

Health seeking behavior of Japanese retirees in Thailand: a cross-sectional study

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Research

Keywords: International retirement migration, long-stay tourism, retirees, health service use, Japanese, Thailand

Posted Date: January 20th, 2021

DOI: <https://doi.org/10.21203/rs.3.rs-62914/v2>

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Abstract

Background: Despite widespread cross-border migration of retirees, little is known about their healthcare seeking behavior in a destination country. This study explores factors related to the use of health services in Thailand by Japanese long-stay retirees.

Methods: A survey of Japanese long-stay retirees aged 50 and older was conducted in cooperation with nine Japanese self-help clubs in Bangkok, Chiang Mai, Chiang Rai, and Phuket. The dependent variable was receiving medical treatment in Thailand in the previous 12 months. People who did not receive treatment in Thailand were divided into two groups; those who had treatment only in Japan and those who did not have treatment anywhere. Independent variables included i) predisposing factors: age, sex, years lived in Thailand, ii) enabling factors: marital status, adjusted annual household income, and iii) need factors: existence of chronic diseases and health related quality of life.

Results: Of 226 eligible participants, 106 (47%) received medical treatment in Thailand, 41 (18%) received treatment only in Japan, and 79 (35%) did not receive treatment in any country in the previous 12 months. Multivariate analysis identified that Japanese retirees who stayed in Thailand for less than five years were less likely to receive treatment in Thailand. Retirees who had no chronic diseases and did not return to Japan tended to not receive treatment anywhere while those who were covered by Japan's national health insurance and stayed in Thailand for shorter periods in the past 12 months were more likely to receive treatment only in Japan.

Conclusion: The Thai government's retirement tourism promotion policy should encourage sharing of transparent medical quality and pricing information by medical facilities to facilitate access among foreign retirees, especially of relative newcomers to reliable medical facilities and promote the trust in Thai medical services. As this study indicates medical cost and health insurance coverage is an important factor of one's cross-border health seeking behavior, further studies are required to evaluate the impact of the 2017 and 2019 government policy on mandatory health insurance for retirees on their health seeking behaviors.

Background

International retirement migration (IRM), also known as international long-stay tourism, originated as sun-seeking moves from Northern to Southern Europe in the 1960s to become a global phenomenon [1]. There are many factors that promote IRM. Trade agreements, as seen in the example of North American Free Trade Agreement (NAFTA), contributed to the expansion in the number and types of US retirees in Mexico [2]. The rise of the internet and increase in low-cost airlines also made IRM much easier for many people. With the global growth of the elderly population, IRM has been deemed as a growing industry in recent years [3, 4]. Thailand has emerged as a popular residential destination due to the government's long-stay tourism promotion policy since 2001 as part of the national development strategy [4]. The Tourism Authority of Thailand (TAT), a public organization under the Ministry of Tourism and Sports to promote Thailand's tourism industry, defines "Long Stay" as staying in the country for more than 30 days and not for sightseeing activities or working but with a purpose of living with the intention to return to the home country [5]. Special renewable one-year retirement visas called O-A visa have been widely provided for people aged 50 years and above who fulfill certain financial criteriaⁱ. Although the exact number of long-stay retirees is unknown due to the variety in types of stay and visa [6, 7], the Immigration Bureau statistics suggest a considerable increase in the number of people staying in Thailand for more than one year using retirement visas, which reached 68,000 in 2016, up from around 10,000 in 2005 [8, 9]. In order to further promote retirement migration in competition with neighboring countries such as Malaysia and the Philippines, Thailand introduced a new 10-year retirement visa (initially 5 years with extension for another 5 years) named "O-X visa" for more affluent peopleⁱⁱ aged 50 years and above from 13 western countries and Japan in 2017 [10]. As evidenced by the selected nations of the new visa, Japan, the world's most aged country, is a primary target of Thai long-stay tourism [13, 15]. Thailand became Japan's second-most popular long-stay destination after Malaysia [11] with at least 3,800 Japanese nationals staying for over a year using the retirement visas in 2016, up from less than 900 in 2005 [8, 9]. The availability of medical services is one of the major drawcards to Thailand [12], in addition to the low cost of living, short flight time from Japan, warm weather, and availability of a long-term visa [13] {Foundation, #90}.

Thailand is among the top medical destinations of Asia with 62 private hospitals and clinics accredited by the Joint Commission International (JCI), while Singapore and Malaysia have only 9 and 16, respectively [14]. The deliberate targeting of healthcare-seekers from abroad began after the 1997 financial crisis as private hospitals were losing their domestic patients. The government further strengthened this movement by introducing its medical hub policy in 2003 with an overall strategy to make Thailand an international medical hub in four areas: (1) medical services; (2) wellness; (3) academic, and (4) products. In this connection, not only the TAT but also the Ministry of Public Health (MOPH) takes part in retirement tourism promotion issuing a guideline for developing “Long Stay for Health in Thailand”. The MOPH regulation requires all new or extending retirement visa applicants, either 1-year (since 2019) or 10-year type (since 2017), to show proof of private health insurance with coverage not less than 400,000 baht (=12,882 US dollarsⁱⁱⁱ) per year for inpatient care, and not less than 40,000 (=1,288 US dollarsⁱⁱⁱ) baht per year for outpatient care [10, 15]^{iv}. As of July 2020, 14 Thai private insurance companies provide such insurance which can be purchased online [16]. An overseas insurance policy is also acceptable as long as it meets the minimum requirements. One of the remaining challenges is that many of the Thai and overseas private medical insurance companies imposes an age limit or medical exclusions.

The expectation on the growing economic benefits from foreign retirees to the healthcare service sector is seen globally. For example, Malaysia also places importance on the provision of healthcare specifically aimed at the elderly and retirees from other countries [17], and there are substantial numbers of potential care-oriented migrants who consider care for themselves in the near future [18]. However, the healthcare use by long-stay retirees in destination countries is not well understood. Previous studies on IRM are dominated by describing and analyzing the motivations for moving, push and pull factors [6, 19-22] or the way of lifestyles adjustment [7]. There are few studies focusing on healthcare issues of long-stay retirees. While increasing in recent years, most of these studies are qualitative and examine the long-stay retirees’ healthcare experience abroad [23-29]. Our recent quantitative study revealed that the healthcare service use of Japanese long-stay retirees was limited as they prefer going back to Japan for treatment of chronic or serious diseases [30]. Another quantitative study reported a favorable attitude of Japanese long-stay retirees towards Thai medical services [31]. A qualitative study in Malaysia identified that health beliefs, medical symptoms, health insurance, language barriers, voluntary health repatriation to Japan, and psychological support influence healthcare service use among Japanese retirees [26]. To inform IRM promotion strategies, this study explored the barriers and incentives to the use of health services in Thailand by Japanese long-stay retirees.

Methods

Data Collection

An anonymized questionnaire survey of Japanese long-stay retirees aged 50 and older was conducted from January to March 2015 in cooperation with nine Japanese self-help clubs in Bangkok (n=3), Chiang Mai (n=3), Chiang Rai (n=1), and Phuket (n=2). These clubs offer gathering places for Japanese retirees living in Thailand in order to enhance social interaction and provide adequate information on medical services, visa procedures, dwellings and so on. Study participants were either members of these clubs or participants of their periodical meetings. On-site, postal or telephone surveys were conducted depending on the club's style of activities and member registration. In five clubs, questionnaires were distributed during periodical meetings and collected at the meetings or posted back. Postal surveys were conducted in the remaining four clubs; in two, questionnaires were posted to members aged over 50 years and collected by post; in one club, questionnaires were handed out at the office and returned by mail. In the final club, some members were handed the questionnaires in the office and returned them by mail while others were interviewed by phone.

Our target population “Long-stay retirees” does not include i) short-term travelers who were staying in Thailand for less than 30 days per year, ii) expatriate personnel and their spouses who were relocated to Thailand by Japanese companies, iii) people relocated due to marriage, and iv) working migrants. Exclusion criteria from the analysis were: i) new arrivals who started their long-term stay within the past three months; ii) individuals who left more than 30% of the questionnaire blank; or iii) individuals who did not answer the dependent variable. Detailed data collection methods and inclusion criteria are available elsewhere [30].

Variables

The dependent variable is receiving medical treatment, including dental services, in Thailand in the previous 12 months. Treatment includes both in-patient and out-patient care for diseases or injuries. People who did not receive treatment in Thailand were further divided into two groups; those who had treatment only in Japan and those who did not have treatment anywhere. Based on Andersen's behavioral model of health service utilization [32, 33], independent variables were classified to three categories; i) predisposing factors, namely age, sex, living place, number of years living in Thailand, number of days staying in Thailand in the previous 12 months, and whether they returned to Japan in the previous 12 months, ii) enabling factors, namely marital status, living situation in Thailand, adjusted annual household income per person, and registered with the Japanese national health insurance (NHI), which enables reimbursement for overseas medical expenses to a certain extent, and iii) need factors, namely body mass index (BMI) defined as weight in kilograms divided by height in meters squared, self-reported existence of chronic diseases or sequelae, health related quality of life (QOL) obtained by application of the EuroQol-5D-5L as well as receiving medical treatment in Japan in the past 12 months (Figure 1). Although marital status is commonly deemed as a predisposing factor [33], we classified it as an enabling factor considering that a spouse, especially one who has Thai nationality, can be helpful when a foreigner who is unaccustomed to the Thai lifestyle needs to visit a doctor. Those who divorced or lost spouses were classified as singles. The household income was primarily obtained by dividing household income by the square root of the number of members in the household in Thailand [34]. For a married person living alone in Thailand, we divided household income by 2 considering the dual expenses. The NHI provides reimbursement of 70 to 90%, in accordance with age and income, of the estimated cost for treatment of the same injury or illness in Japan, or of the amount actually paid overseas if less, for treatment covered by the NHI, upon one's request.

<Figure. 1 Variables in the research based on Andersen's Behavior Model>

Statistical analysis

Descriptive statistics were used to present participants' basic characteristics. Bivariate analyses with chi-squared tests were used to explore factors related to health services utilization in Thailand between two groups; i) Treatment in Thailand vs Treatment only in Japan, and ii) Treatment in Thailand vs No treatment.. Using variables which were associated with the dependent variables at a p-value of less than 0.20, as well as age and sex, we conducted multiple logistic regression analyses and computed odds ratios for health service use in Thailand. The statistical analysis was performed using SPSS version 22.

Ethics

The study was approved by the ethics committee of the Institute for the Development of Human Research Protections, Thailand. Implied consent was substituted for written consent to assure anonymity of participants by considering their completed questionnaire as consent for participation in the survey; this implied consent principle was explained beforehand. A letter of approval was obtained from the representative of each Japanese club to conduct the research at the clubs.

Results

Study Participants

The questionnaires were distributed to 341 persons, of which 262 responded (77%). Thirty-six persons were excluded sequentially: not a long-stay retiree (n=20); new arrivals within three months (n=2); greater than 30% of the questionnaire incomplete (n=3); dependent variable incomplete (n=11). As a result, data from 226 persons (66.3%) were included in the analysis.

The mean age of the eligible participants living in Bangkok (n=51), Chiang Mai (n=138), and other areas (n=37) was 68.7, with 80.5% of them being male. The mean duration of stay in Thailand was 6.3 years overall and 293 days in the previous 12 months. The mean household income per person was 2.15 million yen (\approx 20 thousand US dollars [¥]). The mean QOL score was 0.91 out of 1.00 and 38% had a chronic disease or sequelae (Table 1). One hundred and six respondents (47%) received

medical treatment in Thailand in the previous 12 months, 40 of whom saw a doctor both in Thailand and Japan. The number of participants who experienced inpatient treatment was 23. Out of the remaining 120 respondents (53%), 41 received treatment only in Japan, and 79 did not receive any treatment anywhere (Figure 2).

Table 1. Characteristics of the study participants

	n	(%)
Sex		
Male	182	(80.5)
Female	44	(19.5)
Age	68.7	(5.6) *
Living place		
Bangkok	51	(22.6)
Chiang Mai	138	(61.1)
Other	37	(16.4)
Education		
Bachelor's degree or higher	123	(54.7)
Less than bachelor's degree	102	(45.3)
Years living in Thailand	6.3	(4.6) *
Length of stay in Thailand in the past year (days)	293	(76) *
Returned to Japan		
Yes	173	(78.6)
No	47	(21.4)
Marital status		
Married with Thai	60	(26.7)
Married with Non-Thai	109	(48.4)
Single	56	(24.9)
Living situation in Thailand		
Living alone	70	(32.0)
Living with someone	149	(68.0)
Adjusted annual household income per person (Japanese yen ×10,000)	215	(119) *
National Health Insurance		
Covered	99	(44.2)
Not	125	(55.8)
Body mass index		
Normal range	143	(63.6)
Underweight/Overweight	82	(36.4)
QOL: EQ-5D-5L index value	0.91	(0.13) *
Chronic disease or sequelae		
Yes	78	(38.4)
No	125	(61.6)

*Mean (SD)

Factors associated with use of health services in Thailand

The two bivariate analysis (Table 2) showed several factors possibly affecting health seeking behavior. Among retirees who received medical treatment in the previous 12 months, receiving treatment in Thailand was significantly associated with sex, years of long-stay, duration of stay in Thailand in the past year, returned to Japan or not, marital status, and covered by national health insurance or not. Household composition in Thailand and with or without chronic disease or sequelae also showed p-values less than 0.2. Between retirees who did not get medical treatment in the previous 12 months and those who were treated in Thailand, statistically significant differences were observed in years of long-stay, QOL, and chronic disease and sequelae., National health insurance and returned to Japan or not showed p-values less than 0.2. Years in Thailand was the only common factor in the two analyses. Retirees who stayed in Thailand less than five years were less likely to receive treatment in Thailand (33.7%) than those staying more than five years (56.5%). Income per person was not related to the medical service use in either group. Since the non-response rate to the income question was relatively high (28.3%), we performed a sensitivity analysis by imputing the mean income of the respondents to the non-respondents by education level, but the results remained insignificant in both groups.

Table 2. Bivariate analysis of factors associated with healthcare service use

		Treatment in Thailand		Treatment only in Japan		No treatment			
		n	(%)	n	p-value	n	(%)	p-value	
		106	(46.9)	41	(18.1)	79	(35.0)		
Predisposing	Sex								
	Male	89	(48.9)	27	(14.8)	0.016 *	66	(36.3)	0.939
	Female	17	(38.6)	14	(31.8)		13	(29.5)	
	Age								
	<70	58	(46.8)	20	(16.1)	0.482	46	(37.1)	0.686
	>=70	47	(46.5)	21	(20.8)		33	(32.7)	
	Living place								
	Bangkok	25	(49.0)	10	(19.6)	0.474	16	(31.4)	0.232
	Chiang Mai	59	(42.8)	26	(18.8)		53	(38.4)	
	Other	22	(59.5)	5	(13.5)		10	(27.0)	
	Education								
	Bachelor's degree +	61	(49.6)	23	(18.7)	0.873	39	(31.7)	0.310
	Other	45	(44.1)	18	(17.6)		39	(38.2)	
	Years living in Thailand								
	<5 years	30	(33.7)	22	(24.7)	0.003 **	37	(41.6)	0.007 **
>=5 years	74	(56.5)	18	(13.7)		39	(29.8)		
Length of stay in Thailand in the past year									
<300 days	25	(37.9)	29	(43.9)	<0.001 **	12	(18.2)	0.217	
>=300 days	76	(51.7)	12	(8.2)		59	(40.1)		
Returned to Japan									
Yes	79	(45.7)	39	(22.5)	0.002 **	55	(31.8)	0.151 †	
No	21	(46.7)	0	(0.0)		24	(53.3)		
Enabling	Marital status								
	Married with Thai	37	(61.7)	4	(6.7)	0.011 *	19	(31.7)	0.261
	Married with Non-Thai	46	(42.2)	25	(22.9)		38	(34.9)	
	Single	23	(41.1)	11	(19.6)		22	(39.3)	
	Living situation in Thailand								
	Living alone	29	(41.4)	18	(25.7)	0.059 †	23	(32.9)	0.834
	Living with someone	73	(49.0)	22	(14.8)		54	(36.2)	
	Adjusted annual household income per person (JPY)								
	<2 million	42	(47.2)	12	(13.5)	0.252	35	(39.3)	0.260
	>=2 million	36	(49.3)	17	(23.3)		20	(27.4)	
National Health Insurance									
Covered	43	(43.4)	31	(31.3)	<0.001 **	25	(25.3)	0.179 †	
Not	61	(48.8)	10	(8.0)		54	(43.2)		
Need	Body mass index								
	Normal range	67	(46.9)	27	(18.9)	0.629	49	(34.3)	0.869
	Under-/Overweight	39	(47.6)	13	(15.9)		30	(36.6)	
	QOL: EQ-5D-5L index value								
	<1.00	46	(54.8)	18	(21.4)	0.897	20	(23.8)	0.010 *
	1.00	59	(42.1)	22	(15.7)		59	(42.1)	
Chronic disease or sequelae									
Yes	54	(69.2)	17	(21.8)	0.161 †	7	(9.0)	<0.001 **	
No	43	(34.4)	23	(18.4)		59	(47.2)		

†p<0.2, *p<0.05, **p<0.01

The multivariate analysis using the above factors (Table 3) identified five factors related to medical service use of Japanese retirees in Thailand. Years in Thailand was the only common factor in the two groups. Retirees who stayed in Thailand less than five years were more likely to receive treatment only in Japan (OR=5.34, 95% CI=1.67-17.12) or to not receive any treatment (OR=2.55, 95% CI=1.08-6.02) compared to veteran long-stayers. Among retirees who received medical treatment in the previous 12 months, two more significant factors were observed. Retirees who stayed less than 300 days (OR=5.62; 95% CI=2.08-15.20) and those who were covered by Japan's national health insurance (OR=4.89; 95% CI=1.58-15.14) were more likely to receive medical treatment only in Japan. On the other hand, the retirees who did not go back to Japan in the previous year (OR=3.33, 95% CI=1.21-9.18) and those without chronic diseases (OR=15.29, 95% CI=4.90-47.68) were more likely to stay without any medical treatment.

Table 3. Factors associated with healthcare service use in Thailand from multiple logistic regression analysis

		vs Treatment only in Japan		vs No treatment		
		OR	(95% CI)	OR	(95% CI)	
Predisposing	Sex					
		Male	1.00		1.00	
		Female	0.49	(0.16 - 1.54)	1.24	(0.42 - 3.69)
	Age					
		<70	1.00		1.00	
		>=70	0.37	(0.13 - 1.09)	0.78	(0.33 - 1.83)
	Years living in Thailand					
		<5 years	1.00		1.00	
		≥5 years	5.34	(1.67 - 17.12)**	2.55	(1.08 - 6.02)*
	Length of stay in Thailand in the past year					
		<300 days	1.00		-	
		>=300 days	5.62	(2.08 - 15.20)**	-	
	Returned to Japan					
	No	-		1.00		
	Yes	-		3.33	(1.21 - 9.18) *	
Enabling	Marital status					
		Married with Thai	1.00		-	
		Married with Non-Thai	0.65	(0.15 - 2.82)	-	
		Single	0.51	(0.08 - 3.27)	-	
	Household composition in Thailand					
		Living alone	1.00		-	
		Living with someone	1.23	(0.36 - 4.18)	-	
	National Health Insurance					
	Not covered	1.00		1.00		
	Covered	0.20	(0.07 - 0.63) **	1.95	(0.86 - 4.37)	
Need	QOL: EQ-5D-5L index value					
		<1.00	-		1.00	
		1.00	-		1.09	(0.40 - 2.98)
	Chronic disease or sequelae					
		No	1.00		1.00	
	Yes	1.30	(0.48 - 3.53)	15.29	(4.90 - 47.68)**	

*p<0.05, **p<0.01

Discussions

For Japanese retirees, access to quality health care in their retirement destination is an important element in their successful overseas retirement life and well-being, and a business opportunity for the healthcare sector of destination countries. Thailand promotes “long stay for health” by combining the long-stay tourism with the medical hub policy. Our previous study revealed that Japanese retirees’ use of health services in Thailand was infrequent and primarily for non-serious conditions [30]. This study provides additional information as to which predisposing, enabling and need factors affect Japanese retirees' health seeking behaviors.

Notably, the strongest determinant of not seeking medical treatment in the past 12 months was not a barrier but the absence of chronic diseases and their sequelae. On the other hand, need factors had no impact on whether treatment-seeking retirees sought treatment in Thailand or in Japan.

One interesting finding is that retirees staying in Thailand longer than 5 years were more likely to seek treatment in Thailand than in Japan or not at all. As we adjusted for health needs factors in the multivariate analysis, this result does not signify that the longer retirees stay in Thailand, the more subject they are to diseases. Also, a longer duration of stay in Thailand does not mean increasing age as we adjusted for age in the model. One possible interpretation may be language barriers; the longer a retiree stays in Thailand, the more fluent they become in the Thai language. However, in Thailand, where many of the JCI hospitals provide Japanese speaking doctors or at least interpreters, among the study participants who saw a doctor in Thailand in the past 12 months, 76% spoke Japanese to communicate with their doctor with or without the help of an interpreter while 15% spoke Thai. Another possible interpretation is that a longer stay increases information on and trust in Thai medical services. Naturally, the longer one stays, the more chance one might have to get to know a good doctor or a hospital in terms of quality of care and cost by word of mouth, and more importantly, from one’s own experiences. Another

study suggested that trust in foreign healthcare was built on experiential encounters with specific institutions; specifically, interpersonal qualities of practitioners (respect for older people, empathy and reciprocity) and clean, modern and efficient facilities [36]. Medical facilities that most of the Japanese go to are JCI accredited private hospitals and considered to meet the above criteria. In fact, half of Japanese long-staying elderly rated the quality of medical services provided in Thailand as high, while less than 10% rated the quality as low [31]. Such good experiences engender confidence in Thai hospitals. Some might also have their own doctor. On the other hand, it would appear that relative newcomers tend to hesitate to go to, or have difficulty in choosing, a medical facility due to doubts about the quality and fear of high costs. In fact, we found many Japanese suspected Thai doctors of having poor medical skills, including misdiagnosis, through interviews and group discussion in our preliminary survey. In Thailand, private medical care costs are often perceived to be more expensive than the fixed medical fees under Japan's universal health insurance scheme [31, 35]. Further promotion of trust building by providing necessary information in terms of the quality of care, cost and support is necessary. More specifically, improving websites of medical facilities; for example reflecting patient's preferences by data mining [37], or development of a system to evaluate clinical outcomes of each institution by a third party would be worthy of consideration.

We found that treatment-seeking retirees who stayed for shorter periods in Thailand in the past 12 months were more likely to receive medical treatment only in Japan in the same period as a matter of course. This could be a reverse causation phenomenon, i.e. because the retirees went to Japan for treatment, they stayed Thailand for a shorter period of time. This was revealed by our previous study [30] as well as a study in Malaysia [26] which indicated that voluntary health repatriation to Japan would reduce medical service use in a retirement place.

Retirees who did not return to Japan in the past 12 months were less likely to use healthcare services in Thailand (and of course in Japan). We assume that this factor may be a proxy for travelers' insurance to some extent, which is duration specific; generally valid for a maximum of one year, commonly for three months, from initiation of travel from Japan. Travelers' insurance is actually the most common medical insurance the participants used [30]. In addition, we found that the retirees covered by Japan's national health insurance tended to get medical treatment only in Japan, showing that they opt to return to Japan for health care because of cost considerations. These results indicate that medical costs and health insurance coverage is an important factor in cross-border health seeking behavior. Thailand has recently imposed mandatory health insurance coverage on retirees to obtain or renew their retirement visa. Further studies are required to determine the impact of the new regulation on their health seeking behaviors.

Limitations

Firstly, we recognize the small sample size for the logistic regression modelling. However, we reanalyzed the data using a forward stepwise selection process using a small number of variables and the end results were similar. Another limitation is that we recruited participants through Japanese self-help clubs, indicating that our sample is biased towards retirees who have social ties in Japanese communities in Thailand. This selection bias, however, does not act in the direction of overestimation of the difference between those who used medical services and those who did not. The influence of length of time staying in Thailand on medical service use would be bigger among the retirees who have little social support in Thailand. In Thailand, single retirees often live in isolation and in relatively poor conditions, even avoiding contact with their family in Japan [19]. Further studies should therefore include a wider variety of participants. We realize the possibility of recall bias concerning the dependent variable, i.e. whether study participants had seen doctors in the past 12 months or not. However, this should be negligible since it is unlikely that the answers leaned to only one direction. Another limitation on the dependent variable is that it did not reflect the timing or frequency of visits to a doctor. Whether there was a delay in seeking medical attention was unknown even among the outcome group.

Conclusion

This is the first quantitative study investigating factors affecting healthcare service use in Thailand among retirees from their actual health seeking behavior. Our study observed the favorable situation in which health services are utilized based on

their health needs. On the other hand, retirees who stayed in Thailand for less than 5 years were found to be less likely to use health services in Thailand. The Thai government, including both tourism and public health authorities, should run their long-stay tourism promotion with transparent medical quality and pricing information of each medical facility to facilitate access, especially by relative newcomers to reliable medical facilities, and promote the trust in Thai medical services.

This study suggests that health insurance coverage at home and abroad is an important factor in one's cross-border health seeking behavior. Further studies are required to see the impact of the mandatory health insurance that Thailand has recently imposed on retirees on their health-seeking behaviors. Considering that health-seeking behavior abroad depends on the healthcare system and environment of one's country of origin, further research should extend to retirees from other countries.

Declarations

Ethics approval and consent to participate

The study was approved by the Human Research Ethics committee of the Institute for the Development of Human Research Protections, Thailand. A letter of approval was obtained from the representative of each Japanese club instead of written consent from individual participants to assure anonymity.

Consent for publication

Not applicable.

Availability of data and material

The data will not be shared to protect the privacy of the study participants in accordance with our engagement with the study participants as well as the Human Research Ethics committee.

Competing interest

The authors have no conflict of interest relevant to the content of this study.

Funding

This study was funded by International Trade and Health Programme under the collaboration between the Royal Thai Government and World Health Organization (WHO).

Authors' contributions

YM and CA designed the study. YM collected and analyzed data and wrote the first draft of the manuscript. YM, CA, and LV discussed the findings and revised each version of the manuscript. All authors reviewed and approved the final manuscript.

Acknowledgement

We gratefully acknowledge the technical advice of Dr. Vuthiphan Vongmongkol, Dr. Cha-aim Patchanee, Dr. Suriwan Thaiprayoon, Mrs. Saowapa Jongkitipong, and Dr. Nima Asgari Jirhandeh. Sincere appreciation is extended to the representatives of the Japanese clubs who coordinated the data collection and provided valuable comments on the study, as well as all study participants.

Dr. Vedrasco is a staff member of the WHO. The author alone is responsible for the views expressed in this publication and they do not necessarily represent the decisions or policies of the WHO.

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References

1. Warnes TAM. International Retirement Migration. In: Uhlenberg P, editors. International Handbook of Population Ageing. Springer; 2009. p. 341-363.
2. Truly D. International retirement migration and tourism along the Lake Chapala Riviera: Developing a matrix of retirement migration behaviour. *Tourism Geographies*. 2002;4(3):261-281.
3. Zaiceva A. The impact of aging on the scale of migration. *IZA World of Labor*. 2014.
4. Toyota M, Xiang B. The emerging transnational "retirement industry" in Southeast Asia. *Int J Sociol Soc Pol*. 2012;32(11/12):708-719.
5. Hongsranagon P. Information provision - One more necessity for long stay tourism of Japanese pensioners in Chiangmai. *J Popul Soc Stud*. 2006;14(2):101-110.
6. Howard RW. Western retirees in Thailand: motives, experiences, wellbeing, assimilation and future needs. *Ageing Soc*. 2008;28:145-163.
7. Kawahara M. Adaptive strategy of Japanese senior long-term stayers and local community responses in Chiangmai. *J Thai Stud*. 2010;10:35-55. (in Japanese).
8. Immigration Bureau. Statistics on the request of aliens to stay in the kingdom from 1 Jan 2016 to 31 Dec 2016. <http://www.immigration.go.th/nov2004/base.php?page=stat>. (2017) Accessed 16 May 2016.
9. Immigration Bureau. Statistics on the request of aliens to stay in the kingdom for the year 2005. <http://www.immigration.go.th/nov2004/base.php?page=stat>. (2017) Accessed 16 May 2016.
10. Department of Consular Affairs, Ministry of Foreign Affairs. Non-Immigrant Visa "O-X" (Long Stay). [http://www.consular.go.th/main/th/other/7394/80938-Non-%E2%80%93Immigrant-Visa-%E2%80%9CO%E2%80%93X%E2%80%9D-\(Long-Stay-10-years\).html](http://www.consular.go.th/main/th/other/7394/80938-Non-%E2%80%93Immigrant-Visa-%E2%80%9CO%E2%80%93X%E2%80%9D-(Long-Stay-10-years).html) (2017). Accessed 22 Jan 2019.
11. Long Stay Foundation. Press release 2018 Issue 1 (released on 2 April 2018): Top 10 desired countries and regions for long-stay. <http://www.longstay.or.jp/releaselist/entry-3023.html> (2018). Accessed 22 Jan 2019.
12. Policy Bureau, Ministry of Land, Infrastructure, Transport and Tourism. Report on measures of building high-quality sightseeing and resort areas responding to the needs of the older adults. Tokyo: 2006. (in Japanese).
13. Long Stay Foundation. The Outline of the "LongStay". <http://www.longstay.or.jp/releaselist/english/about.html>. Accessed 5 Sep 2016.
14. Joint Commission International. JCI-Accredited Organizations. <https://www.jointcommissioninternational.org/about-jci/jci-accredited-organizations/> (2020). Accessed 30 July 2020.
15. Mandatory health insurance for retirement visa holders likely to take effect in July. *The Nation*. (15 May 2019). <https://www.nationthailand.com/national/30369468>. Accessed 8 August 2019.
16. Thai General Insurance Association. Welcome to Thailand - Apply for Health Insurance for Long Stay Visa. <https://longstay.tgia.org/> (2019). Accessed 28 July 2020.
17. Leng CH. Medical Tourism in Malaysia: International Movement of Healthcare Consumers and the Commodification of Healthcare. Singapore: 2007.
18. Ono M. Long-stay tourism: Elderly Japanese tourists in the Cameron Highlands, Malaysia. *Senri Ethnological Studies*. 2010;76:95-110.

19. Toyota M. Ageing and transnational householding Japanese retirees in Southeast Asia. *Int Dev Plan Rev.* 2006;28(4):515-531.
20. Ueno K. Care strategies among retired Japanese residents in Chiang Mai. *J Welf Sociol.* 2015;12:57-77. (in Japanese).
21. Chamchan C, Soparat O. Long-stay of the Japanese in Chiangmai: Analysis of the determining factors in the pre- and post-period of the visit. *Jpn Stud J.* 2012;29(1):16-34. (in Thai).
22. Wong KM, Musa G. Retirement motivation among 'Malaysia My Second Home' participants. *Tourism Management.* 2014;40:141-154.
23. Legido-Quigley H, Nolte E, Green J, la Parra D, McKee M. The health care experiences of British pensioners migrating to Spain: a qualitative study. *Health Policy.* 2012;105(1):46-54.
24. Sloane PD, Cohen LW, Haac BE, Zimmerman S. Health care experience of U.S. Retirees living in Mexico and Panama: a qualitative study. *BMC Health Serv Res.* 2013;13:411.
25. Rosenmüller M, Lluch M. Meeting the needs of long-term residents in Spain. In: Rosenmüller M, McKee M, Baeten R, editors. *Patient Mobility in the European Union - Learning from experience.* WHO; 2006. p. 59-78.
26. Kohno A, Farid NDN, Musa G, Aziz NA, Nakayama T, Dahlui M. Factors affecting Japanese retirees' healthcare service utilisation in Malaysia: a qualitative study. In: *BMJ Open.* vol. 6; 2016.
27. Nakai A, Yamada K, Morioka I. Experiences of Utilizing Healthcare Services among Long-Stay Japanese Living in Cebu, Philippines: A Qualitative Study. *Journal of Japan Society of Nursing Research.* 2018;41(8):853-862.
28. Hall K, Hardill I. Retirement migration, the 'other' story: caring for frail elderly British citizens in Spain. *Ageing Soc.* 2016;36(3):562-585.
29. Gehring A. Dutch retirement migration to Spain and Turkey: Seeking access to healthcare across borders. *Transnational Social Review.* 2016;6(3):326-343.
30. Miyashita Y, Akaleephan C, Asgari-Jirhandeh N, Sungyuth C. Cross-border movement of older patients: a descriptive study on health service use of Japanese retirees in Thailand. *Global Health.* 2017;13(1):14.
31. Fukahori H, Baba Y, Hioki F, Monkong S, Intarasombat P, Malathum P. Healthcare services for Japanese elderly long-staying in Thailand from the perspective of the patient and healthcare providers: A survey study. *Arch Gerontol Geriatr.* 2011;53:e168-173.
32. Andersen RM. National health surveys and the behavioral model of health services use. *Med Care.* 2008;46(7):647-653.
33. Babitsch B, Gohl D, von Lengerke T. Re-revisiting Andersen's Behavioral Model of Health Services Use: a systematic review of studies from 1998-2011. *Psychosoc Med.* 2012;9(10):25.
34. OECD. Compare your income – Methodology and conceptual issues. <https://www.oecd.org/statistics/Compare-your-income-methodology.pdf> (2018). Accessed 6 August 2019.
35. Otsuka Y, Koga T, Abe S, Fukushima S, Tsukui K, Nishikawa T, et al. A Survey on the visits to local medical institutions by overseas workers. *Jpn J Occup Med Traumatol.* 2011;59:69-72.
36. Legido-Quigley H, McKee M, Green J. Trust in health care encounters and systems: a case study of British pensioners living in Spain. *Sociol Health Illn.* 2014;36(8):1243-1258.
37. Vedrasco E, Lursinsap C. Effective solution for a medical tourism aggregative system using the data mining approach. In: *Proceedings of the 2nd International Conference on Communication and Information Processing.* Singapore, Singapore: ACM; 2016: 99-104.

End Notes

i) Financial requirement of O-A (Long Stay 1 Year) visa is bank deposit of the amount of not less than 800,000 baht or a monthly income of not less than 65,000 baht, or a deposit account plus a monthly income totaling not less than 800,000 baht. In the case where the accompanying spouse is not eligible to apply for the Category 'O-A' visa, he or she will be considered for

temporary stay under Category 'O' visa. (Ref. Royal Thai Embassy, Tokyo, <http://site.thaiembassy.jp/en/visa/type/9512/>, Accessed 2 Jan 2021)

ii) Financial requirement of O-X (Long Stay 10 Years) visa is bank deposit with the amount of not less than 1.8 million baht and annual income with the amount of not less than 1.2 million baht. Once entering Thailand, the applicant must have accumulated money deposited in Thai bank located in Thailand not less than 3 million baht within 1 year (Ref. Royal Thai Embassy, Tokyo, <http://site.thaiembassy.jp/en/visa/type/9513/>, Accessed 2 Jan 2021)

iii) Calculated by 1USD=31.05 THB using mid rate in 2019 amongst commercial banks in Bangkok Metropolis (Ref. Bank of Thailand. Rates of Exchange of Commercial Banks in Bangkok Metropolis. https://www.bot.or.th/App/BTWS_STAT/statistics/ReportPage.aspx?reportID=123&language=eng, Accessed 30 Dec 2020)

iv) As of January 2021, due to COVID-19, all the foreign visitors to Thailand are required health insurance policy with a minimum coverage of 100,000 USD including medical treatment related to COVID-19 for the intended period of stay in Thailand.

v) Calculated by 1USD=105.79 JPY using mid rate in 2014 at Tokyo Foreign Exchange Market (Ref. Bank of Japan. Reference - Transaction condition at Tokyo Foreign Exchange Market (in 2014). <https://www.boj.or.jp/statistics/market/forex/fxdaily/ex2014.pdf>. Accessed 2 Jan 2021)

Figures

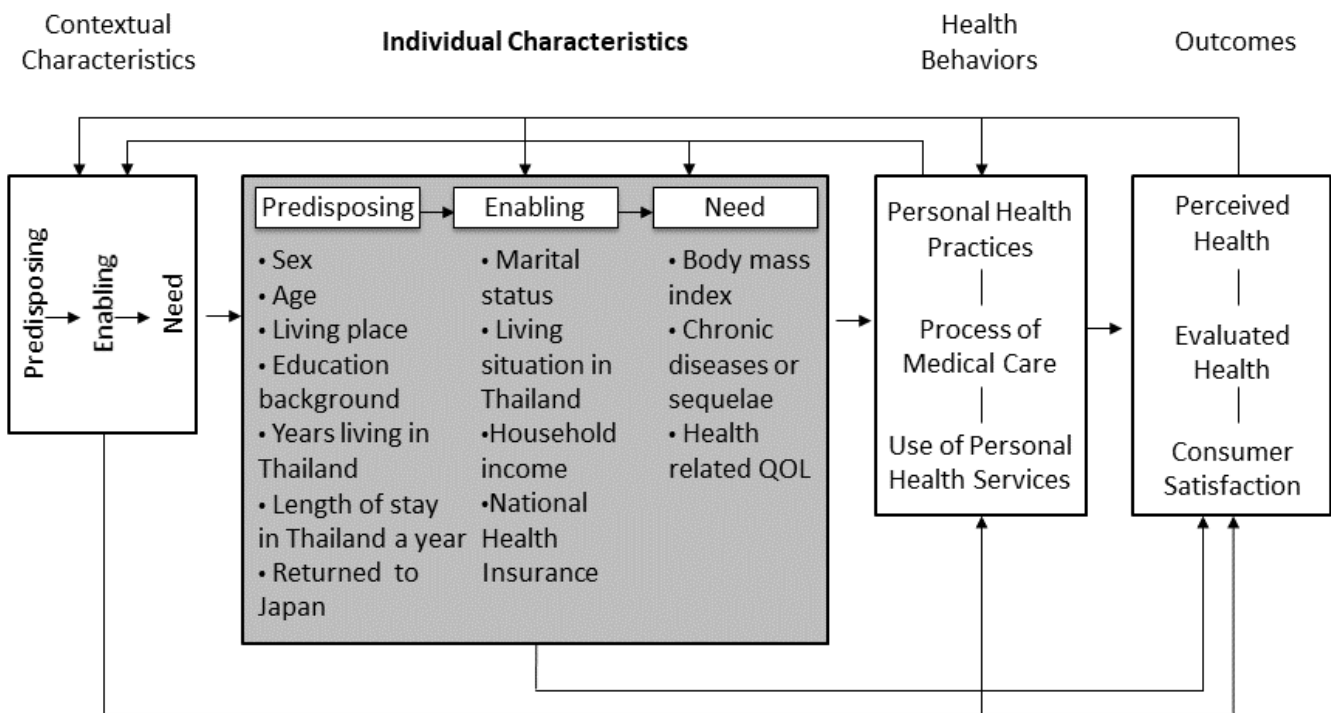


Figure 1

Variables in the research based on Andersen's Behavior Model

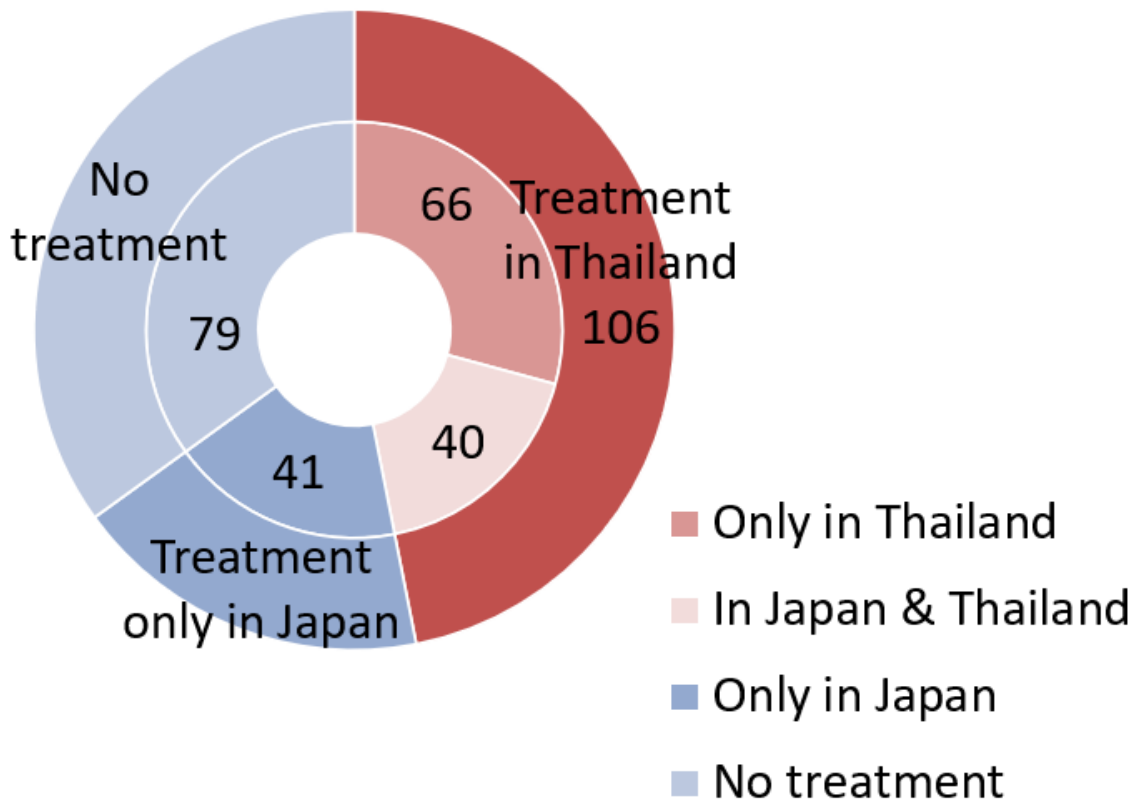


Figure 2

Distribution of healthcare service use of the participants