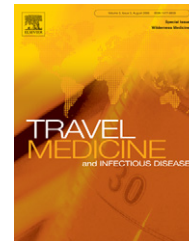




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Health problems among international travellers: From a subtropical region to tropical and non-tropical regions

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KEYWORDS

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Summary

International travel may be associated with the risk of a wide range of infectious diseases. This study was designed to obtain information on the health problems among international travellers from a subtropical region to the neighbouring tropical, subtropical, and temperate regions. Health problems among international travellers from Taiwan to the Philippines, Malaysia, Indonesia, Singapore, Vietnam, Thailand (tropical group), Hong Kong, Macao, China and Japan (non-tropical group) were surveyed through the telephone. Of 649 travellers surveyed, 8.2% had one or more health problems and insect bite (3.4%) and coughing or sore throats (3.2%) were the most important symptoms. The rate of coughing or sore throats was significantly higher among those returned from the non-tropical regions. However, no associations were found between health problems and the demographic factors, travel style or travelling duration of travel.

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Introduction

International travel, especially to the developing countries, may be associated with the risk of infectious and non-infectious diseases. Among the infectious diseases, traveller's diarrhoea is the most common and affects 20% to more

than 50% of travellers. Although enterotoxigenic and enteroaggregative *Escherichia coli* and *Shigella* spp. are the most common aetiologic agents, traveller's diarrhoea may also be caused by a wide range of bacteria, protozoa, viruses and parasites.^{1,2} There are no satisfactory chemoprophylactic measures for this disease.³

In addition to traveller's diarrhoea, mosquito borne infections such as malaria,⁴ dengue^{5,6} and yellow fever⁷ are not uncommon among the international travellers to the tropical regions. In addition, schistosomiasis has also been reported among those travellers returning from endemic

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regions.⁸ Since fever is the most important acute manifestation of these diseases, differential diagnosis of febrile illness among international travellers is important.^{9,10}

Although the health problems among international travellers are well-documented, these reports were based mainly on the information of travellers from the Western countries to developing countries in the tropical regions.^{4-7,9,11} This study was designed to obtain information on the health problems among international travellers from a subtropical region to the neighbouring tropical, subtropical and temperate regions.

Methods

The study population was travellers (aged over 15 years) returning from the neighbouring Asian regions and entering the Kaohsiung International Airport in November 1999. A random sample of 150 travellers was selected from each of nine airlines (from the Philippines, Malaysia, Indonesia, Singapore, Vietnam, Thailand, Hong Kong, Macao, and

Japan). Telephone numbers of these travellers were obtained from the airport.

Within 4 weeks after returning, each traveller was asked to reply to a structural questionnaire via the telephone. This included four main parts: demographic information, travel style, duration of travel and health problems during and after travel.

Rates were compared using the χ^2 test. $P < 0.05$ was considered to be statistically significant.

Results

Valid and complete information was obtained from 649 (48%) of 1350 travellers surveyed: 504 from Southeast Asian countries (tropical group) and 145 from China, Hong Kong, Macao and Japan (non-tropical group). There were no significant differences in the demographic factors and the travel style between the two groups ($P > 0.05$) (Table 1).

Among the 649 travellers surveyed, 53 (8.2%) were found to have one (6.9%), two (1.1%) or three (0.2%) health

Table 1 Demographic data, travelling style and travelling duration among 649 international travellers.

Item	Returned from					
	Tropical regions (n = 504)		Non-tropical regions (n = 145)		Total (n = 649)	
	No.	%	No.	%	No.	%
Male sex	246	48.8	78	53.8	324	49.9
Age > 40 years	211	41.9	62	42.8	273	42.1
Education < 12 years	291	57.7	70	48.3	361	55.6
Annual income < NT\$400,000	308	61.1	88	60.7	396	61.0
First international travel	83	16.5	22	15.2	105	16.2
Arrangement by travel agency	368	73.0	115	79.3	483	74.4
Travel duration \geq 10 days	51	10.1	21	14.5	72	11.1
Outdoor activities > Indoor activities	321	63.7	96	66.2	417	64.3

Tropical regions: The Philippines, Malaysia, Indonesia, Singapore, Vietnam and Thailand; Non-tropical regions: China, Hong Kong, Macao and Japan.

Table 2 Health problems during travelling among 649 international travellers.

Health problem	Returned from					
	Tropical regions (n = 504)		Non-tropical regions (n = 145)		Total (n = 649)	
	No.	%	No.	%	No.	%
Insect bite	19	3.8	3	2.1	22	3.4
Coughing or sore throats*	10	2.0	11	7.6	21	3.2
Abdominal pain	4	0.8	1	0.7	5	0.8
Fever	4	0.8	0		4	0.6
Headaches or muscle and joint pain	2	0.4	2	1.4	4	0.6
Vomiting or nausea	3	0.6	0		3	0.5
Diarrhoea	1	0.2	1	0.7	2	0.3
Lymph node swelling	0		1	0.7	1	0.2
Total	38	7.5	15	10.3	53	8.2

Tropical regions: The Philippines, Malaysia, Indonesia, Singapore, Vietnam and Thailand; Non-tropical regions: China, Hong Kong, Macao and Japan.

* χ^2 test: $P < 0.01$.

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