

ORIGINAL ARTICLE

Health Problems of the International Travellers Visiting Agra City

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Abstract

Background: International travel to India is on the rise and the travellers comprise a diverse group of individuals in terms of their country of origin, preferences and risk taking behaviour. Different environment coupled with all other factors makes them more vulnerable to health problems. **Aims & Objectives:** To find out the health problems faced by the international travellers visiting Agra City, their perception and the factors associated with them. **Material & Methods:** Cross – sectional study design was used and International travellers in the age group 15 to 65 years were recruited from prominent tourist places and train stations of Agra, which was sometimes during their tour and just before their departure respectively. Data collection was carried out for a period of six months i.e. from November 2015 to April 2016. **Results:** Out of the total 422 study subjects, 208 (48.2%) faced one or more health problems. Primary purpose of visit (religious, educational, visiting friends and relatives) and the duration of visit (more than two weeks) were found to be significantly associated with a negative health outcome. Diarrhoea (131, 63%), fever (87, 41.8%) and respiratory problems (50, 24%) were the most frequent problems and many of them had more than one problem. A majority of the participants perceived the risk of health problems to be high and more than half of the them reported having experienced culture shock (57.4%). **Conclusions:** There may be a need for a travel clinic at the destination. The benefit of such a new offer must be validated.

Keywords

Travel Medicine; Emporiatrics; Pre-Travel Advice; International Travellers; Travellers' Diarrhoea

Introduction

When a person moves out of the familiarity of his home to visit foreign lands and exploring the culture, he feels liberated from the daily chores and routine and we all know that it is a soul-enriching experience but along with all the goodness comes the risk of certain health problems according to the destination and practices of the travellers itself.

Travelers face special health risks. Firstly, they are subject to disorders induced by rapid changes of environment; secondly, in developing countries they are exposed to certain infectious diseases that may not exist in their home countries; and, thirdly, they are separated from familiar and accessible sources of medical care.

Rates of international travel continue to grow substantially as for India, International travel to India

is predicted to grow at an average annual rate of ~8% over the next decade. It has been estimated that about 80 million travellers go annually from the developed to the developing countries. (1) Poor socioeconomic conditions, inadequate sanitation facilities, and extreme cultural and climatic differences between country of origin and travel destinations have contributed to increased Travel related adverse health outcome. (2)

As a result of the rapid expansion in international travel and to deal with the challenges of Travel related morbidity and to prevent it. The branch of Travel Medicine or Emporiatics has emerged and is increasingly in practice. (3) Travel Medicine or Emporiatics can be defined as the branch of medicine that deals with the prevention and the management of the health problems of international travellers. (1)

International Society of Travel Medicine (ISTM) was founded in 1991 and ISTM in collaboration with US Centre for Disease control (CDC) gave birth to a worldwide communication and data collection network known as GeoSentinel for the surveillance of travel related morbidity in the year 1995. It has two subsets currently CanTravNet and EuroTravNet. Also, WHO published the first edition of 'International Travel and Health' in the year 2002 whose latest edition was published in the year 2012 with updates to various chapters in 2015.

Similarly, many institutions, organization and individuals conducted many studies and over the period of time enriched the literature regarding travel medicine. This cross – sectional study was planned to find out the health problems that the international travellers face during their travel to Agra City, their perceptions and the factors associated with them.

Aims & Objectives

To find out the health problems faced by the international travellers visiting Agra City, their perception and the factors associated with them

Material & Methods

The current study was carried out amongst the international travellers visiting Agra city during the study period (Data collection was carried out for a period of six months i.e. from November 2015 to April 2016). This was a Cross-sectional study. The recruitment of the participants was done at the exit gates of the historical monuments (Taj Mahal and Agra Fort) while they were coming out and from the

waiting areas of the railway stations (Agra Cantt. and Agra Fort). Before start of the interview, the participants were explained the purpose of study and the nature of questions in the questionnaire, participation in the survey was on a voluntary basis. An easily understandable, informed written consent was taken from the participants in English and their confidentiality was maintained. After establishing rapport and obtaining written informed consent from participants, the information was recorded in a structured, pre-designed and pre-tested, self-administered questionnaire in which information regarding demographic details, travel profile, perceptions and practices and the reported health problems faced by the international travellers were noted. A total of 422 international tourists were enrolled during the study period. The minimum sample size was estimated to be 384 assuming an estimated prevalence of 50% and the level of significance set at 5% with 90% power. Subjects eligible to participate in the study were identified as per following inclusion-exclusion criteria. Inclusion criteria: All international travellers aged 15 to 65 years, giving valid consent (Parents can give consent for children less than 18 years). Exclusion criteria: Those who could not read, speak and understand English. Ethical Issues: Approval was taken from the institutional Ethics Committee and U. P. Tourism Office, Agra, Uttar Pradesh, informed written consent was taken from the participants.

Pilot study: After finalizing the methodology and designing the study tool, a pilot study was undertaken among 50 subjects to assess the acceptability and understanding and to reformat the questionnaire which was also reviewed by experts. These 50 participants were also included in the final analysis of the study. Necessary modifications required, were done in the questionnaire before starting the actual study.

Data Processing and Analysis: The information collected on the study schedule was transferred on the pre-designed classified tables in Microsoft excel sheet and then it was cleaned for missing values and typing errors. After which it was imported in to Statistical package for social sciences (SPSS free version 22) dataset and various analysis were run as per suitability and our Aim and Objectives. The results were thoroughly discussed and represented by suitable methods. Health outcomes were based on reported illness patterns involving syndromic groupings and symptom-based grouping by affected

organ-system. In our evaluation, proportionate morbidity refers to the number of cases of a specific health outcomes compared with all cases of ill travellers seen during the same period. Statistical analysis: The results are reported as a proportion with 95% Confidence Interval. The p-value less than 0.05 was considered statistically significant.

Results

Of the 422 participants, majority were in the age group 16 to 40 years (81.5%) with the mean age being 29.78 (± 11.22) years. Overall sex wise distribution of study subjects shows that the number of females were slightly higher (52.4%) than males (47.6%). (Table 1). A little less than half of all the participants were from the European continent (47.8%), North America (30.2%), Asia (11.1%) and Australia (6.2%) followed. (Table 2). The Primary purpose of visit of a majority of the participants was Pleasure or Recreation (66.1%), although a notable number were also visiting for work (17.3%) and academic purposes (8.5%). (Table 3) Three fourth of all participants (319, 75.6%) sought Pre-travel health advice. Out of the 319 participants who received Pre-Travel advice 69.9% were advised for the prevention of malaria, 75.5% for food borne infections and 61.7% for immunization. Most of the participants who received PTA got professional advice from a Travel clinic or a General Practitioner (42.4% and 38.2% respectively). It was seen that participants who received Pre-travel advice from a Travel clinic were more likely to receive a comprehensive advice on the three important domains namely prevention of malaria (74.8%), foodborne infections (73.3%) and immunization (63%) (Table 4)

Around four-fifth of all participants (346, 82%) perceived the risk of health problems as high or very high in comparison to the country of their origin. (Figure 1) More than half of the participants (243, 57.6%) experienced culture shock and only about a quarter (97, 23%) experienced at least a bout of rage and about every second study subject (219, 51.9%) had a feeling of insecurity during travel. Out of 219 participants who had a feeling of insecurity during travel the most common reason for the feeling of insecurity among the study subjects was found to be communication problem and crowd (58% and 47.9% respectively).

The proportion of participants having diarrhoea, primarily eating street food (34.1%) was slightly higher than in those not eating street food (31.2%)

and this association was found to be statistically significant. Participants who were travelling for religious or academic purposes (68.7% and 69.4% respectively) as well as those who were visiting friends and relatives (100%) were more prone to have health problems as compared to those who were travelling for pleasure/recreational purposes (44.8%) or work (39.7%) and this difference was found to be highly statistically significant. A higher proportion of travellers (60.1%) whose duration of stay was more than 2 weeks had health problems than those whose duration of stay was less than 2 weeks (41%) and this difference was found to be highly statistically significant.

Out of the 208 participants who had some health problem, 131 (63%) suffered from diarrhoea and 62 (29.8%) had nausea/vomiting. Those who had both diarrhoea, nausea/vomiting along with abdominal cramps, collectively known as Classic travellers' diarrhoea were 47 (22.5%). In order of decreasing proportionate morbidity this was followed by participants having fever 87 (41.8%) out of which 26 (12.5%) had chills along with fever. Respiratory problems i.e. cold and cough, Skin problems i.e. sunburn etc. and Urinary tract infections followed (24%, 20.6% and 8.7% respectively). (Figure 2)

Discussion

In the present study, 81.5% of the participants were in the age bracket of 16 to 40 years. The mean and median age of participants was 29.8 (SD=11.2) years and 26 (15-62) years respectively and the number of females and males were found to be almost equal in the present study. Similar results were obtained by other studies. (4,5,6,7) Most of our study participants were from the European continent (47.8%) followed by North America and Asia (30.2% and 11.1% respectively) while Australia, Africa and South America contributed 10.9% of the participants altogether.

In the present study, the most common Primary purpose of visit was found to be Pleasure or Recreation (66.1%) followed by Work (17.3%), Academic purpose (8.5%) and Visiting friends and relatives (VFR) which was least common (4.3%). Many other studies have reported similar results. (4,6,5,9)

Herck KV *et al* in 2003 and Hamer D *et al* in 2004 reported that 60% and 36% of travellers sought pre-travel advice respectively. (4,6) which is lower than the findings of the present study, this might be due

to the fact that, these studies were conducted more than a decade ago when the awareness regarding travel medicine was comparatively lower than in the present. According to the present study, the main sources of pre-travel advice were travel clinics (42.4%) and general practitioners (38.2%) whereas Hamer D *et al* in 2004 reported that, the main source of pre-travel advice was a general practitioner (72%) and only 10% subjects sought pre-travel advice from travel medicine specialists. (6) Herck KV *et al* in 2003 reported that only 26% sought travel health advice from travel clinics. (4) Again, this lower rate of utilization of travel medicine specialist for pre-travel advice as compared to the present study may be accounted by the relatively lower level of awareness regarding travel medicine and lesser number of travel clinics at the time these studies were conducted which was more than a decade ago.

In conclusion, not all the travellers are seeking pre-travel advice as evident from the findings of the present study and travellers who do seek pre-travel advice, majority of them (57.6%) do so from practitioners who are not specifically trained to counsel patients on travel-related health risks. It was observed in the present study that participants who received Pre-travel advice from a Travel clinic were more likely to receive a comprehensive advice on the three important domains namely prevention of malaria (74.8%), foodborne infections (73.3%) and immunization (63%).

The present study reported, that most of the participants (82%) perceived the Risk of Health problems in India as high, compared to their own country. There were also a few who believed that the risk is less (4.5%) or similar (13.5%) as compared to their country of origin. The present study reports that more than half of the participants experienced culture shock (57.6%). It is presumed to be because of the vivid cultural profile and the vast differences that India has with the western world in terms of customs and cultural practices. A bout of rage is an expressive outburst due to frustration and a number of repeated bad experiences in one single tour or due to poor health and being unable to cope up with the dynamics associated with travel, the present study observed 23% of the participants experienced a bout of rage.

A staggering 50% of the participants had a feeling of insecurity during travel as observed in the present study, which is quite natural given that a person moves out of his familiar environment in to a

relatively alien country during travel. An attempt to know the reasons why a traveller feels insecure in India revealed that communication problems, crowd, worries of theft, indecent gestures and ogling were the main causes for insecurity. It is important here to stress that communication problem (58%) and crowd (47.9%) were the most common reasons of insecurity but they are not the most alarming ones, as they could be expected at any destination in the world but indecent gestures and ogling (27.4%, 21.5% respectively) are supposed to be worse, as it is not a culturally accepted practice in most of the countries.

On the basis of questionnaire responses about four-fifth of the participants (82%) were vaccinated for one or more of the WHO recommended vaccines for travellers to India. Of those vaccines, Hepatitis A was the most common (68.2%) followed by Hepatitis B (60.2%), Tetanus (59.5%) and Typhoid (53.3%). Yellow fever vaccine which although is not a recommended vaccine for travel to India was received by 38.9% participants, because not all of them must be coming from a Yellow fever endemic country. Herck KV *et al* in 2003 reported that 51% of all travellers were considered immune against tetanus; 37% against hepatitis A; 25% against typhoid; 5% against rabies; and 2% against hepatitis B. (4) This low level of vaccination among the participants of the said study can be presumed to be because it was conducted 13 years ago, at which time there was comparatively less awareness regarding travel related infectious morbidity which culminated in to decreased uptake of vaccines.

Around one-fifth 17.5% of the participants in the present study reported using chemoprophylaxis for malaria which is very less as compared to the findings of a study by Chatterjee S in 1999 in which he found out that 74.0% of the study participants were using chemoprophylaxis. (13) The decrease in the usage of malaria chemoprophylaxis might be attributed to the fact that there exist multiple guidelines from WHO involving different drug regimens like mefloquine, doxycycline, atovaquone-proguanil and chloroquine which causes a state of confusion amongst travellers which in turn leads to decreased compliance and renders the chemoprophylaxis ineffective anyway as also stated by RH Behrens in 2006 in a commentary. (14) Also, noncompliance is inevitable when patients perceive the side effects to be more of a burden than the disease. The present study reported that there was

no statistically significant association between receiving Pre-Travel advice and Health problems during travel although the proportion of participants who had health problems (51.4%) was found to be higher in the group who did not receive Pre-Travel advice as compared to those who did receive Pre-Travel advice (48.6%). Contrary to these findings Chatterjee S in 1993 in his study amongst 452 international travellers in Kolkata in the year 1990 reported that less illness was reported by those taking Pre-Travel advice. (17) Similar findings about the benefits of Pre-Travel consultation were reported by Schlagenhauf P *et al* (2015) that it was associated with significantly lower proportionate morbidity ratios for certain diseases like P falciparum malaria, acute hepatitis and HIV/AIDS. (12)

Out of the 208 participants who had some health problem 63% suffered from diarrhoea and 29.8% had nausea/vomiting. Around one-fourth (22.5%) had both diarrhoea, nausea/vomiting along with abdominal cramps, collectively referred to as Classic travellers' diarrhoea. In order of decreasing proportionate morbidity this was followed by participants having fever 41.8%. Respiratory problems i.e. cold and cough (24.0%), Skin problems i.e. sunburn etc. (20.6%) and Urinary tract infections (8.7%). The percentage of participants having Genital ulcer and Heat exhaustion were 5.7% and 4.8% respectively. Other authors have also reported similar findings. (9,17,18,19)

The proportion of participants having diarrhoea amongst those who were primarily eating street food (34.1%) was statistically significantly higher as compared to those who were eating food primarily from other sources viz. Hotel/Other restaurants (31.2%). Despite the statistically significant difference it can be observed that a substantial proportion of participants who were avoiding street food also suffered from diarrhoea, the reason for it might be asserted to the low hygiene standards of even the brick and mortar restaurants and it could be said, that the efficacy of precautionary measures like avoiding street food as protection against diarrhoea is debatable and one study involving low-budget lengthy travel in India also found no correlation. (20) In the present study, participants who were travelling for religious or academic purposes (68.7% and 69.4% respectively) as well as those who were visiting friends and relatives (100%) were more prone to have health problems as compared to those who were travelling for pleasure/recreational

purposes (44.8%) or work (39.7%) and this difference was found to be highly statistically significant. This might be a reflection of a comparatively better planned travel itinerary of the participants who were travelling for Pleasure or recreational purposes and Work as compared to other groups of travellers.

In the present study, a higher proportion of travellers whose duration of stay was more than 2 weeks had health problems (60.1%) than those whose duration of stay was less than 2 weeks (39.9%), this could be explained by the fact that more the exposure to the risk factors of a disease, more is the outcome and also a longer time allows incubation period of many diseases to complete so that their manifestations starts to appear. The most common action, in response to the health problem faced by the participants was self-medication (51%), followed by doing nothing (23.1%) in response and seeking treatment locally (14.4%).

Conclusion

These findings suggest that about half of the travellers were having health problems and half of them were relying on self-medication for the health problem(s) they faced and a little less than one-fourth did nothing which might be due to lack of awareness or ignorance regarding the health problems and it might lead to aggravation of symptoms.

Recommendation

The international travellers comprise of a diverse group of students, tourists, businessmen etc. So, it will be prudent to consider designing a comprehensive travel health program and/or establishing Travel clinics in places frequented by travellers to address their health needs and similar studies need to be carried out to better understand the Health problems of the travellers and the factors which affect them.

Limitation of the study

Since, this study is based on traveller's recall of events during visit, the disease burden is probably an underestimation moreover the health problems were reported by the participants which might be the subjective judgement of an individual regarding the presence and severity of a disease.

Relevance of the study

1. The Attitude and Practices of the international travellers during their visit to Agra in response to and regarding their health problems.

2. The Health problems that they face during their visit to Agra.

Authors Contribution

All the authors have contributed equally.

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Tables

TABLE 1 AGE AND SEX-WISE DISTRIBUTION OF THE PARTICIPANTS

Age Group (years)	Males		Females		Total	
	Number	%	Number	%	Number	%
<15	2	50	2	50	4	0.9
16 to 25	75	37.4	126	62.6	201	47.6

26 to 40	74	51.7	69	48.3	143	33.9
41 to 55	33	57.8	24	42.2	57	13.5
>56	17	100	0	0	17	4
Total	201	47.6	221	52.4	422	100

TABLE 2 DISTRIBUTION OF PARTICIPANTS ACCORDING TO THE CONTINENT OF ORIGIN ALONG WITH THE MAJOR CONTRIBUTING COUNTRY FROM RESPECTIVE CONTINENTS

Country of Origin	Number of Participants	% out of the total participants
Europe	201	47.6
England	89	21.1
France	23	5.4
Netherland	18	4.2
North America	127	30.1
USA	99	23.4
Canada	15	3.5
Mexico	11	2.6
Asia	47	11.1
China	9	2.1
Malaysia	6	1.4
UAE	5	1.2
Australia	26	6.2
Africa	13	3.1
South Africa	9	2.1
Zimbabwe	4	0.7
South America	8	1.9
Argentina	6	1.4
Venezuela	2	0.5
Total	422	100

TABLE 3 DISTRIBUTION OF PARTICIPANTS ACCORDING TO PRIMARY PURPOSE OF VISIT AND TRAVEL COMPANION(S)

	Category	Number	(%)
Primary purpose of visit	Pleasure or Recreation	279	66.1
	Work	73	17.3
	Visiting friends or relatives	18	4.3
	Religious	16	3.8
	Academic	36	8.5
	Total	422	100
Travel companion(s)	Family or Friend(s)	252	59.7
	Spouse or Partner	95	22.5
	Alone	75	17.8
	Total	422	100

TABLE 4 DISTRIBUTION OF PARTICIPANTS ACCORDING TO THE CONTENT AND SOURCE OF PRE-TRAVEL ADVICE

Content Source	Malaria		Food borne infections		Immunizations	
	No.	%	No.	%	No.	%
Travel Clinic (n=135)	101	74.8	99	73.3	85	63
General Practitioner (n=122)	81	66.4	100	82	75	61.5
Friends/ Family (n=33)	16	48.5	23	69.7	20	60.6
Travel Agent (n=26)	22	84.6	16	61.5	14	53.8
Other sources (n=3)	3	100	3	100	3	100
Total (n=319)	223	69.9	241	75.5	197	61.7

Figures

FIGURE 1 DISTRIBUTION OF PARTICIPANTS ACCORDING TO THE PERCEIVED RISK OF HEALTH PROBLEMS

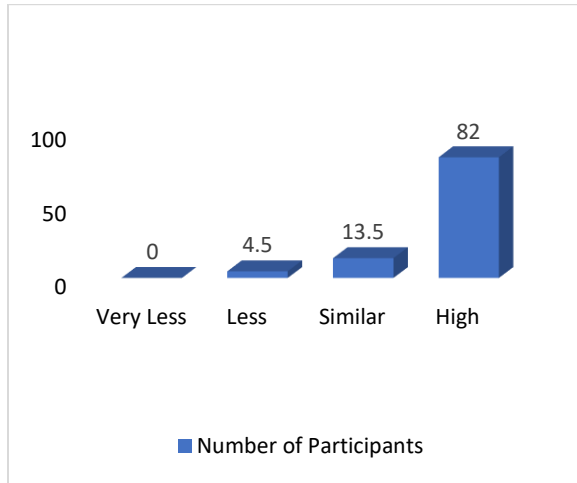


FIGURE 2 DISTRIBUTION OF PARTICIPANTS ACCORDING TO THE HEALTH PROBLEM(S) FACED

