohol	No	111(19.1)	287(50.7)	161(37.1)	559(35.4)	125.64 (p<.001)
	Yes	469(80.9)	279(49.3)	273(62.9)	1,021(64.6)	
BMI	Under weight (≤18.4)	40(7.0)	107(19.1)	96(22.6)	243(15.6)	72.759 (p<.001)
	Normal (18.5~24.9)	422(73.5)	384(68.4)	292(68.7)	1,098(70.4)	
	Over weight (25.0~29.9)	92(16.0)	51(9.1)	34(8.0)	177(11.3)	
	Obese (≥30.0)	20(3.5)	19(3.4)	3(0.7)	42(2.7)	
HISB	Very passively	11(1.9)	1(0.2)	51(11.8)	63(4.0)	694.997 (p<.001)
	Passively	31(5.3)	1(0.2)	82(18.9)	114(7.2)	
	Average	329(56.7)	61(10.8)	188(43.3)	578(36.6)	
	Actively	180(31.0)	265(46.8)	77(17.7)	522(33.0)	
	Very actively	29(5.0)	238(42.0)	36(8.3)	303(19.2)	
General health status	High	379(65.3)	492(86.9)	272(62.7)	1,143(72.3)	94.637 (p<.001)
	Low	201(34.7)	74(13.1)	162(37.3)	437(27.7)	
Total		580(100.0)	566(100.0)	434(100.0)	1,580(100.0)	

Notes. BMI=body mass index; HISB=health information-seeking behavior

* Equivalized household annual income: USD \$1 = KRW(Korean won) 1,208.80 (August, 2019)

2. Factor analysis and reliability test of the measures

Table 2 shows the results of a factor analysis and reliability evaluation of the survey tools to examine the effects of maternal empowerment on the children's

health status. According to the results of these analyses, one factor was extracted for each of the three variables (self-efficacy, empowerment, and e-health literacy). The Cronbach α outcomes were all satisfactory, i.e., exceeding 0.7.

<Table 2> Results of factor and reliability analyses

Factor	Item	Factor loading	Reliability (Chronbach α)
Self-efficacy	I can achieve my ideal by setting important goals.	.814	.703
	I can do my job as planned.	.748	
	I am confident.	.724	
	If I have something to do, I start doing it right away.	.688	
	Even if something goes wrong in the first place, try to the end.	.432	
Maternal empowerment	I express my appearance proudly as a woman.	.829	.836
	I try to make time to look after my health.	.819	
	I have strengths as a woman.	.805	
	I consistently do exercises that work for me.	.759	
	I am free to make important choices in my life.	.694	
E-health literacy	I know how to use the health information I find on the Internet.	.899	.905
	I am confident in using Internet health information to make health-related decisions.	.885	
	I know where to find useful health information on the Internet.	.881	
	I can tell if the health information I find on the Internet is of good quality.	.865	

3. Predictors affecting low health status of married women's children

Table 3 shows the results of a binary logistic regression analysis of maternal characteristics affecting the health status of children across all East Asian countries. Model I revealed that the likelihood of belonging to the low health status group among the children was influenced by having an older mother

(OR=1.079, 95% CI: 1.049-1.110) and having a mother in the low-education group (OR=0.661, 95% CI: 0.530-0.826). Model II revealed that the likelihood of belonging to the low health status group among children was influenced by having a mother who smoked (OR=1.769, 95% CI: 1.140-1.810) and drank alcohol (OR=1.472, 95% CI: 1.142-1.898). Model III revealed that the likelihood of belonging to the low health status group among the children was influenced

〈Table 3〉 Predictors affecting low health status of married women's children in East Asia (Pooled sample)

Dimension	Categories	Model I			Model II			Model III			Model IV		
		OR	95% CI		OR	95% CI		OR	95% CI		OR	95% CI	
			Lower	Upper		Lower	Upper		Lower	Upper		Lower	Upper
Socioeconomic status	Age	1.079***	1.049	1.110	1.070***	1.039	1.101	1.040**	1.009	1.073	1.048**	1.016	1.082
	Education	0.661***	0.530	0.826	0.690***	0.551	0.865	0.882	0.698	1.113	0.859	0.679	1.087
	Annual Income	1.025	0.980	1.071	1.020	0.975	1.067	1.029	0.981	1.078	1.030	0.983	1.080
Health behavior	Smoking				1.769**	1.140	2.746	1.810**	1.144	2.864	1.819**	1.152	2.874
	Drinking alcohol				1.472**	1.142	1.898	1.531***	1.177	1.992	1.537***	1.181	2.001
	Body Mass Index				1.013	0.982	1.045	1.014	0.982	1.047	1.012	0.980	1.045
Maternal capacity	Self-efficacy							0.730***	0.627	0.850	0.715***	0.613	0.834
	Empowerment							0.766***	0.654	0.897	0.736***	0.626	0.866
	e-Health Literacy							0.872	0.756	1.006	0.845*	0.730	0.978
Communication	HISB										1.168*	1.014	1.345
Constant		0.128***			0.082***			0.071***			0.036***		
Nagelkerke R ²		0.039			0.056			0.138			0.142		

Notes. OR=odds ratio; CI=confidence interval; HISB=health information-seeking behavior
 Dependent variable is general health status: the high group (0) and the low group (1)
 * p<.05, ** p<.01, *** p<.001

(Table 4) Predictors affecting low health status of married women's children in East Asia (Elaborated by countries)

Dimension	Categories	Korea			China			Japan		
		OR	95% CI		OR	95% CI		OR	95% CI	
			Lower	Upper		Lower	Upper		Lower	Upper
Socioeconomic status	Age	1.005	0.954	1.059	1.023	0.949	1.103	1.070*	1.012	1.132
	Education	1.022	0.699	1.496	0.610	0.299	1.244	0.716	0.500	1.025
	Annual Income	1.070	0.984	1.163	1.085	0.965	1.220	0.942	0.862	1.030
Health behavior	Smoking	0.812	0.311	2.120	3.808**	1.639	8.846	1.783	0.899	3.535
	Drinking alcohol	1.374	0.847	2.227	1.999**	1.157	3.452	0.949	0.612	1.474
	Body Mass Index	1.012	0.964	1.062	1.029	0.971	1.090	0.936	0.866	1.011
Maternal capacity	Self-efficacy	0.546***	0.423	0.706	0.811	0.536	1.228	0.832	0.649	1.066
	Empowerment	0.939	0.734	1.202	0.911	0.592	1.402	0.567***	0.421	0.762
	e-Health Literacy	0.830	0.662	1.041	0.955	0.635	1.437	0.899	0.702	1.152
Communication	HISB	1.250	0.960	1.628	0.949	0.628	1.435	1.387***	1.122	1.714
Constant		0.075			0.162			0.261		
Nagelkerke R ²		0.102			0.090			0.133		

Notes. OR=odds ratio; CI=confidence interval; HISB=health information-seeking behavior
 Dependent variable is general health status: the high group (0) and the low group (1)
 * p<.05, ** p<.01, *** p<.001

by having a mother with low self-efficacy (OR=0.730, 95% CI: 0.627-0.850) and having a mother who was poorly empowered (OR=0.766, 95% CI: 0.654-0.897). Model IV revealed that the likelihood of belonging to the low health status group among the children was influenced by having a mother with poor e-health literacy (OR=0.845, 95% CI: 0.730-0.978), as well as poor self-efficacy and empowerment. However, a positive association was found between active HISB by the mother and low health status by the child (OR=1.168, 95% CI: 1.014-1.345), after adjustments for all potential confounders. The explained variance of the final model was 14.2%.

Table 4 presents the results of a binary logistic regression of maternal characteristics affecting the health status of children elaborated for each East Asian country. The lower the self-efficacy of Korean women (OR=0.546, 95% CI: 0.423-0.706) and the less empowerment of Japanese women (OR=0.567, 95% CI: 0.421-0.762), the higher the probability that the children will be in the low health status group. In addition, for Japanese women, the more active the HISB, the more likely the children were to be in the low health status group (OR=1.387, 95% CI: 1.122-1.714). However, when potential confounders were not controlled at all, it was found that the more active the HISB was, the less likely the children were to be in the low health status group (OR=0.755, 95% CI: 0.677-0.843).

IV. Discussion

It has been reported that maternal empowerment has a positive impact on children's health in national-level data in developing countries (Abuya, Onsomu, Kimani, & Moore, 2011; Vikram, Vanneman, & Desai, 2012; Mahapatro, 2012). Nevertheless, there is still little research on what maternal empowerment

is specifically and how it can help with health problems. In addition, there is a lack of understanding of the social context of mothers in various countries and cultures. Therefore, this study explored the effects of maternal empowerment and health communication behavior on the health status of underage children in their 20s through their 40s living in East Asia. The three main findings of this study are given below.

First, maternal capacity, consisting of the aspects of self-efficacy, empowerment, and e-health literacy, was an important maternal predictor that had a significant effect on the general health status of children. With proper control of potential confounders, the higher these three factors are, the lower the likelihood becomes that the child's health status will be poor. Maternal empowerment has been shown to be a preventive factor to reduce the health inequality effect on children when controlling for the socio-economic status of the parents.

Second, factors constituting maternity empowerment differentially influenced children's health status according to the social context of East Asian countries. In Korea, self-efficacy was important, while in Japan, empowerment was an important predictor. However, in China, maternal health behaviors such as smoking and drinking alcohol were much more important. These results may stem from the problem of sample size. However, the differences seen in these countries with similar patriarchal cultures provide us with the lessons needed to promote maternity empowerment for each country.

Third, although the impact of maternal health communication as measured by HISB was significantly related to the child's health status, it is difficult to conclude a causal relationship. In other words, the result appeared to be an instance of reverse causality. It is difficult to assume that the more mothers find health information, the sicker their children will become. On the other hand, maternal HISBs are more

likely to be active when children are often sick or have congenital diseases. In particular, when analyzed by country, this tendency found only in Japanese women shows that this result can be contingent. This is also supported by the fact that all other variables in Model 4, shown in Table 3, were consistent with the hypothesis here or with the findings of previous studies (Ahmed et al., 2010; Jung et al., 2015; Sohn & Jung, 2020). Therefore, we need to think about how to prevent reverse causality when using health communication variables such as HISB. In addition, differences between countries need to be clarified through follow-up studies.

This study has several limitations. First, it is difficult to determine the causal direction due to the use of cross-section data. Second, for comparison with DHS data, the questionnaire was composed of questions based on DHS, and information on children was limited. Third, qualitative heterogeneity exists in each country, which may lead to bias when estimating the regression coefficient of the statistical model. Nevertheless, the findings here can help to derive local intervention strategies ultimately to improving maternal empowerment in East Asia.

V. Conclusion

In terms of maternal and child health, the health status of children is an important research concern. This study surveyed married women from three countries in East Asia to determine how maternal predictors affect their children's subjective health status. The results of the study show that maternal capacity, consisting of self-efficacy, empowerment, and e-health literacy, is a significant protective factor with regard to children's health status. However, the meaning can vary depending on the social context of the East Asian country in question. Compared to the

risk factors affecting children's health status, there have been few studies on preventive factors, so we need to develop a multidimensional measures related to women's capacity according to social context. In addition, the health communication behavior of seeking health information can be confirmed only by associations, and uncertainty exists with regard to causality. Also, referring to the findings of this study when establishing intervention strategies for maternal and child health by country can be very beneficial. In particular, it is time to consider a strategy based on human capital to increase maternal capacity from the existing media campaign strategy.

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