ORIGINAL ARTICLE

J Korean Acad Community Health Nurs (지역사회간호학회지)

ISSN 1225-9594 (Print) / ISSN 2288-4203 (Online)
Vol. 29 No. 1, 41-53, March 2018
https://doi.org/10.12799/jkachn.2018.29.1.41

Factors Affecting Unmet Healthcare Needs of Working Married Immigrant Women in South Korea

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Purpose: This study was conducted to identify the factors affecting on unmet healthcare needs of married immigrant women, especially who are working in South Korea. **Methods:** It is designed as a cross-sectional descriptive study. We analyzed data from 8,142 working married immigrant women to the 'National Survey of Multicultural Families 2015.' Based on Andersen's health behavior model, logistic regression was conducted to determine the predictors of unmet healthcare need. **Results:** The prevalence of unmet healthcare needs among the subjects was 11.6%. In multivariate analysis, significant predictors of unmet needs included existence of preschooler, country of origin, period of residence in predisposing factors, monthly household income, helpful social relationship, social discrimination, Korean proficiency, working hour per week in enabling factors, and self-rated health, experience of grief or desperation in need factors. **Conclusion:** The association between labor-related factors and unmet healthcare needs of marriage immigrant women currently working was found from nationally representative sample. Support policies for immigrant women working more than legally defined hours and having preschooler should be supplemented to reduce unmet healthcare needs. In addition, eradicating discrimination in workplace, enlarging social relationship, and developing culturally competent nursing services tailored to health problems caused by labor are needed.

Key Words: Immigrants, Working women, Health services accessibility, Healthcare disparities

INTRODUCTION

1. Background

Due to an increase of international marriages and drastic influx of foreign workers and international students since 2000, the proportion of foreigners in the total population of Korea has steadily increased, reaching 3.4% of the total population in 2017. Among foreigners staying in Korea, marriage immigrants account for the second highest percentage after migrant workers. Around the 82% of the total marriage immigrants are women, because the dominant type of international marriage in Korea is the union of woman from a lower income country and Korean man. They were known to choose to immigrate to Korean due to motivations such as the need to support family in their home countries, expansion of employment opportunities, and desire for a better life and life satisfaction [1]. According to the results of the National Survey of Multicultural Families 2015, the first ranked item among the supporting services which marriage immigrants want to receive was job training and job placement. Especially the group of immigrants who have lived in Korea for a long period over 10 years had showed the highest needs of employment. As reflected in this situation, the employment rate of marriage immigrant women has risen steadily over the past decade, and 59.5% of them were in employment in 2015, far exceeding the employment rate of 49.9% of Korean women [2].

As the history of international marriage gets longer in Korea, many female marriage immigrants have passed the initial adaptation phase and entered into the real integrative adaptation phase. In order for immigrants to become stable members of society, participating to economic activ-

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Received: Aug 20, 2017 / Revised: Jan 28, 2018 / Accepted: Jan 29, 2018

ities in the society they have moved into is essential. Since the income generated by working enables them to make various consumption activities for social adaptation, participation in economic activities contributes to improving the adaptation level of immigrants and lowering the risk of social exclusion derived from poverty [3]. However, despite the increased participation of female immigrants in economic activities and the improvement of household income of multicultural families, the proportion of multicultural households with the average monthly household income of less than 3 million won in 2015 is 63.0%, showing that they are still economically vulnerable. In addition, most of marriage immigrants are engaged in low-skilled jobs such as simple labor, have low social status, receive lower wages and are more exposed to poor working conditions compared to Korean workers [2].

The poor working conditions and low socioeconomic status of working married immigrant women serve as social determinants of deteriorating health. In addition, low accessibility to healthcare services, weak social networks and social supports, vulnerable health behaviors, high levels of stress, and exposure to dangerous environments are known to be the determinants that adversely affect immigrants' health [4]. Female migrant workers in Korea have been reported to be suffering from frequent gender-based discrimination and violence at working place, and immigrants who experienced such social discrimination and violence have been found to have poor physical and mental health status [5,6]. These findings suggest that working married immigrant women may also be exposed to similar risks. Moreover, they are faced with the task of adapting to the new society and culture since they are not only foreign workers but also immigrants who have settled in Korea as spouse of Korean. It is known that immigrants who have experienced the adaptation stress shows high risk of various physical and mental health problems [5]. In addition, as women, they experience pregnancy and childbirth that cause the physical changes and role transitions in Korea. Pregnancy-related health problems such as anemia, gynecological disease, and toxemia of pregnancy as well as depression, conflicts, and stress are common in marriage immigrant women [7]. These health problems increase the needs for healthcare services naturally.

Despite the high healthcare needs of marriage immigrant women, they do not utilize sufficient healthcare services for various reasons, such as difficulty in communicating with medical staffs, unfamiliarity with the Korean health system, distant health facilities and inconvenient transportation, no person available to care for their child, the burden of medical costs due to poor economic status, and absence of health insurance [8,9]. As described above, in the case of individuals do not receive healthcare services required to avoid negative health consequences as described above, it is defined as unmet healthcare needs [10]. Unmet healthcare needs are important for assessing coverage of the national health care system and used as a proxy indicator of accessibility to healthcare. To achieve the goal of the Korean National Health Plan 2020, which is to eliminate the health disparities among different groups of the population and to improve health equity of the society, the efforts to address the causes of unmet healthcare needs of marriage immigrants should be accompanied. In previous studies, demographic characteristics such as age, education level, employment status, country of origin; and factors enable to utilize healthcare facilities such as residence area, period of residence in Korea, household income, enrollment of health insurance, type of household, Korean proficiency, experience of social discrimination were found to affect unmet healthcare needs of marriage immigrant women. In addition, self-rated health status and experience of disease within past two weeks that directly related to healthcare needs have been shown to have a significant effect [11,12]. One of the affecting factors mentioned above, unemployment status is generally known to be the main cause of increasing unmet healthcare needs since it decreases the income level and lowers the ability to pay for medical costs. However, in the previous studies on married immigrant women in Korea, unmet healthcare needs among employed persons were consistently higher than unemployed. These results imply the possibility that although the participation of immigrant women in economic activities improves the ability to pay for healthcare services, other factors related to economic activities increase the healthcare needs or hinder the use of healthcare services. Kim & Lee [12] attributed higher unmet healthcare needs in working married immigrant women to the time constraints on the healthcare utilization due to fixed working hours, but this interpretation did not supported by additional analyses considering occupational characteristics of participants. A prior study which analyzed the factors affecting unmet healthcare needs in wage workers in Korea showed that employment status and working hours were significant related factors, suggesting that occupational characteristics are related to unmet healthcare needs [13].

Social investment to deal with unmet healthcare needs of working married immigrants is an important social task because it can reduce health disparities in Korean society. Through this, we can improve the entire population's health status in the long term by lowering unmet healthcare needs of vulnerable people. Although many previous

studies have focused on married immigrant women's health problems and their use of healthcare services, working married immigrant women, who may be a more vulnerable than those who are not working, relatively have been received little attention. Therefore, this study aimed to contribute to improving their healthcare accessibility and health status by investigating the current status of unmet healthcare needs of working married immigrant women and elucidating the effects of various characteristics including occupational characteristics on unmet healthcare needs.

2. Purpose of the Study

The purpose of this study was to investigate the characteristics of working married immigrant women and the level of unmet healthcare needs and to elucidate the factors affecting their unmet healthcare needs. Through this research, we attempt to provide a basis for policy development to secure the healthcare accessibility of working married immigrant women in Korea. The specific objectives of this study are as follows:

- To identify general characteristics and occupational characteristics of working married immigrant women.
- To analyze the unmet healthcare needs of working married immigrant women according to general and occupational characteristics.
- To clarify the factors affecting unmet healthcare needs of working married immigrant women.

METHODS

1. Study Design

This study was designed as descriptive, cross-sectional study that analyzing secondary data from the National Survey of Multicultural Families 2015 conducted by the Ministry of Gender Equality & Family and Statistics Korea.

2. Data Source and Study Population

This study used the National Survey of Multicultural Families 2015 (hereafter, NSMF), which is a nationally representative survey on multicultural families. It is conducted in every three years based on the Multicultural Family Support Act (Act No. 8937, Mar. 21, 2008) since 2009. The target population of NSMF was household member of multicultural family (i.e. marriage immigrants, their spouse, and offspring) and naturalized non-marriage migrants residing in Korea during the survey period. 544 trained investigators directly visited the households and surveyed through in-person interview from July 22 to August 18, 2015. The sample of NSMF was selected through two-stage sampling process. In the first stage, Statistics Korea selected 850 district from the 3,470 total administrative district in Korea by clustered systematic sampling, using the registration data (alien registration data, family-relationship registration data, and resident registration data). Then, in the second stage, multicultural households registered in 850 district were selected by stratified systematic sampling. The 17,879 households out of total 26,098 household participated in the survey, and the response rate was 65.8%[2].

The subjects of this study are female marriage immigrants who are currently working in Korea. Out of 17,109 marriage immigrants and naturalized people who were surveyed, male (2,702 persons), unmarried (132 persons), and persons who did not answer to the item measuring unmet healthcare needs (318 persons) were excluded. In addition, people aged 65 years or more (321 persons) were excluded considering possible working age (15 to 64 years), and people who did not currently working (5,869 persons) were also excluded. Thus, a total of 8,142 persons were finalized as the subjects of this study.

3. Conceptual Framework

Based on Andersen's health behavior model, which explains the use of healthcare services, the conceptual framework of this study was constructed. Assuming that the behavioral characteristics of individuals influence the use of healthcare services, Andersen classified the affecting factors into three categories. Predisposing factors include demographic characteristics (i.e. gender and age), social structure (i.e. education level and occupation), and individuals' beliefs, values or knowledge about disease or the use of health care services. Enabling factors refer to the means of accessing and using healthcare services, and include the resources of individuals or families (i.e. income, health insurance, and usual source of care) and community resources (i.e. healthcare workers and facilities). The need for healthcare is a factor directly related to the healthcare service utilization, and includes the subjective health status perceived by individual and clinical health needs assessed by healthcare professionals [14]. This model was first published in the 1960s, has been revised and steadily used in various researches studying healthcare accessibility of vulnerable groups such as homeless and immigrants. However, since the model does not sufficiently embrace the immigrants' characteristics that could influence

to their behavior of healthcare utilization, a research model including factors like duration of residence, host language proficiency, immigrant generation status, age at immigration, and legal status is needed [15]. Therefore, in this study, a theoretical framework is proposed to reflect working married immigrant women's characteristics by dividing Andersen's three categorized factors into general factors, immigrant-specific factors, and labor-specific factors (Figure 1).

4. Measures

1) Unmet healthcare needs

The unmet healthcare needs of working marriage immigrant women was measured by survey questionnaire, "Have you ever had the experience of being unable to visit healthcare facilities when you wanted to see a doctor because of sickness in the past one year?" Survey participants who answered 'Yes' to the questionnaire was defined as the case who experienced unmet healthcare needs in this study.

2) Predisposing factors

Predisposing factors included in this study were age, marital status, existence of preschooler, education level, country of origin, period of residence in Korea, type of occupation, and employment status. Age group was classified into three categories of 19 to 24 years, 25 to 49 years, and 50 to 64 years, considering the criterion of the working age. The marital status dichotomized into the currently married and previously married (widowed, divorced, or separated). Regarding the existence of a child under five years of age, it was defined as 'none' if the respondent answered 'no preschooler' to the question "Have you ever used caring services for preschool child?" If respondent answered to other options, it was defined as 'yes' in this study. The education level was divided into middle school graduate or lower, high school graduate, and college graduate or higher. The country of origin was categorized into Vietnam, China (Korean-Chinese), China, Japan, the Philippines, and others. The period of residence in Korea was divided into 1~5 years, 6~10 years, and 11 years or more. Type of occupation is classified into three categories referred to the Korean standard classification of occupations: 'professional · office worker (manager, professional, and office worker)', 'service · sales worker (service and sales workers)', 'manual worker (skilled worker in agriculture, forestry, and fishery, technical worker, equipment/machinery operator and assembly worker, and simple labor worker).' Employment status is divided into 'unpaid family worker', 'self-employed', and 'wage worker (including regular worker, temporary worker, and daily worker).'

3) Enabling factors

Enabling factors consisted average monthly household income, residence area, social relationship to ask for help in the event of illness, experience of social discrimination,

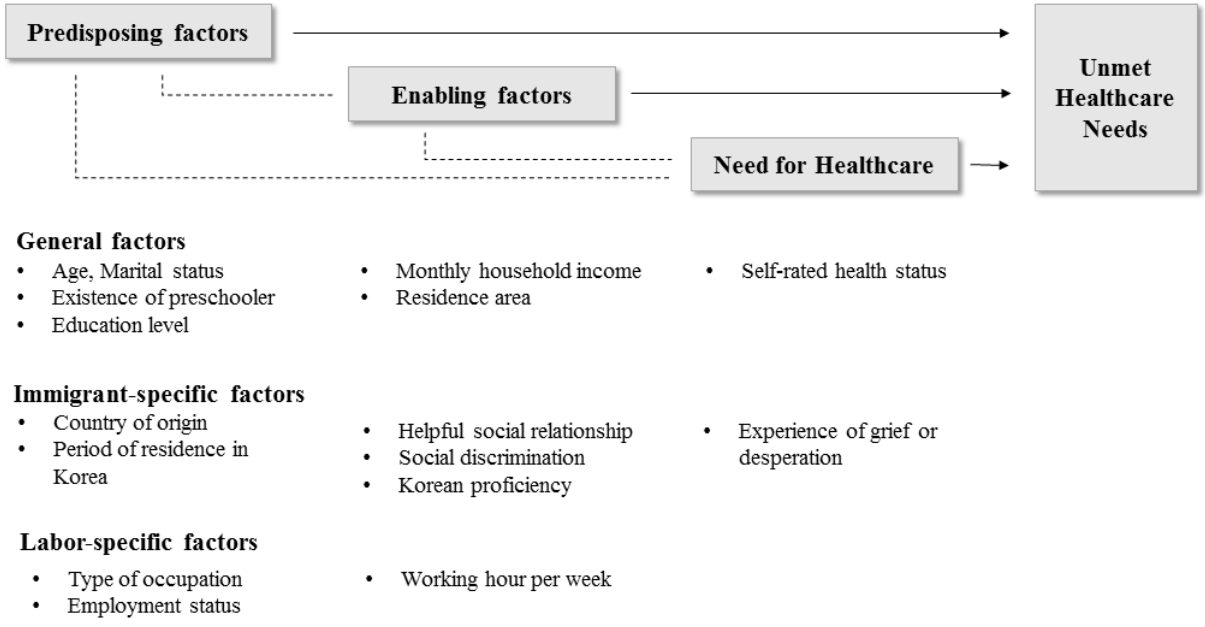

Figure 1. Conceptual framework for the study.

Korean proficiency, and working hours per week. Average monthly household income was classified into 'less than 1 million won', '1 to 1.99 million won', '2 to 2.99 million won', and '3 million won or more.' The residence area was divided into 'urban (dongs)' and 'rural (eups or myeons).' If the response to the question "Do you have anyone whom you can ask for help excepting your family member when you are sick?" was 'yes', it was defined as the 'having helpful social relationship.' Experience of social discrimination was dichotomized as 'yes' and 'no' based on the answer to the questionnaire, "Have you ever been discriminated against or neglected based on ethnicity or nationality while living in Korea?" Korean proficiency was measured by the 5-Likert scale from very good (1) to very poor (5) in four domains of speaking, listening, reading, and writing. Scores from each domain were coded reversely and average score was calculated. It was categorized into 'low (1 to 2.25), 'medium (2.5 to 3.5)', and 'high (3.75 to 5).' Average working hours per week was divided into '40 hours or less', '41 to 59 hours', and '60 hours or more' based on the Article 50 of the Labor Standard Act.

4) Needs for healthcare

Self-rated health status and experience of grief or desperation were selected as need factors in this study. Self-rated health status was measured on a 5-Likert scale (1=very good, 2=good, 3=fair, 4=poor, and 5=very poor) and reclassified into 'good', 'fair', and 'poor.' Experience of grief or desperation was measured by a survey questionnaire, "Have you ever felt grief or desperation lasting for two weeks that make you difficult to continue daily life within the past year?" The response was dichotomized into 'never experienced' and 'experienced (sometimes, often, and very often).'

5. Ethical Considerations

The NSMF is conducted by performing education and training for survey investigators based on survey guidelines prior to data collection. In particular, it is emphasized that the interviewers should not disclose the information learned during the survey process or use them for other purposes. In addition, the survey should be conducted after sufficiently explaining that the survey results are used for statistical purposes only and confidentiality is guaranteed. The raw data of NSMF are disclosing to the public through the website of the Micro Data Integrated Service (MDIS) of the Statistics Korea. Since personally identifiable information is deleted from the data provided, the anonymity and confidentiality of participants are guaranteed. Researchers obtained the data following procedures posted at the web-site, and this study was conducted after gaining the approval of the Institutional Review Board of the university to which the researchers belong (IRB No. E1705/003-005).

6. Statistical Analysis

Frequency analysis was conducted to understand the general and occupational characteristics of working married immigrant women. To determine the unadjusted relationship between predictors and outcome variable, x^2 test was used. Logistic regression analysis was applied to determine the factors independently associated with unmet healthcare needs of working married immigrant women. All statistical analysis were performed using STATA/IC version 14.0 and the significance level was set at 95%.

RESULTS

1. General and Occupational Characteristics of Subjects

A total of 8,142 working married immigrant women aged 19 to 64 years were analyzed in this study. Their general characteristics and occupational characteristics are presented in Table 1. As for the age, 80.8% of participants were in the 25 to 49 age group. 10.4% of subjects were previously married, and 31.5% lived with preschooler. Regarding the level of education, the percentage of high school graduate was the highest (43.8%), followed by college graduate or higher (28.6%) and middle school graduate or lower (27.6 %). The largest number of subjects came from China (25.3 %), followed by Vietnam (18.9%), Korean-Chinese (16.0%), the Philippines (10.1%) and Japan (8.8%). Over half of subjects 50.2%) were long-term residents who lived in Korea more than 10 years. The average household income was in the order of 3 million won or more (44.9%), 2~2.99 million won (27.9%), 1~1.99 million won (22.1%), and less than 1 million won (5.1%). Much more subjects were lived in urban area (61.7%) than rural area (38.3%). 66.4% of subjects reported that having helpful social relationship, and 42.3% experienced social discrimination. The level of Korean proficiency was in the order of the high level (52.5%), medium level (40.1%), and low level (7.4%). The highest percentage of respondents assessed their self-rated health status as good (63.2%), and 37.5% answered that they experienced grief or desperation lasting for two weeks within the past year.

Regarding the occupations, more than half of subjects were manual workers (57.6%), followed by service · sales workers (26.6%) and professional · office workers (15.8%).

Table 1. General Characteristics of the Subjects (*N*=8,142)

Factors	Characteristics	Categories	n (%)
Predisposing factors	Age (year)	19~24	326 (4.0)
		25~49	6,578 (80.8)
		50~64	1,238 (15.2)
	Marital status	Currently married	7,295 (89.6)
		Previously married	847 (10.4)
	Existence of preschooler	None	5,579 (68.5)
		Yes	2,563 (31.5)
	Education level	≤Middle school	2,250 (27.6)
		High school	3,562 (43.8)
		≥College	2,330 (28.6)
	County of origin	Vietnam	1,541 (18.9)
		China (Korean)	1,304 (16.0)
		China	2,059 (25.3)
		Japan	720 (8.8)
		Philippines	822 (10.1)
		Others	1,696 (20.8)
	Period of residence in Korea (year)	1~5	960 (11.8)
		6~10	3,094 (38.0)
		≥11	4,088 (50.2)
Enabling factors	Monthly household income (10,000 won)	≥300	3,657 (44.9)
		200~299	2,268 (27.9)
		100~199	1,799 (22.1)
		≤99	418 (5.1)
	Residence area	Rural	3,119 (38.3)
		Urban	5,023 (61.7)
	Helpful social relationship†	No	2,738 (33.6)
		Yes	5,404 (66.4)
	Social discrimination	No	4,697 (57.7)
		Yes	3,445 (42.3)
	Korean proficiency	High	4,273 (52.5)
		Middle	3,268 (40.1)
		Low	601 (7.4)
Need factors	Self-rated health	Good	5,147 (63.2)
		Fair	2,333 (28.7)
		Poor	662 (8.1)
	Experience of grief or desperation	Never	5,093 (62.6)
		Experienced	3,049 (37.5)

† The presence of social relationships that can ask for help in the event of illness.

Among manual workers, the percentages of simple labor workers (31.2%) and equipment/machinery operator · assembly workers (14.5%) took relatively high proportion. As for employment status, wage workers accounted for the highest percentage (82.7%), followed by unpaid family workers (9.5%) and self-employed (7.8%). Among wage workers, the percentage of regular workers was highest (33.4%), followed by temporary workers (32.8%), and daily workers (16.5%). For the average working hour per week, the majority of subjects (54.5%) were working 40 hours or less per week, 28.9% working 41 to 59 hours, and 16.7% working 60 hours or more (Table 2).

2. The Current Status of Unmet Healthcare Needs of Subjects

Overall, 11.6% of working married immigrant women reported having experienced unmet healthcare needs within the past year (Table 3). Among predisposing factors, there were significant differences in unmet health-

Table 2. Occupational Characteristics of the Subjects (*N*=8,142)

Factors	Characteristics	Categories	n (%)	Sub-categories	n (%)
Predisposing factors	Type of occupation	Professional office worker	1,288 (15.8)	Manager	3 (<0.1)
				Professional	971 (11.9)
				Office worker	314 (3.9)
		Service · sales	2,167 (26.6)	Service worker	1,561 (19.2)
				Sales worker	606 (7.4)
		Manual worker	4,687 (57.6)	Farmer, fisher	446 (5.5)
				Technical worker	523 (6.4)
				Equipment/machinery operator, assembly worker	1,178 (14.5)
				Simple labor worker	2,540 (31.2)
	Employment status	Unpaid family worker	775 (9.5)	Unpaid family worker	775 (9.5)
		Self-employed	638 (7.8)	Self-employed	638 (7.8)
		Wage worker	6,729 (82.7)	Regular worker	2,716 (33.4)
				Temporary worker	2,670 (32.8)
				Daily worker	1,347 (16.5)
Enabling factors	Working hour per week (hour)	≤40	4,435 (54.5)		
		41~59	2,351 (28.9)		
		≥60	1,356 (16.7)		

care needs according to the marital status, period of residence in Korea, and employment status. The respondents previously married (p<.001), those whose residence period in Korea was shorter (p=.033), and those who were self-employed or wage workers compared to unpaid family workers more experienced unmet healthcare needs (p=.005). As for all enabling factors, the statistical differences in unmet healthcare needs were found. The level of unmet healthcare needs was higher when the average monthly household income was lower (p<.001), subjects who are living in urban area (p=.019), having no helpful social relationship (p<.001), and experienced social discrimination (p<.001) showed higher unmet healthcare needs than their counterparts. In addition, unmet healthcare needs was higher in the group with a medium or low Korean proficiency compared to the group with high Korean proficiency (p<.001). The longer the average working hours, the higher the unmet healthcare needs (p=.048). According to need factors, bad self-rated health status (p<.001) and experience of grief or desperation lasting 2 weeks (p<.001) were also significantly associated with high unmet healthcare needs.

3. Factors Affecting Unmet Healthcare Needs of Working Married Immigrant Women

In the multivariate analysis, factors independently associated with an unmet healthcare needs for working married immigrant women included existence of preschooler, country of origin, period of residence in Korea, monthly household income, helpful social relationship, experience of social discrimination, Korean proficiency, working hour per week, self-rated health status, and experience of grief and desperation (Table 3). Marriage immigrant women who had preschool child more likely to have experienced an unmet healthcare needs (OR=1.22, 95% CI=1.02~1.46). Compared to the subjects from Vietnam, those from Japan (OR=2.55, 95% CI=1.81~3.58), China (OR=1.44, 95% CI=1.12~1.85), Korean-Chinese (OR=1.44, 95% CI=1.06~1.94), and from other countries (95% OR=1.32, CI=1.03~1.69) were more likely to experience unmet healthcare needs. Compared to the period of residence of 1 to 5 years, the likelihood of experiencing unmet healthcare needs was 0.66 times lower when the period of residence in Korea was 6 to 10 years (p<.001), and 0.51 times lower when the period of residence in Korea was 11 years or longer (p=.001). Compared to the group with the monthly income of 3 million won or more, the lower the monthly household income, the higher the likelihood of unmet healthcare needs (OR=1.22, 95% CI=1.01~1.47 for 2~2.99 million won; OR=1.66, 95% CI=1.35~2.04 for 1~1.99 million won; OR=2.24, 95% CI=1.65~3.03 for less than 1 million won). The person with helpful social relationships was 0.78 times less likely to have unmet healthcare needs (p<.001), on the other hand, the person experienced social discrimination was 1.78 times more likely to have unmet healthcare needs than their

Table 3. Affecting Factors Unmet Healthcare Needs of Working Married Immigrant Women

Variables	Categories	Healthcare needs †			Unmet healthcare needs ‡		
		Met %	Unmet %	x^2 (p)	OR	(95% CI)	p
Total		88.4	11.6				
Age (year)	19~24	89.0	11.0	0.19	1.00		
	25~49	88.4	11.6	(.909)	1.27	(0.84~1.90)	.254
	50~64	88.1	11.8		0.93	(0.59~1.49)	.778
Marital status	Currently married	89.3	10.7	55.43	1.00		
	Previously married	80.6	19.4	(< .001)	1.23	(0.96~1.57)	.095
Existence of preschooler	No	88.6	11.4	0.73	1.00		
	Yes	87.9	12.1	(.391)	1.22	(1.02~1.46)	.029
Education level	≤ Middle school	87.8	12.2	3.32	1.00		
	High school	88.1	11.9	(.190)	1.09	(0.91~1.30)	.374
	≥ College	89.4	10.6		1.06	(0.83~1.34)	.659
County of origin	Vietnam	89.6	10.5	6.70	1.00		
	China (Korean)	88.4	11.6	(.244)	1.44	(1.06~1.94)	.018
	China	88.3	11.7		1.44	(1.12~1.85)	.005
	Japan	85.8	14.2		2.55	(1.81~3.58)	< .001
	Philippines	88.2	11.8		1.32	(0.97~1.80)	.079
	Others	88.6	11.4		1.32	(1.03~1.69)	.029
Period of residence in Korea (year)	1~5	86.3	13.8	6.82	1.00		
	6~10	88.1	11.9	(.033)	0.66	(0.52~0.84)	.001
	≥ 11	89.1	10.9		0.51	(0.39~0.66)	< .001
Type of occupation	Professional office worker	90.3	9.7	5.46	1.00		
	Service sales	88.2	11.8	(.065)	0.91	(0.69~1.20)	.492
	Manual worker	88.0	12.0		0.96	(0.74~1.25)	.761
Employment status	Unpaid family worker	91.7	8.3	10.81	1.00		
	Self-employed	89.5	10.5	(.005)	1.18	(0.79~1.76)	.422
	Wage worker	87.9	12.1		1.34	(1.00~1.79)	.052
Monthly household income (10,000 won)	≥ 300	91.5	8.5	127.87	1.00		
	200~299	89.1	10.9	(< .001)	1.22	(1.01~1.47)	.038
	100~199	84.1	16.0		1.66	(1.35~2.04)	< .001
	≤ 99	76.3	23.7		2.24	(1.65~3.03)	< .001
Residence area	Rural	89.5	10.6	5.52	1.00		
	Urban	87.7	12.3	(.019)	1.06	(0.90~1.24)	.511
Helpful social relationship	No	85.2	14.8	40.80	1.00		
	Yes	90.0	10.0	(< .001)	0.78	(0.67~0.91)	.001
Social discrimination	No	92.1	7.9	147.05	1.00		
	Yes	83.4	16.6	(< .001)	1.78	(1.54~2.07)	< .001
Korean proficiency	High	90.9	9.1	56.05	1.00		
	Middle	85.7	14.3	(< .001)	1.41	(1.19~1.67)	< .001
	Low	85.2	14.8		1.31	(0.98~1.75)	.066
Working hour per week (hour)	≤ 40	89.0	11.0	6.09	1.00		
	41~59	88.3	11.7	(.048)	1.23	(1.03~1.46)	.024
	≥ 60	86.6	13.4		1.37	(1.10~1.69)	.004
Self-rated health status	Good	93.1	6.9	459.30	1.00		
	Fair	84.3	15.7	(< .001)	1.94	(1.64~2.29)	< .001
	Poor	66.5	33.5		4.72	(3.77~5.90)	< .001
Experience of grief or desperation	Never	94.0	6.0	421.31	1.00		
	Experienced	79.0	21.0	(< .001)	2.82	(2.42~3.30)	< .001
(Constant)		-	-	-	0.02	(0.00~0.01)	< .001
LR x^2						859.37	
Pseudo R-square						.1470	

OR=odds ratio; CI=confidence interval; † Chi-square test of unmet healthcare needs according to predisposing, enabling, and need factors; ‡ Logistic regression with all variables controlled.

counterparts (p <.001). The group with medium-level Korean proficiency was 1.41 times more likely to experience unmet healthcare needs than the group with high-level Korean proficiency (p <.001). The longer working hours (OR=1.23, 95% CI=1.03~1.45 for 41 to 59 hours; OR=1.37, 95% CI=1.10~1.69 for 60 hours or more) were associated with high risk of unmet healthcare needs. Subject with bad (OR=4.72, 95% CI=3.77~5.90) and fair (OR=1.94, 95% CI=1.64~2.29) health status were more likely to experience unmet healthcare needs than those who with good health status. The person who experienced grief or desperation was 2.82 times more likely to have unmet healthcare needs than those who without any experience (p <.001).

DISCUSSION

From the study results, 11.6% of the working married immigrant women in Korea reported that they could not use healthcare services when they wanted within the past year. This figure is higher than reported in the NSMF 2012 of 10.8%[12], but is similar to 11.7% of the NSMF 2009[11]. Since the NSMF is not a longitudinal survey, it has limitations in explaining the change in unmet healthcare needs over time. But, despite the various support programs and policy efforts for marriage immigrant women in the past decade, there seems to be no significant change in unmet healthcare needs. In accordance with the Support for Multicultural Families Act, national and local government have provided health services, such as nutrition and health education, pre- and post-natal care assistance, medical examination, and medical interpretation services. However, due to lack of data to assess the degree of delivery and acceptance or the effect of the services provided, it is not sufficient to establish evidence-based policies. Public health center in Korea is designed to providing health screening and healthcare services for multicultural families by home visiting [16]. In the real world, however, there are limitations in providing professional health services due to low competence of visiting nurses and lack of specific guideline. Although the nursing care for multicultural families should be provided differently according to the Korean language proficiency, education level, cultural backgrounds and needs of the individuals, there are large disparities in the quality of care provided by visiting nurses. Most visiting nurses were suffered from lack of cultural competency, as well as difficulty in communication, and discrepancy between education materials and actual characteristics of multicultural families [17]. Therefore, it is necessary to provide professional training for improving cultural competency of nurses, to publish customized health education materials, and to develop evaluation system for assessing the effectiveness of home visiting care. Although the current home visiting services are centered on the pregnancy-related care such as breastfeeding and vaccination [17], various nursing services tailored to working immigrants should be developed to meet the healthcare needs of them differ from the initial immigrants.

The self-rated health status and experience of grief and desperation were found to be the major determinants of unmet healthcare needs, and these results are consistent with previous studies [11,12]. Migrant workers have higher incidence of industrial accidents resulting from the inadequate work ability, low communication skills, and failure to comply with occupational safety rules, compared with native Korean workers [18]. Musculoskeletal disease and gastrointestinal disease occur frequently in migrant workers who do strenuous physical labor. In addition, it is reported that married women engaged in simple labor or service · sales had high incidence of depression compared to in professional jobs [19]. Majority of our study subjects were engaged in manual labor (57.6%) or service · sales (26.6%), therefore similar health problems are expected to be common in working married immigrant women in Korea. However, in most countries, public mental health programs for immigrants are deficient including Korea [4]. Therefore, it is urgent to expand support programs for physical and mental health of working married immigrants.

In relation to the occupational characteristics of subjects, employment status (p=.005) and working hours (p=.048) were significantly associated with unmet healthcare needs in univariate analysis. Nevertheless, after controlling covariates, only working hours were found to influencing unmet healthcare needs of working married immigrant women. In this study, the longer the working hours per week, the subjects experienced the more unmet healthcare needs. This finding is in agreement with the previous study of female wage workers in Korea: 41~48 hours (OR=1.40, 95% CI=1.00~1.95), 49~60 hours (OR=1.48, 95% CI=1.08~2.03), and 61 hours or more (OR=2.20, 95% CI=1.32~3.65) reference to 40 hours or less [13]. According to the National Health and Nutrition Survey 2010~2012, the largest number of respondents (38.1%) answered that they experienced unmet healthcare needs because 'hospitals or clinics are closed during the time I was available.' It was also found that in the groups who were younger, had a higher income, and were currently employed had the higher unmet healthcare needs due to a lack of time [20]. This could support the possibility that unmet healthcare needs occurred in married immigrant women with longer

working hours due to the time constraints on visiting healthcare facilities. Working hours of married women are closely related to child rearing. According to the NSMF 2015, the proportion of short-time worker, weekly working hours of less than 36, were much higher in married immigrant women (27.0%) than men (18.6%)[2]. It shows the preference of working mom for short-time work to secure childcare time. Working women often experience the conflict between work and family if they have children to take care of, and the conflict increases as the age of the child becomes lower [21]. The time conflict resulting from the double burden was reported to lower the physical activity, stress management, and health promoting behaviors of women [22]. In this study, the existence of preschool child increased the likelihood of unmet healthcare needs even when all other factors were controlled. This finding indicates the possibility that the presence of young children increases unmet healthcare needs of working married immigrant women related to the time conflicts. In the univariate analysis, unmet healthcare needs of subjects was significantly higher in self-employed and wage workers than in unpaid family workers, but significant difference was disappeared after controlling covariates including working hours per week. Nevertheless, unmet healthcare needs of wage workers tended to be higher than unpaid family workers (OR=1.34, 95% CI=1.00~1.79, p=.052). The reason of this tendency is presumed to be the low employment security of wage workers. Insecurity of employment status causes economic instability and poor health conditions [23], therefore, unmet healthcare needs of temporary and daily workers are usually higher than that of regular workers with stability [13]. In this study, unpaid family workers and self-employed were included as study subjects in order to reflect the distribution of the overall occupational status of working married immigrants. However, further study is required to examine the effect of employment security on unmet healthcare needs of marriage immigrants by limiting the subjects to wage workers.

The ability to pay is known as a major predictor of unmet healthcare needs. The average household income of multicultural family is lower than that of Koreans, so their accessibility to healthcare is expected to be lower. To compensate for the limitation in ability to pay for healthcare services, Korea operates the National Health Insurance Service (NHIS). Although the enrollment rate of health insurance of marriage immigrants was not released in NSMF 2015, it is reported that 14.2% of married immigrant women do not have health insurance in 2012 [12]. Most marriage immigrants gain the status of subscribers by confirming their dependency of Korean spouse. Foreigners who have lived or expected to live in Korea for 3 months or more, regardless of whether they have acquired Korean nationality or not, can obtain the status of local subscribers upon request. However, many married migrant women do not benefit from national health insurance (NHI) for their lack of information [24]. Working married immigrant women are automatically registered for NHI as employee subscriber, yet daily workers with the period of employment of less than one month, part-time workers, or short-time workers with fixed working hours of less than 60 hours per month cannot be enrolled as employee subscriber. Health insurance is known to contribute to lowering unmet healthcare needs of immigrants, so it is important to increase the enrollment rate of married immigrant women who are in the blind spot.

As reported by previous studies, the experience of social discrimination was found to increase the likelihood of unmet healthcare needs [11]. If immigrants experience discrimination at work or in healthcare facilities, the utilization of healthcare services is delayed due to psychological withdrawal or restrictions on socio-economic opportunities [6], and increased distrust in the health care system [25]. In addition, social discrimination increase in the need for healthcare services by deteriorating immigrants' physical and mental health status [5,6]. Female foreign workers in Korea have lower status and wage than men in the workplace, lack maternity protection, and be at high risk of gender-based discrimination and sexual violence [26]. Therefore, efforts to eliminate discrimination and violence against female immigrant workers are urgently needed in entire society including at workplace. The immigrants who have better social support and social relationships are less likely to experience unmet healthcare needs [27] because it is easy to obtain information on healthcare utilization [26]. However, due to long working hours, fatigue, competition in the workplace, and different holidays with friends, marriage immigrant women have difficulty establishing a social networks [28]. Therefore, we need to support them to build social relationship, and provide appropriate health information and education through public institutions, the workplace, or existing immigrant communities.

Generally, the period of settlement and language proficiency are used as the indicator of immigrant's social adaptation. Low level of social adaptation is related to low understanding of health system in settled country, and causes difficulty in communication with healthcare providers explaining their health conditions or understanding the medical statements of the professionals [27]. A study of immigrants in the United States and Canada have

also shown that the longer the settlement period and better language proficiency, there was the more frequent use of healthcare services [29]. Consistent with previous research results, unmet healthcare needs of our study subjects were found to be lower in the group of longer settlement period and better language proficiency.

Depending on the socio-cultural concept of health and disease, health risk perception, and health beliefs of home country, the level of unmet healthcare needs of marriage immigrants could be perceived differently [15]. As in previous studies, unmet healthcare needs of Vietnamese immigrants were the lowest among the subjects [11,12]. Considering that the percentage of people who perceived their health status as good was high among the Vietnamese (70.7%), it is possible that good perception to their own health status may lower the need to healthcare. Immigrants from Asian countries in the United States are reported to share the belief that disease is caused by the disturbance in the harmony of yin and yang, and actively use traditional medicine to solve health problems [15]. A study of Vietnamese immigrants who visited to public healthcare center located in Boston found that 89% were using Traditional Vietnamese Medicine to treat mild symptoms such as pain and cold [30]. However, given the fact that immigrants from China, which also belongs to the East Asian cultural sphere, are also highly dependent on traditional medicine like Vietnamese immigrants, there is a need for another interpretation to the difference in unmet healthcare needs between Chinese and Vietnamese marriage immigrants. In other words, more meticulous investigation is required in order to find out whether the difference in unmet healthcare needs according to the country of origin can be attributed to racial or ethnic differences or socio-cultural differences.

This study constructed the conceptual framework based on Andersen's model. Although his model has been applied in many previous studies for immigrants unmet healthcare needs, Yang & Hwang pointed out that since this model does not include immigrant-specific factors, it is not sufficient to explain their use of healthcare services. Therefore, they developed a comprehensive model by modifying Andersen's model, which dividing predisposing, enabling, and need factors into general factors and migration-related factors. Emphasizing the influence of macro-structural and contextual factors, this model included the government policies and national health system of settled country, social, economic, and political conditions, the context of the immigration and settlement process, and the use of healthcare services in home country as determinants [15]. Because we could not use all of these variable due to using secondary data, our study have limitations on interpreting the difference of unmet healthcare needs according to country of origin, and understanding influence of macro-structural factors such as the difference in health system between the immigrants' home country and settlement country on unmet healthcare needs. Most recent studies of marriage immigrant women in Korea have been focused only vulnerable populations. However, in future studies, unmet healthcare needs of marriage immigrant women from Europe or America, and those who are professionals or office workers with relatively high socio-economic status should be explored. For explaining these population's unmet healthcare needs, contextual factors suggested by Yang & Hwang expected to be important.

The design of this study has the following limitations. First, although it was possible to identify the factors related to unmet healthcare needs of the subjects but not to determine the causal relationships. In order to establish specific measures to prevent and manage unmet healthcare needs of immigrant women related to occupational characteristics, the study design to reveal the causal relationship is needed. Second, since the NSMF was not a survey focused on health areas, it was not possible to include various determinants of unmet healthcare needs to the analysis. Third, there is a possibility of measurement errors due to the recall bias related to the self-reporting technique for measuring dependent variable. On the other hand, measuring through self-reported survey could be an appropriate way to investigate immigrants' unmet healthcare needs because it can include individual and social factors by directly reflecting respondents' perspective. To complement this error, it is necessary to use objective variables such as presence of illness diagnosed by a physician, the amount of outpatient and inpatient use, and expenditure for healthcare services in the future study.

This study is the first research than investigated the relationship between occupational characteristics and unmet healthcare needs using a representative sample of working married immigrant women secured by a large-scale survey across the country. Despite the limitations mentioned above, the result of this study addressed the importance of establishing a variety of nursing interventions and support policies considering occupational characteristics to meet the health needs of working married immigrant women.

CONCLUSION

Working married immigrant women are at high risk of experiencing unmet healthcare needs, because of low soci-

oeconomic status, unhealthy work environment, and conflict between work and family at the same time. Therefore, it is necessary to supplement the support system so that health promotion, disease prevention, and proper treatment for existing disease are properly implemented. First, married immigrant women should be properly monitored to ensure that they are not discriminated to using the maternity protection benefits stipulated by the Labor Standard Act. In addition, the accessibility to healthcare services should be improved by expanding enrollment in the National Health Insurance of working married immigrant women. In particular, there is a need to encourage wage workers and self-employed who are working in small-scale businesses to enroll in the National Health Insurance by providing information and practical support. On the other hand, it is necessary to strengthen the management and supervision to eliminate discrimination in the workplace and improve harmful work environment which may lead to deterioration of health status. The development of visiting nursing service model focused on small-scale businesses by expanding the area of occupational health nursing also should be considered. It is possible to envisage a system that provides nursing services tailored to occupational characteristics of married immigrants who have limited access to healthcare due to time constraints by cultivating visiting occupational health nurses with cultural competencies. In addition, developing nursing interventions focused on frequently occurring disease for each type of job and health programs for shift workers, self-employed are needed. Finally, it is necessary for working married immigrant women to participate in civil society to form a healthy relationship, and it should be accompanied by expert's effort to share accurate health information to immigrant communities.

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