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ORIGINAL ARTICLE

Health behaviors of foreign mothers in Japan regarding their young children and the factors that affect these behaviors: A qualitative study

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Abstract

Aim: The number of foreign residents in Japan is increasing and these residents therefore should no longer be disregarded as members of Japanese society. The purpose of this study was to elucidate the health behaviors of foreign mothers in Japan regarding their children and the factors that affected these behaviors.

Methods: A qualitative descriptive research design was used, involving a content analysis. Six focus group interviews were conducted with a total of 24 foreign mothers who were members of childrearing circles.

Results: The health behaviors were classified as "Gathering information about child health management," "Preventing obstructions to child health care," "Perceiving the child's health condition," "Deciding to take the child to a healthcare facility," "Selecting adequate healthcare facilities," and "Managing at home when the child is sick." The factors that affected the health behaviors were classified as "Japanese culture and customs," "Child's health condition," "Culture and customs of the mother's native country," "Family," "Mother's health perception," "Healthcare facility and healthcare provider," "Friends," "Mother's health condition," "Internet," "Becoming accustomed to life in Japan," and "Japanese language ability." Gathering information, preventing obstructions to child health care, and perceiving the child's health condition were the most common behaviors. The main factors that affected the health behaviors were the culture and customs of both Japan and the mother's native country and the child's health condition.

Conclusion: It is recommended that healthcare professionals support foreign mothers to gather adequate and appropriate information regarding health, particularly child health, considering not only the culture and customs of the mother's native country, but also of the host country.

Key words: acculturation, child's health condition, information-seeking behavior, mother's health perception.

INTRODUCTION

At the end of 2015, the number of foreign residents in Japan was approximately 2.23 million, including 102,000 children aged ≤ 6 years. This population comprised 1.8% of the total population of Japan (Ministry of Justice Bureau of Statistics, 2016). Although the population of Japan is declining (Ministry of Justice, 2016a), the number of foreign residents has been increasing steadily since 2012 (Ministry of Justice, 2016b); hence, it has reached a level that one can no longer remain indifferent to as a member of the Japanese society.

Living in an environment with a different language and culture can lead to vulnerability (Rogers, 1997). Physical, mental, or social health conditions, such as high-risk pregnancy, low birthweight, chronic illness or disability, depression, alcohol or substance abuse, family physical or emotional abuse, homelessness, or immigrant or refugee status, also can result in the vulnerability of individuals or groups (Aday, 2001). In view of this, it could be difficult for foreign residents in Japan to maintain the health of their children. When

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endeavoring to improve or maintain their health, vulnerable persons are affected by three factors: demographic factors, such as sex and age, opportunity for education and employment, and a desire for being healthy; however, demographic factors or opportunity for education and employment impact more than the desire for being healthy (Aday & Andersen, 1981). It also has been reported that other demographic factors and types of opportunity are risk factors for vulnerability, such as race, income, education, socioeconomic status, culture, and access to health insurance; the more risk factors that apply, the more difficult it is to be healthy (Shi, Stevens, Lebrun, Faed, & Tsai, 2008). For example, vulnerability based on sex due to the cultural background of a certain community is considered to be high and persons living in developing countries with unstable socioeconomic conditions also can be considered to be highly vulnerable. In the case of children, especially dependent young children, health is affected largely by factors that are associated with the family, such as the physical, mental, and social health of the parents, the social environment, and parenting status (American Academy of Pediatrics, 2003). Also, it should be noted that in a family, the mother generally has a greater role in caring for the children's health and preventing diseases (Cockerham, 2007).

In previous studies on foreign residents, the health behaviors (HBs) of the mother were considered to be important for child health, such as migrant women's suboptimal breastfeeding in Denmark (Busck-Rasmussen, Villadsen, Norsker, Mortensen, & Andersen, 2014), self-management health education on healthy eating to Latina migrant farmworker mothers (Kilanowski & Lin, 2013) and the impact of maternal parenting factors on the emotional and behavioral health of migrant Mexican preschool children (Siantz, Coronado, & Dovydaitis, 2010) in the USA, and sun protection to prevent skin cancer by Australian-born and migrant mothers (Scheltinga *et al.*, 2014). However, compared to the rest of the world, the proportion of immigrants in Japan is low (OECD, 2016) and there are few studies on the foreign residents of Japan. Studies on foreign mothers in Japan mostly concern pregnancy, childbirth, and child care and are almost all written in Japanese (Martinez, Hatashita, Kawata, Kinjyo, & Uemura, 2012; Yamanaka & Nakamura, 2013; Yo & Emori, 2010). No detailed study on the HBs of foreign mothers regarding their children has been published to date.

The Japanese Government increased the expected number of foreign visitors to Japan to 40 million persons (Japan Tourism Agency, 2016) and the number of foreigners living in Japan is expected to increase further due to proposed governmental support for foreigners. These changes could affect the HBs and needs of foreign mothers who are living in Japan with their children. Thus, the purpose of this study was to elucidate the HBs of foreign mothers in Japan regarding their children and the factors that affected these behaviors.

METHODS

Study design

A qualitative descriptive research design was used.

Participants

The 24 participants in this study were foreign mothers who were living in Japan with preschool children aged ≤ 6 years. The research sites were selected in the five prefectures with the largest number of foreign residents because the municipal maternal and child health services in areas with a higher density and a larger number of foreign residents were better than where there were fewer foreigners; at the same time, this sample included some variation in population size and proportion of foreigners (Hotta *et al.*, 2007).

In this study, the nationality of the mother and her children was not considered in the analysis in order to respect cultural differences and the adaptation of diversity and universality in nursing (Leininger, 1978), as well as to increase the applicability of the results by expanding the target population and their range of healthcare needs.

It was ensured that the participants who were selected were conversant in the Japanese language, so they could understand the questions from the interviewer and answer in Japanese. They were members of childrearing circles for foreign mothers, which enable parents to exchange information, enjoy parenting and child play, consult health professionals, and make friends. The majority of these circles was supported by municipal cooperation. The participants were invited to participate in the study by the leaders of their circles, whom had first been approached for permission and who were representatives of municipal health centers, international exchange centers, or non-profit organizations on the Internet.

Data collection

The data were collected between February and June, 2014. Six focus group interviews (FGIs) were

conducted, with each focus group comprising four members from the same childrearing circle. The FGI is an effective exploratory approach in situations where there is no prior knowledge regarding the subject to be studied, whereby spontaneous everyday conversation on the subject of interest can be generated (Vaunghn, Schumm, & Sinagub, 1996), and it also can facilitate the emergence of ideas through the development of opinions as a group and interaction between the participants (Krueger & Casey, 2014).

The FGIs were facilitated by the principal researcher wherever the everyday activities of the childrearing circles took place, using an interview guide. The main interview questions were:

1 What conditions do you think are healthy or unhealthy for you?
2 What conditions do you think are healthy or unhealthy for your child?
3 What do you do to improve and maintain your child's health in Japan?
4 What do you do if your child is unwell in Japan?
5 What are the things that cause your child to be unwell and obstruct your access to health care for your child in Japan?

The conversations and non-verbal communication during the FGIs were recorded, both with prior consent from the participants. The interview sessions took 60–120 min, averaging 90 min.

Data analysis

Content analysis, defined as "a research technique for the objective, systematic, and quantitative description of the manifest of communication" (Berelson, 1952, p. 18), was used to analyze the FGIs. The analytic process that has been demonstrated by Elo and Kyngäs (2008) was used to assist with the data analysis. Using the verbatim recording of the interviews, meaningful context-containing content elements that described the mother's own or her child's health were extracted and recorded as context units, with each occurrence of a content element designated as a code. Based on similarities, the codes were grouped into categories and subcategories and the frequency of the codes was calculated. The analysis was conducted by several researchers who were experienced in qualitative data analysis and the validity and reliability of the results were confirmed through repeated discussions between them until a unified interpretation could be obtained.

Ethical considerations

This study was conducted in compliance with the ethical guidelines for nursing research that have been published by the Japanese Nursing Association (2004) and has been approved by the research ethics committee of the authors' institution. Prior to commencing the FGI, the participants provided their written informed consent after a verbal explanation of the purpose and ethical considerations of the study. As Japanese was not the first language of the participants, plain Japanese was used in the explanation given prior to obtaining consent from the participants and the researchers made sure that the participants understood the content sufficiently. The results of the FGIs and data analysis were only accessible to the researchers and their collaborators and were strictly managed to prevent data leakage or access by any third party.

RESULTS

The 24 study participants were from 11 countries (Table 1): one had lived in Japan for <1 year and six for >10 years. Their nationalities were the same as their country of birth, except for one mother who had completed the Japanese naturalization process.

Two themes were obtained from the data in accordance with the purpose of the study: the HBs of foreign mothers in Japan regarding their children and the factors that affected the HBs.

Health behaviors of foreign mothers in Japan regarding their children

Forty-four specific HB subcategories were extracted from a total of 596 codes and were clustered into six categories: "Gathering information about child health management," "Preventing obstructions to child health care," "Perceiving the child's health condition," "Deciding to take the child to a healthcare facility," "Selecting adequate healthcare facilities," and "Managing at home when the child is sick" (Table 2). In the following, the subcategories are shown in italics and the representative codes in each subcategory are shown in italics with double quotation marks.

Gathering information about child health management

Eight subcategories were created, based on how the mothers obtained information. *Talking with family* was represented as *"I call my husband when my child has a fever because I cannot rely on anybody"* and *"I seek*

Table 1 Characteristics of the study's participants (n = 24)

Characteristic	Value
Age (years)	
Range	28.0–42.0
Mean (SD)	33.8 (4.3)
Period living in Japan (years)	
Range	0.4–16.0
Mean (SD)	6.9 (3.9)
Characteristic	***n*** **(%)**
Nationality	
Chinese	9 (37.5)
Indonesian	3 (12.5)
Filipina	3 (12.5)
Mongolian	2 (8.3)
Korean	1 (4.2)
Myanmaran	1 (4.2)
Polish	1 (4.2)
Romanian	1 (4.2)
Thai	1 (4.2)
Ukrainian	1 (4.2)
Vietnamese	1 (4.2)
Number of children	
1	10 (41.7)
2	11 (45.8)
3	3 (12.5)
Nationality of husband or partner	
Japanese	14 (58.3)
Religion	
Christianity	6 (25.0)
Buddhism	4 (16.7)
Islam	3 (12.5)
None	11 (45.8)
Job experience in Japan	
Yes	15 (62.5)
No	9 (37.5)

SD, Standard deviation.

advice from my mother-in-law about my daughter because she lives with us and is Japanese." Talk with friends was represented as *"I talk with Japanese friends because I live in Japan now"* and *"I get information from the mothers of my child's friends." The use of the Internet and social networking services (SNS)* was represented as *"I search for pediatricians who speak English using the Internet"* and *"Mothers from my country always chat on SNS." Belonging to a childrearing circle* was represented as *"Fortunately, my compatriot introduced me to this childrearing circle because although I obtain some general community support from monthly gatherings in a church, those gatherings do not provide specific childrearing support." Consulting a healthcare provider* was represented as *"Doctors of the clinic instruct me on a vaccination schedule." The use of the Maternal and Child Health Handbook* was represented as *"I can check a child's growth with a growth curve in the Maternal and Child Health Handbook. It is written not only in Japanese but also in English, Tagalog, Russian, Korean, Chinese, Spanish, French, or Vietnamese." The use of municipal public services* was represented as *"I call a public office when I feel childrearing is troublesome and they support me in [my] mother language." Learning by myself* was represented as *"I learn with a childrearing book."*

Preventing obstructions to child health care

Ten subcategories were created, based on the actions of the mothers. *Managing own health* was represented as *"I attend a medical check for myself once a year"* and *"I post on Facebook after putting my child to sleep so that I can compose my thoughts." Being careful about the diet* was represented as *"I think it is most important for my child to eat." Preventing infectious diseases* was represented as *"I do not let my child go into crowds when there is an outbreak of colds"* and *"I take my child to a clinic for their vaccinations." Checking growth and development* was represented as *"I take my child to their scheduled health check-up according to the Japanese health system." Play and exercise* was represented as *"I take my child outside to play."* The other subcategories were *Set a daily rule*, *Prevent tooth decay*, *Keep a regular routine*, *Be a role model*, and *Spending time with the child*.

Perceiving the child's health condition

Eight subcategories were created, based on how the mothers perceived their child's health. *Physical health* was represented as *"My child plays well"* and *"My child is full of energy." Mood* was represented as *"My child is not well when she does not wake up by herself"* and *"My child always has a fever when she is anxious." Mental health* was represented as *"My child goes to a preschool every day"* and *"My child plays well with friends." Professional opinion* was represented as *"The pediatrician says my child has no problem"* and *"Their medical check-up results are good."* The other subcategories were *Appetite*, *Sick*, *Growth and development*, and *Sleep*.

Deciding to take the child to a healthcare facility

Six subcategories were created, based on the reasons why the mothers would decide to take their child to a hospital or other healthcare facilities. *Checking*

Table 2 Health behaviors of the foreign mothers in Japan regarding their children (n = 596)

Category	(n, %)	Subcategory	(% of the category)
Gathering information about child health management	(172, 28.8)	Talk with family	(32.0)
		Talk with friends	(24.4)
		Use the Internet and SNS	(17.0)
		Belonging to a childrearing circle	(5.8)
		Consult a healthcare provider	(5.8)
		Use the Maternal and Child Health Handbook	(5.8)
		Use municipal public services	(5.2)
		Learn by oneself	(3.5)
Preventing obstructions to child health care	(168, 28.1)	Managing own health	(36.9)
		Being careful about the diet	(25.6)
		Preventing infectious diseases	(13.0)
		Checking growth and development	(9.5)
		Play and exercise	(6.0)
		Set a daily rule	(3.0)
		Prevent tooth decay	(1.8)
		Keep a regular routine	(1.8)
		Be a role model	(1.2)
		Spending time with the child	(1.2)
Perceiving the child's health condition	(76, 12.8)	Physical health	(27.6)
		Appetite	(21.1)
		Sick	(13.2)
		Mood	(10.5)
		Growth and development	(9.0)
		Mental health	(7.7)
		Professional opinion	(6.4)
		Sleep	(3.8)
Deciding to take the child to a healthcare facility	(69, 11.6)	Checking symptoms of the child	(37.7)
		Comparing with the normal condition	(20.3)
		Observing	(14.5)
		Require a diagnosis by a medical doctor	(13.0)
		Request husband's company	(8.7)
		Obtain husband's opinion	(5.8)
Selecting adequate healthcare facilities	(61, 10.2)	Convenience	(42.6)
		Quality of healthcare provider	(26.2)
		English ability of the medical doctor	(11.5)
		Familiar doctor	(8.2)
		Function of healthcare facility	(6.6)
		Demand of a family member	(4.9)
Managing at home when the child is sick	(50, 8.4)	Give and control medicine	(30.0)
		Try to cool	(20.0)
		Feed according to the child's condition	(16.0)
		Check body temperature	(16.0)
		Observe progress	(10.0)
		Give something good from the mother country	(8.0)

SNS, Social networking services.

symptoms of the child was represented as *"I take my child to a clinic because he has a fever"* and *"I check if my daughter's throat is red when she has a sore throat."* *Comparing with the normal condition* was represented as *"I decided to go to a clinic because something was different."* *Observing* was represented as *"I take my*

child to a clinic after observing his fever for a day." *Require a diagnosis by a medical doctor* was represented as *"I think we foreigners require a diagnosis from a medical doctor, because otherwise, we cannot get sufficient information or adequate support, even though I really worry about my child's health."* *Request the husband's company* was represented as *"I ask my husband to accompany with me when I take my child to a hospital because I cannot understand doctors' explanations well."* The other subcategory was *Obtain husband's opinion.*

Selecting adequate healthcare facilities

Six subcategories were created, based on the criteria by which the mothers selected the healthcare facilities. *Convenience* was represented as *"I select a clinic based on [the] waiting time"* and *"I take my child to a clinic close to my house."* *Quality of the healthcare provider* was represented as *"There is a kind nurse who helps me to read Japanese in this clinic"* and *"The physician speaks slowly [in Japanese] so that I can understand."* *Familiar doctor* was represented as *"I have a doctor who is familiar and reliable."* The other subcategories were *English ability of a medical doctor*, *Function of the healthcare facility*, and *Demand of a family member*.

Managing at home when the child is sick

Six subcategories were created, based on what the mothers do at home when their child is sick. *Give and control medicine* was represented as *"Give a tablet of paracetamol when my child has a fever."* *Feed according to the child's condition* was represented as *"I give them jelly or pudding, which is soft when my child feels unwell"* and *"I cook rice until it is soft when my child has diarrhea."* *Give something good from the mother country* was represented as *"In my country, we give my child a boiled pear with peel for fever."* The other subcategories were *Try to cool*, *Check body temperature*, and *Observe progress.*

Factors that affected the health behaviors of the foreign mothers

From a total of 932 codes of factors that affected the HBs, 44 specific factors were extracted as subcategories and clustered into 11 categories: "Japanese culture and customs," "Child's health condition," "Culture and customs of the mother's native country," "Family," "Mother's health perception," "Healthcare facility and healthcare provider," "Friends," "Mother's health condition," "Internet," "Becoming accustomed to life in Japan," and "Japanese language ability" (Table 3).

"Japanese culture and customs" included eight subcategories: *Health system*, *Food culture*, *Childrearing style*, *Social circumstances*, *Family style*, *Drug or medical treatment*, *Environment*, and *Education.* "Child's health condition" included seven subcategories: *Symptoms*, *Physical health*, *Appetite*, *Mood*, *Mental health*, *Sleep*, and *Difference from the normal condition.* "Culture and customs of the mother's native country" included seven subcategories: *Food culture*, *Childrearing style*, *Medical treatment*, *Health system*, *Religion*, *Family style*, and *Social circumstances.* "Family" included five subcategories: *Husband*, *Mother*, *Mother-in-law*, *Husband's family member*, and *Own family member.* "Mother's health perception" included five subcategories: *Diet*, *Sick and treatment*, *Play*, *Daily rule*, and *Sleep*. "Healthcare facility and healthcare provider" included two subcategories: *Healthcare facility* and *healthcare provider.* "Friends" included six subcategories: *Japanese friends*, *Friends in the childrearing circle*, *Friends from the country of origin*, *Friends of the foreigner*, *Friends of the preschool*, and *Friends of* the *church*. Some codes were directly assigned to one of these four categories, without first clustering them into subcategories: *Mother's health condition*; *Internet*; *Becoming accustomed to life in Japan*; and *Japanese language ability.*

DISCUSSION

Health behaviors of foreign mothers in Japan regarding their children

Of the six HB categories, the following three are related to what happens after an illness has developed: "Deciding to take the child to a healthcare facility," "Selecting adequate healthcare facilities," and "Managing at home when the child is sick." The remaining three relate to what happens before an illness develops.

"Gathering information about child health" and "Preventing obstructions to child health care" accounted for over half of the HBs that were recorded in this study. This suggests that foreign mothers who are living in Japan with small children spend the majority of their HB time gathering information about child health and the fact that these responses were the most frequent in this survey suggests that this is the matter that most concerns foreign mothers in Japan. This is consistent with a previous study that showed that gathering information is a coping strategy of migrant

Table 3 Factors that affected the health behaviors of the mothers (n = 932)

Category	(n, %)	Subcategory	(% of the category)
Japanese culture and customs	(175, 18.8)	Health system	(46.3)
		Food culture	(14.9)
		Childrearing style	(13.7)
		Social circumstances	(12.6)
		Family style	(4.6)
		Drug or medical treatment	(2.9)
		Environment	(2.9)
		Education	(2.3)
Child's health condition	(172, 18.5)	Symptoms	(53.5)
		Physical health	(19.2)
		Appetite	(12.2)
		Mood	(8.7)
		Mental health	(2.9)
		Sleep	(2.3)
		Difference from the normal condition	(1.7)
Culture and customs of the mother's native country	(156, 16.7)	Food culture	(32.1)
		Childrearing style	(29.5)
		Medical treatment	(14.1)
		Health system	(13.5)
		Religion	(5.1)
		Family style	(3.2)
		Social circumstances	(2.6)
Family	(93, 10.0)	Husband	(43.0)
		Mother	(18.3)
		Mother-in-law	(16.1)
		Husband's family member	(16.1)
		Own family member	(6.5)
Mother's health perception	(82, 8.8)	Diet	(51.2)
		Sick and treatment	(22.0)
		Play	(13.4)
		Daily rule	(11.0)
		Sleep	(2.4)
Healthcare facility and healthcare provider	(73, 7.8)	Healthcare provider	(54.8)
		Healthcare facility	(45.2)
Friends	(66, 7.1)	Japanese friends	(31.8)
		Friends of childrearing circle	(25.8)
		Friends from the country of origin	(24.2)
		Friends of the foreigner	(6.9)
		Friends of the preschool	(6.9)
		Friends of the church	(3.0)
Mother's health condition	(47, 5.0)	Mother's health condition	–
Internet	(30, 3.2)	Internet	–
Becoming accustomed to life in Japan	(24, 2.6)	Becoming accustomed to life in Japan	–
Japanese language ability	(14, 1.5)	Japanese language ability	–

women for maternal and child health (Gagnon, Carnevale, Mehta, Rousseau, & Stewart, 2013); however, the information that is available to immigrants is defined by health services that are affordable, adequate, and accessible for them (Hannigan, O'Donnell, O'Keeffe, & MacFarlane, 2016). This result shows that gathering information is not only necessary, but important as well. "Gathering information about child health" then was further subdivided according to the source. The main sources of information were family and friends; most foreign residents in Japan consult family and friends when they experience problems (City of Yokohama, 2013; Minato City, 2013), as well as the Internet and SNS. More than 70% of Japanese persons gather information using the Internet (Ministry of Internal Affairs and Communications, 2015); therefore, improving information and communication technology (ICT) might help foreign mothers to access information on child health. Furthermore, ICT support programs should be implemented based on the expectations of foreign mothers.

The second HB category was "Preventing obstructions to child healthcare." *Managing own health* was the most common HB in this category, which included child health management, suggesting that mothers attend to their own health first in order to take care of their child because it is more difficult to rear a child in a foreign country than in their native country. Although self-health management by Japanese mothers during the rearing of small children has received minimal attention (Oshima & Kanayama, 2011; Sugiyama, 2012), based on these results, the authors are convinced that it is important to support mothers, especially foreign mothers, to manage their own health.

The third category, "Perceiving the child's health condition," showed that mothers usually perceived the child's *Physical health*, *Appetite*, *Sickness*, and *Mood*. This relatively common behavior for all mothers is connected to the second behavior of "Preventing obstructions to child health care" and also can direct the remaining three specific HBs, which are related to what happens when the child becomes sick.

Factors that affected the health behaviors of the foreign mothers

Of the 11 factors that affected the HBs that were extracted, "Japanese culture and customs," "Child's health condition," and "Culture and customs of the mother's native country" were the most common in this study. In addition, a common and characteristic factor for foreign mothers was the culture and customs of both Japan and the mother's native country, as demonstrated by "Becoming accustomed to life in Japan" and "Japanese language ability."

In a European study, Richards, Kliner, Brierley, and Stroud (2014) suggested that immigrants face numerous cultural barriers to health, including discrimination and the disempowerment of women. In the present study, although the HBs were more affected by the culture and customs of both Japan and the mother's native country, it was also common for "Child's health condition" to trigger HBs. This study's results validate previous research that identified the importance of one's cultural background and therefore it is strongly recommended that cultural diversity is understood and accepted.

In the discussion regarding culture and customs, the frequency of the "Japanese culture and customs" and "Culture and customs of the mother's native country" categories was 18.8% and 16.7%, respectively. These percentages are similar, suggesting that foreign residents combine the culture and customs of their host and native countries to fit their daily living circumstances and that these two sets of customs carry almost the same weight. However, some subcategories' order of importance differed, although they were common to both of these categories. For example, the top item for "Japanese culture and customs" was *Health system*, but this was the fourth item in "Culture and customs of the mother's native country." Immigrant patients lack knowledge of a host country's health system (Abbott & Riga, 2007; Czapka & Sagbakken, 2016; Håkonsen, Lees, & Toverud, 2014). Thus, this study agrees with Suphanchaimat, Kantamaturapoj, Putthasri, and Prakongsai (2015) that healthcare providers should actively provide adequate knowledge of the host country's health system to immigrants. The health system is important in achieving health outcomes (World Health Organization, 2000) and the health system in Japan, which includes vaccinations, health check-ups, and free access to health care, is likely to directly affect HBs.

"Family," "Mother's health perception," "Healthcare facility and healthcare provider," and "Friends" also were important factors for foreign mothers and had similar prominence as the factors that affected the HBs. An important item in the "Family" category was the husband, which was confirmed by the items *Request husband's company* and *Obtain husband's opinion* when the mothers were "Deciding to take the child to a healthcare facility." The husbands of 14 of the 24 participants were Japanese; thus, the effect of this item might have been stronger than it would have been otherwise.

Diet was a notable item in the "Mother's health perception" category, which concords with the obvious importance of diet for child health. Kilanowski (2010) showed previously that immigrant mothers often talk about foods, especially the meal cost, lack of preparation time, distance to store locations, the importance of traditional ethnic foods, and limited knowledge of healthy food choices. In the "Friends" category, *Japanese friends* were important, as well as *Friends from the country of origin*. It is well known that foreigners in Japan are amicable to Japanese persons; however, they tend not to have many Japanese friends (City of Yokohama, 2013; Minato City, 2013; Toyota City, 2016). *Japanese friends* support foreign mothers, especially with regard to "Gathering information about child health."

Finally, "Japanese language ability" did not appear to affect HBs greatly. This result contrasts with similar research that showed that the language barrier was the main difficulty for foreign residents when accessing health care (City of Yokohama, 2013; Terui, 2017; Uayan *et al.*, 2009). The difference between this study's results and those of former research might be because this study's participants had lived in Japan for a longer period and because many of them had Japanese husbands.

Structural model of the factors that affected the health behaviors of the foreign mothers

A structural model of the factors that affected the HBs, based on the 11 categories that had been identified, was constructed (Fig. 1). In the model, the importance of each category is indicated by the size of the circle in which it appears and the strength of the effect is indicated by the width of the line linking the category to the central HBs box. The dotted lines indicate possible relationships.

"Japanese culture and customs," "Culture and customs of the mother's native country," and "Child health condition," which were the most frequent categories, were used as a pivot; based on these, the model was constructed, taking into account the relationships among the other factors.

First, there was a correlation between "Child's health condition" and "Mother's health perception," as well as between "Mother's health condition" and "Mother's health perception." Moreover, there were additional correlations between "Mother's health perception" and both "Japanese culture and customs" and "Culture and customs of the mother's native country" because "Mother's health perception" is considered to be cultivated by both sets of culture and customs. In this model, the upper structure, which is demarcated by the bold arrows from "Japanese culture and customs" and "Culture and customs of the mother's native country" to the HBs box, probably represents the mother's volition. "Becoming accustomed to life in Japan," which is also found in the upper structure, is addressed later.

In the lower structure, "Family" emerged as the fourth-most-important factor that affected the HBs. "Family" was affected by "Japanese culture and customs" and "Culture and customs of the mother's native country," while in turn affecting "Becoming accustomed to life in Japan" and "Japanese language ability." For example, foreign mothers have to become accustomed to Japanese life and learn Japanese if they live with a Japanese family. "Friends," such as the Japanese mothers of their child's friends, also help foreign mothers to adapt to Japanese culture. In contrast, "Healthcare facility and healthcare provider" and "Internet" were likely to be exogenous factors. In addition, "Healthcare facility and healthcare provider" might be affected by "Japanese language ability" because mothers can more easily access healthcare for their child if they have sufficient skill in the language. "Internet" was the best tool for "Gathering information about child health" for the foreign mothers and was the only factor that was not connected with any other.

Implementation to improve health behaviors

Japanese healthcare professionals have a role in improving HBs. Mothers need information when "Preventing obstructions to child healthcare" and "Perceiving the child's health condition," regardless of whether the child is unwell. In other words, foreign mothers carry out adequate HBs if they can gather sufficient information. Therefore, the most effective way to improve child health is to support and improve access to information about child health by, for example, addressing the language barrier and misunderstandings of cultural differences.

Both "Japanese culture and customs" and "Culture and customs of the mother's native country" were the most common and characteristic factors that affected HBs and both are pivotal, according to the structural model of the factors that affected the HBs. However, these factors are not changeable by dint of personal effort; rather, they require an adjustment and health professionals can support these mothers in adjusting to using other factors as secondary resources. In this study,

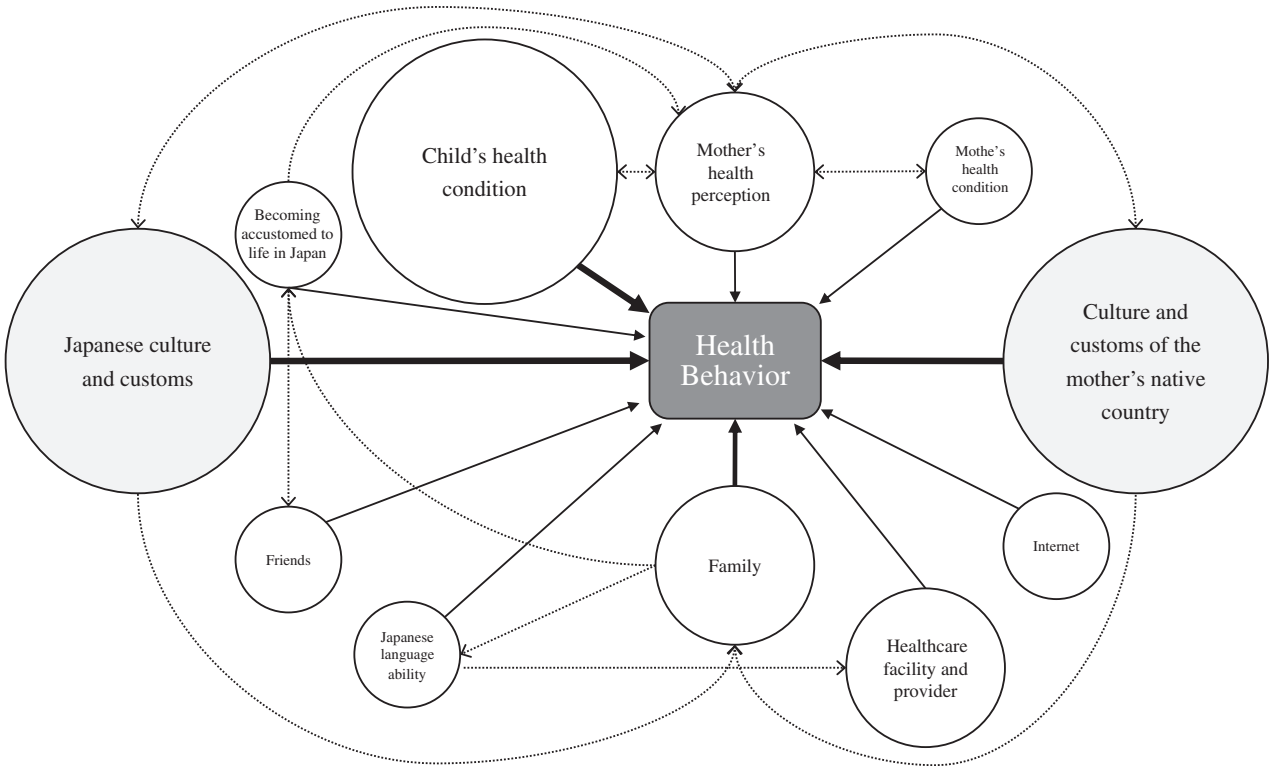

Figure 1 Structural model of the factors that affected the health behaviors.

the correlation between "Mother's health perception" and both "Japanese culture and customs" and "Culture and customs of the mother's native country," which have been suggested previously by Bornstein and Cote (2004), are predicted and this study's model showed that "Family" also is affected by both of these factors. Moreover, it is suggested that the accurate recognition of the "Mother's health perception" is directly related to the "Child's health condition," which is a common factor that affected the HBs. The correlation between "Child's health condition" and "Mother's health perception" also has been previously reported (Blasco-Hernández, García-San Miguel, Navaza, Navarro, & Benito, 2016). Therefore, understanding the characteristics of the foreign "Mother's health perception" and "Family" might be effective in encouraging HBs. Healthcare professionals should pay attention to these factors.

In summary, it is recommended to support foreign mothers' groups and for foreign mothers to study the Japanese language. "Healthcare facility and healthcare provider" should be distinguished from both "Japanese culture and customs" and "Culture and customs of the mother's native country," although it should be recognized that foreign mothers cannot change their culture and customs by themselves. For these reasons, healthcare professionals also should strive to better understand "Japanese culture and customs" and the "Culture and customs of the mother's native country."

Limitations of the study

The recruitment of foreign mothers as research participants via childrearing circles might introduce a sample bias. Moreover, the mothers who participated in the interviews were required to have sufficient skill in Japanese to be able to understand the questions and to live in prefectures with good services for foreign residents relative to other prefectures. Generally, foreign residents who live in close proximity to, and have some connection with, other foreigners experience greater well-being. Many of the participants in this study had Japanese husbands, which might have influenced the factors that affected the HBs. Therefore, these results might not reflect the situation for all foreign residents in

Japan. Finally, this was an exploratory study and thus it was only possible to demonstrate the key factors that could influence HBs. Identifying the positive factors that encourage or support HBs will require the use of another method, such as a quantitative study design.

CONCLUSION

This exploratory research on the HBs of foreign mothers who are living in Japan regarding their young children showed that gathering information, preventing obstacles to child healthcare, and perceiving the child's health condition were the most common behaviors undertaken. This, in turn, initiated other HBs, such as deciding to get medical treatment for the child, selecting adequate healthcare facilities, and managing at home during the child's sickness. The main factors that affected the HBs were the culture and customs of Japan and the mother's native country, as well as the child's health condition.

It is recommended that healthcare professionals support foreign mothers to gather adequate and appropriate information regarding health, particularly child health, considering not only the culture and customs of the mother's native country but also of the host country. Japanese are generally very accustomed to their way of life and often cannot imagine why foreigners do not understand their culture and customs, especially when the health system of the foreigner's country differs. Japanese healthcare professionals thus should study Japan's healthcare system so that they always can provide appropriate information. Finally, it is recommended to continue to strive to improve our understanding of our communities, as is the nature of healthcare providers to do, in order to enable us to provide foreign mothers with better health care.

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DISCLOSURE

The authors declare no conflict of interest.

AUTHOR CONTRIBUTIONS

K. S. contributed to the conception and design of this study, conducted the qualitative analysis, and drafted the manuscript; Y. H. critically reviewed the manuscript and supervised the study. Both authors read and approved the final manuscript.

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