

FACTORS ASSOCIATED WITH TRAVEL RELATED HEALTH PROBLEMS AMONG JAPANESE TRAVELERS IN THAILAND

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ABSTRACT: This cross sectional study whose main objective was to explore factors associated with travel related health problems among Japanese travelers in Thailand, involved 394 respondents, aged above 18 years, purposively sampled and departing Suvarnabhumi Airport. A self administered pretested questionnaire was used to collect data. Univariate analysis was done using Chi square test and independent samples t-test. Multivariate analysis was done using binary logistic regression. The dependent variable was travel related health problem (s) among the travelers while in Thailand. Majority of the travelers had no vaccination for the trip (95.4%), did not access pre-travel health information (64.5%), did not consult a travel health clinic before travel (93.9%) and had high attitude on travel health (80.7%) and had medium knowledge on travel health (64.4%). Eating street food was the most common travel health risky practice (35.5%). About 32% of the travelers reported having developed a health problem while in Thailand. Diarrhea/lower abdominal pain (13.8%) was the most common health problem. Multivariate analysis showed negative association between health problems and age ($p=0.005$) and positive associations between health problems and eating street food ($p=0.001$) and drinking un-bottled/un-boiled or un-filtered water ($p=0.001$). Health problems among Japanese travelers in Thailand are related to food and water consumption with young people being at higher risk. Providing more information about travel health to Japanese travelers, educating them on the food and water safety during travel with special attention to youth, and promoting hygienic practices in food handling among street food vendors in Thailand are recommended.

Keywords: travel related health

INTRODUCTION: Every year, about 50 million people from the industrialized world travel to tropical or subtropical destinations, where they encounter different cultures, social habits, economic standards and microbiological environment¹. International travel can pose various risks to health, depending on the characteristics of both the traveler and the travel. Health risks may arise in areas where accommodation is of poor quality, hygiene and sanitation are inadequate, medical services are not well developed and clean water is unavailable². Factors which determine the risk of exposure to diseases among travelers include the destination, duration and season of travel, purpose of travel, standards of accommodation and food hygiene, behavior of the traveler and his/her underlying health, degree of endemic city in the area visited and the preventive measures taken^{2,3}. Studies have revealed low level of knowledge in travel health among at risk travelers, poor attitude towards travel health and low perception towards health risks in high risk travel destinations¹, and poor compliance with recommended travel health practices⁴. Thailand

has long been the top destination for Japanese in South East Asia with more than 1 million Japanese travelers visiting the country annually since 1999⁵. It is important for Japanese traveling abroad to be aware of travel-related health issues. A few studies have been conducted on travel related health problems faced by Japanese travelers in Thailand. Previous studies were focused mainly on diarrhea^{6,7}. The study aimed to provide baseline on travel related health problems among Japanese travelers in Thailand and the associated factors. The study will be helpful in developing information for Japanese travelers which will contribute towards preventing health problems and achieving quality tourism experience in Thailand.

MATERIALS AND METHODS: This was a cross sectional study of purposively sampled Japanese travelers aged more than 18 years, who had stayed in Thailand for a minimum of 4 days and maximum of 90 days and departing through Suvarnabhumi Airport. A sample size of about 400 was calculated taking into account the probability of having disease which was taken at

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maximum variance of 0.5, and acceptable error of precision of 0.05 and non response rate of about 10%. In total, 394 (98.5%) respondents completed questionnaires. The questionnaire which was self administered with the lead researcher being onsite to offer clarification if need be, was validated, pre-tested and translated into Japanese. Independent variables were socio-demographic factors, knowledge on, and attitude towards travel health and travelers' local activities. Travel related health problem (s) was the dependent variable. Knowledge on travel health was based on participants' responses to 7 multiple choice questions. Points for each question ranged from 0 to 2. Attitude towards travel health was assessed by asking participants on whether they strongly agreed, agreed, undecided, disagreed or strongly disagreed with 8 statements related to travel health. Scores ranging from 1 to 5 (better attitude) were awarded based on the response to the specific question. Travel-related health problems were defined as self-reported health problems outbound travelers picked up in Thailand. Data were analyzed using SPSS version 16. Bivariate analysis was done using Chi-square and independent samples t-tests and variables which had p values less than 0.15 were included in multivariate analysis which was done using binary logistic regression. The variables were gender, religion, age, marital status, staying in another country before Thailand, staying only in urban area, occupation, number of days stayed in Thailand, accommodation, consulted travel clinic for the trip, eat street food, drink un-bottled/un-boiled/un-filtered water, activities involving contact with animals and knowledge score. Step by step and starting with the ones with the highest non significant p values, variables were excluded from the model until the final results (Table 3) were arrived at. The study protocol was approved by Chulalongkorn University Ethical Review Committee. Permission to conduct the study at the airport was obtained from relevant authorities and informed consent was obtained from participants.

RESULTS:

Socio-demographic characteristics: Most travelers were male (58.6%), had completed college/undergraduate studies (42.7%), earned an annual income of less than 3 million Yen (55.2%), were visiting Thailand for the first time (55.5%) and were visiting for holiday (not shown). Majority of the respondents were aged less than 24 years (29.7%), either government or company employees (37.9%), single (52.2%) and had not stayed in another country after leaving Japan and before coming to Thailand (89.65) - Table 1.

Travelers' local activities: About 22% of the respondents reported having participated in activities that involve contact with animals. A significant proportion of the travelers (13.3%) were involved in sexual activities. About 18% reported having had casual sex in Thailand. Out of these, 4.8% did not use a condom every time they had sex. Respondents who reported having ever eaten street food while in Thailand were 36% while 2.8% reported drinking un-bottled/un-filtered or un-boiled water. Most respondents had stayed in Thailand for only 4 days (62.2%), had stayed only in urban areas (82.6%), had stayed in hotels/resorts (82.4%) - Table 2.

Attitude towards and Knowledge on travel health: Most travelers (80.7%) attained an attitude score of more than 30 (maximum 40). The mean score for attitude was 34.0 with a standard deviation (SD) of 4.5. Most participants (64 %) earned 6-10 scores (maximum 14) on knowledge. A significant proportion of participants (19.7%) attained scores of less than 6. The mean score for knowledge was 7.7 with a SD of 2.7.

Health problems reported by Japanese travelers in Thailand: Travelers who reported at least one travel related health problem were 126 (32.1%). Fifty four (13.8%) travelers reported diarrhea/lower abdominal pain, 43 (11.0%) reported skin symptoms, 30 (7.7%) stomach symptoms, 25 (6.4%) respiratory symptoms, 16 (4.0%) headache, 13 (3.3%) muscular/joint pain, 13 (3.3%) fever, 11 (2.8%) eye problems, 7 (1.8%) loss of appetite and 5 (1.3%) injury. Among those who had health problems, majority (47.6%) took

no medication with only 6.3% seeking treatment from a health facility.

Bivariate analysis of the associations between socio-demographic characteristics and travel health problems:

There was significant association between travel health problems among Japanese travelers and age ($p=0.001$). The highest rate of diarrhea was in travelers aged below 24 years (43.6 %) with the lowest rate being in those aged above 64 years (19.1%). Occupation was significantly associated with travel health problems ($p=0.02$). Students had the highest rate of health problems (42.5%). A significant association between marital status and health problems was observed ($p=0.001$) with single respondents having the highest rate of health problems (40%). Place of stay, and staying in another country before Thailand, were also significantly associated with health problems among the travelers (Table 1). There were no associations between health problems among the travelers and gender, education level, personal annual income and number of times visited Thailand (p values >0.05)

Bivariate analysis of the associations between travel health practices and travel health problems:

There was no significant association between vaccination and access to information on travel health, and travel related health problems among the travelers. Consulting travel health clinic before the trip was marginally associated with travel related health problems ($p = 0.053$). The rate of health problems was higher in travelers who consulted travel clinics before the trip (50%) than in those who didn't (31%).

Bivariate analysis of the associations between traveler's local activities and travel health problems:

There was a strong association between eating street food and travel related health problems among the travelers ($p<0.001$). Travelers who ate street food (77.6%) had a higher rate of health problems (49.6%) than those who did not (22.5%). There was also a strong association between the type of water drunk by the travelers and travel related health problems ($p<0.001$). Travelers who drunk only

Table 1 Associations between socio-demographic characteristics and travel health problems among Japanese travelers, by chi-square tests

Factor	%	Traveler had health problem N (%)		P value
		No	Yes	
Age (N = 394)				0.001
<24	29.7	66 (56.4)	51 (43.6)	
25-34	16.5	40 (61.5)	25 (38.5)	
35-44	7.4	18 (62.1)	11 (37.9)	
45-54	14.5	40 (71.4)	16 (28.6)	
55-64	19.8	64 (82.1)	14 (17.9)	
>64	12.2	38 (80.9)	9 (19.1)	
Occupation (N = 393)				0.020
Student	28.8	65 (57.5)	48 (42.5)	
Government/company employee	37.9	102 (68.9)	46 (31.1)	
Self owned business	10.4	29 (70.7)	12 (29.3)	
Unemployed	22.9	70 (77.8)	20 (22.2)	
Current marital status (N = 391)				0.001
Married	44.1	133 (77.8)	38 (22.2)	
Single	52.2	120 (60.0)	80 (40.0)	
Divorced	4.9	12 (63.2)	7 (36.8)	
Stayed in another country before Thailand (N = 393)				0.002
No	89.6	247 (70.4)	104 (29.6)	
Yes	10.4	19 (46.3)	22 (53.7)	

bottled/filtered or boiled water had a lower rate of health problems (28.1%) than those who did not (67.5%). The rate of health problems increased with duration of stay ($p<0.001$). Type of accommodation was significantly associated with health problems. Those who stayed in hostels/budget hotels had the highest rate of health problems (59.6%). These results are shown in Table 2. A significant association was found between participating in activities involving contact with animals and health problems among travelers ($p=0.024$). The rate of health problems among travelers who participated in activities involving contact with animals was higher (42%) than in travelers who did not involve in such activities (29.3%).

Bivariate analysis of associations between knowledge and attitude towards travel health and travel related health problems among Japanese travelers: Independent samples t test was used to assess the association between knowledge and attitude scores and travel related health problems. The mean knowledge score of travelers who had no health problem was 7.48 while that for those who had was 8.03. This difference was marginally significant ($p=0.06$). There was no

association between attitude and travel related health problem among the travelers ($p=0.95$)

Multivariate analysis of factors associated with travel related health problems among Japanese travelers in Thailand:

While controlling for other factors; traveler's age, eating street food and drinking un-bottled/un-boiled/un-filtered water were significantly associated with travel related health problems among the travelers. There was a strong negative association between age and travel related health problems ($p=0.005$). The odds of travel related health problems were 2.3 times higher in travelers who ate street food than in those who didn't ($p=0.001$). Not drinking bottled/boiled/filtered water was positively associated with health problems ($p<0.001$). Staying in urban area had marginally significant association with health problems ($p=0.052$). Number of days spent in Thailand, place of stay and staying in another country before coming to Thailand had no significant association with travel related health problems among the travelers (Table 3).

Table 2 Associations between local activities and travel related health problems among Japanese travelers, by chi-square tests

Factor	%	Traveler had health problem N (%)		P value
		No	Yes	
Eat street food (N = 392)				<0.001
No	22.4	196 (77.5)	57 (22.5)	
Yes	77.6	70 (50.4)	69 (49.6)	
Drink only bottled/boiled/filtered water (N = 392)				<0.001
Yes	92.3	253 (71.9)	99 (28.1)	
No	7.7	13 (32.5)	27 (67.5)	
Duration of stay in days (N = 394)				<0.001
4	62.2	184 (75.1)	61 (24.9)	
5-7	19.5	48 (63.2)	28 (36.8)	
8-14	11.7	23 (51.1)	22 (48.9)	
>14	6.6	11 (42.3)	15 (57.7)	
Staying only in urban area (N = 391)				0.001
No	17.4	34 (50.0)	34 (50.0)	
Yes	82.6	231 (71.5)	92 (28.5)	
Accommodation (N = 392)				<0.001
Hotel/resort	32.3	234 (72.4)	89 (27.6)	
Budget hotel/hostel	47	19 (40.4)	28 (59.6)	
Family/friends house	22	13 (59.1)	9 (40.9)	

Table 3 Multivariate analysis of factors associated with travel related health problems among Japanese travelers in Thailand

Factor	B	Adjusted OR	95% CI	P value
Age	-0.021	0.980	0.966 – 0.994	0.005
Stay in another country before Thailand	0.400	1.492	0.691 – 3.225	0.309
Staying in urban area only*	0.603	1.828	0.994 – 3.361	0.052
Number of days spent in Thailand	0.017	1.017	0.998 – 1.036	0.085
Eat street food**	0.821	2.274	1.392 – 3.715	0.001
Drink bottled/filtered/boiled water	1.337	3.806	1.774 – 8.167	0.001

* No compared to yes ** Yes compared to no

DISCUSSION: Most participants were students, aged 18-24 years, and earned less than 3 million Yen. This could be because the period of data collection coincided with the season of graduation trips for Japanese university students. Most travelers traveled to Thailand for 4 days most likely because most of economical package tours from Japan to Thailand are organized for a minimum of 4 days. About 83% of participants stayed only in urban areas which could again be due to the tour package. About 32% of the travelers developed a travel related health problem. The most common health problem was diarrhea/lower abdominal pain (13.8%). Similar findings have been reported elsewhere⁸). The reported rate of diarrhea/lower abdominal pain is lower than the rate of travelers' diarrhea among Japanese tourists visiting Thailand reported in other studies^{6,7}). The discrepancies could be related to differences in study areas and operational definitions of diarrhea. Among the travelers who developed health problems, 47.6 % took no medication possibly because the problems were mild. All socio-demographic factors included in multivariate analysis except age, lost significant association with health problems among travelers. The risk of health problems decreased with age. This is consistent with other studies^{9,10}). Young people may be less informed about travel health and may be more adventurous and more likely to participate in activities which predispose them to health problems than older people. Only 4.6% of travelers were vaccinated for the trip probably because of no vaccination requirements for

Japanese visiting Thailand¹¹). A few (6.1%) travelers had consulted a travel clinic before their journey, a rate lower than what has been found in Europe⁴). This could be because travel clinics are not popular in Japan. About 36% of the travelers had accessed travel health information before their trip to Thailand with a majority (50.4%) accessing the information from private sources. This highlights the significant role played by the private sector in providing information on travel health to travelers. A study in Australasia showed low levels of consulting a medical personnel and taking vaccinations before travel⁴). Eating street food and type of drinking water had significant association with health problems among the travelers by multivariate analysis. The mean score for attitude was 34 revealing a general good attitude towards travel health which can be important in compliance with travel health recommendations. In this study, there was no association between attitude and health problems among the travelers. This was probably because those with negative attitude towards travel health did not necessarily practice risky behaviors. The mean score of knowledge on travel health was 7.7 (maximum 14). This level of knowledge could be because most of the questions asked were related to tropical diseases which are not common in Japan. In conclusion, travel health problems among Japanese travelers in Thailand are related mainly to food and water consumption and the risk decreases with age. Weaknesses of this study include lack of clinical or laboratory confirmation of reported health

problems, potential for recall bias and limited generalizability - given convenience sampling. Providing more information about travel health to Japanese travelers, educating them on the food and water safety during travel with special attention to youth, and promoting hygienic practices in food handling among street food vendors in Thailand are recommended.

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