IJTMGH
International Journal of Travel Medicine and Global Health

Int J Travel Med Glob Health. 2018 Feb;6(1):16-24
http://ijtmgh.com

doi 10.15171/ijtmgh.2018.04

Original Article

Open Access

Travel Health Survey: Risk Perception, Health-Seeking Behavior, and Subjective Evaluation of Travel Health Services in Egypt

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Received January 11, 2018; **Accepted** January 30, 2018; **Online Published** February 18, 2018

Abstract

Introduction: Travel health practice and research in Egypt lag behind both needs and demands. This study was done in two parts to assess travel health knowledge, attitude, and practice (KAP) among Egyptian travelers.

Methods: This survey was conducted at the departure halls of Cairo International Airport and included 1500 travelers to Africa (excluding North Africa), Southeast Asia, and Latin America. An interview questionnaire was used to measure the KAP of travelers inquiring about different aspects of pre-travel health. Subjective evaluations of travel health services and suggestions for improvement were also solicited.

Results: Travelers in this study were mainly males (89.3%), less than 40 years of age (82%), living in urban residences (89.1%), married (65.9%), university educated (83.3%), traveling for work (69.1%) with destinations of Africa (61.3%), Asia (28.4%), and Latin America (10.3%). They had poor travel-associated risk perception, and only 13.4% had risk management plan. Less than half (42.4%) sought information about their destination, and 11.9% sought health information; their source of information was mainly the internet (98.7%). The majority had poor scores on various travel-related practices, including seeking pre-travel health services (87.9%), receiving pre-travel vaccines (91.3%), and using malaria chemoprophylaxis (90.6%). The travel health services were rated good by 0.5% of travelers and bad, very bad, or undetermined by 11.4%, 61.3%, and 26.9% respectively.

Conclusion: Egyptian travelers, although mostly educated, had poor travel health perceptions and practices and are unsatisfied with the travel health services in Egypt.

Keywords: Travel Medicine, Egypt, Surveys and Questionnaires

Citation: El-Ghitany EM, Mohamed Abdelmohsen MA, Farghaly AG, Abd El-Gawwad ES, Abd El- Wahab EW. Travel health survey: risk perception, health-seeking behavior, and subjective evaluation of travel health services in Egypt. Int J Travel Med Glob Health. 2018;6(1):16-24. doi:10.15171/ijtmgh.2018.04.

Introduction

International civilian travel globally has experienced continued growth and expansion since the advent of modern commercial aviation in the 1950s and over the past 6 decades.[1]

The number of departures from Egypt was 4 863 000 in 2014. The inbound and outbound tourism segments witnessed positive growth in 2014, despite the sluggish growth during the global downturn.[2] Outbound travel recovered swiftly in 2011 as many Egyptians who could afford to do so left the country because of the instability. The number of departures was predicted to increase at an average annual rate of 3%.[3]

Since the 1990s, the number of scientific articles on travel medicine has increased almost threefold compared to the preceding decades, implicating the increase in the importance of and attention given by the medical profession to this discipline of infectious diseases.[4]

Many studies have highlighted the underutilization of pre-travel health advice, the lack of knowledge regarding travel medicine, and the large number of travelers that are unaware of the health risks abroad.[5,6]

The European Travel Health Advisory Board (ETHAB) utilized a knowledge, attitude, and practice (KAP) survey to assess the KAP associated with travel health. The ETHAB's study highlighted a lack of knowledge among travelers, even experienced ones, and the poor utilization of the preventive measures.[5]

Several consecutive studies investigated the KAP of travelers. Most of them used the standardized questionnaire developed by ETHAB. Almost all of these studies were conducted at international airports in various countries of the world.[7-9]

The travel health practice and research in Egypt lag behind both needs and demands. Almost nothing is known about where Egyptian travelers get their travel health knowledge, how they perceive the health risks of travel, or what measures are taken to avoid potential risks. Therefore, this study was done in two parts to assess travel health KAP among Egyptian travelers. In this first part, the current travel health-seeking behavior, risk perception, different pre-travel practices and satisfaction and evaluation of the adequacy of pre-travel health services are described and evaluated.

Methods

This study was conducted at the departure halls of Cairo International Airport. Inclusion criteria included being an Egyptian traveler, at least 18 years of age, and having a final destination of Africa, Southeast Asia, or Latin America. Passengers to North Africa were excluded from the study.

Using a power of 80% to detect a significant level of health knowledge among travelers = 23.1 %,[10] alpha error = 5%, with a precision of 3%, the minimal required sample size was calculated by Epi-Info software to be 756. Because no data for Egyptian travelers was available, it was assumed that Egyptians are less knowledgeable about travel health than Asians (a selected close reference), and the sample size was expanded to 1500 travelers.

The study design was a cross-sectional interview survey using face-to-face interviews.

Study Procedure

Development of the questionnaire: An interview questionnaire that measures the KAP of travelers was developed through an internet-based literature search on worldwide KAP studies, guided by the ETHAB standardized questionnaire,[11] and frequent meetings of the authors.

The questionnaire included 71 questions, 48 of which inquired about socio-demographic data, previous travel history, current journey details, perception of travel-associated risks, presence of risks management plans, details about the received pre-travel health services, and travel health-information seeking behavior. A subjective evaluation of travel health services and suggestions for improvement were also solicited. The remaining questions were related to vaccinations and malaria chemoprophylaxis and are discussed in the second part of this study.

Pilot Study

A pilot testing of the questionnaire was carried out from January to October, 2014, at Alexandria Fever Hospital. The questionnaire was tested on 50 individuals among those being evaluated for blood-borne viral infections (HCV, HBV, and HIV) as a prerequisite for traveling to gulf countries. Accordingly, questionnaire modifications were made including rephrasing and adding or removing some questions.

Data Collection

Data collection continued from November 2014 to October 2015. Passengers were selected using the simple random sampling technique. The time spent for interviewing each participant ranged between 35 to 45 minutes; thus, the researcher was able to interview 10-15 travelers daily.

Statistical Analysis

Data were fed to the computer and analyzed using IBM SPSS software package version 20.0. Categorical data were presented in frequencies. Quantitative data were described using mean/median and standard deviation. The Kolmogorov-Smirnov test was used to test normality of data. The Mann-Whitney test was used for non-parametric quantitative variables to compare between two groups, while the Kruskal-Wallis test was used when more than two groups were compared. Spearman coefficient was used to correlate between 2 non-parametric quantitative variables. Significance of the obtained results was judged at the 5% level.

A score for perception of travel associated risks was developed by assigning a score of 0 for the answer "not exposed to any risk" and a score of 1 for each possible risk answer, giving a maximum total score of 23. The scores of perceived travel-associated risks were leveled as follows:

- Low level of perception of travel associated risks (0-7)
- Medium level of perception of travel associated risks (8-15)
- High level of perception of travel associated risks (16-23)

A scoring system was also established for each of the travel health-related practices, including risk management plan, carrying protective measures, seeking pre-travel health services and information, receiving vaccines, using malaria prophylaxis, and intent to use prophylactic measures. A Likert-like scale was applied where a score of 0 was given for no or incorrect practices and the highest score was given to the best practice. The total sum of scores for each parameter was grouped into three ranked categories. The lowest was referred to as (poor), the middle was referred to as (fair), and the highest was referred to as (good).

Results

The socio-demographic description of participating travelers is shown in Table 1. The majority of them (78.5%) had no reported chronic medical condition. The distribution of the travelers according to the current journey details is illustrated in Table 2. Africa was the destination for 61.3% of travelers, while Asia accounted for 28.5%.

Almost half of the participants (658; 43.9%) had a history of previous travel with destinations of Africa (51.8%), Asia (46.5%), Europe (14%), North America (5.6%), South and Central America (0.9% each), and Australia (0.5%). Only 224 (34%) of the studied travelers with a history of traveling abroad stated that they had received any vaccination before their previous travels, including meningococcal (59%), yellow fever (55.4%), influenza (1.3%), cholera (0.9%), HAV (0.4%), and HBV (0.4%) vaccines. Regarding prior travel-associated health problems, diarrhea was the most encountered health problem among travelers (39.5%), followed by ear problems

Table 1. Distribution of the Travelers at Cairo International Airport According to Their Socio-Demographic Characteristics

Socio-Demographics Characteristics (n = 1500)	No. (%)
Gender	
Male	1340 (89.3)
Female	160 (10.7)
Age (y)	
<30	538 (35.9)
30 to <40	691 (46.1)
+40	271 (18.1)
Min – Max	18.0 – 78.0
Mean ± SD	33.10 ± 7.117
Residency	
Rural	163 (10.9)
Urban	1337 (89.1)
City of residency	
Cairo	534 (35.6)
Al-Giza	276 (18.4)
Alexandria	172 (11.5)
Al-Beheira	106 (7.1)
Kafr-Elsheikh	61 (4.1)
Al-Qaliobeya	85 (5.7)
Al-Daqahlia	55 (3.7)
Al-Gharabia	30 (2.0)
Al-Fayuom	13 (0.9)
Damietta	6 (0.4)
Al-Menoufeya	14 (0.9)
AL-Sharqeya	33 (2.2)
Canal cities (Suez, Port Said, Ismaeleya)	59 (3.9)
Upper Egypt cities (Assuit, Beny Suef, Elmenia, Sohaj, Qenna)	56 (3.7)
Marital status	
Single	510 (34.0)
Married	988 (65.9)
Widowed	2 (0.1)
Presence of offspring	
No	713 (47.5)
Yes	787 (52.5)
Number of family members	
2-<5	891 (59.4)
5-9	609 (40.6)
Min–Max	2.0 – 9.0
Mean ± SD	4.28 ± 1.58
Occupation	
Housewife	40 (2.7)
Professional (professor, researcher, teacher, lawyer, etc)	570 (38.0)
Employee	150 (10.0)
Worker (labor, guard, etc)	66 (4.4)
Artisanal work (carpenter, smith, plumber, painter, etc)	188 (12.5)
Athlete	152 (10.1)
Religion man	115 (7.7)
Healthcare worker (doctor, nurse, pharmacist, etc)	123 (8.2)
Tradesman	85 (5.7)
Others (not working, student, military persons)	11 (0.7)
Level of education	
Illiterate	9 (0.6)
Less than 9 years education	81 (5.4)
Secondary	160 (10.7)
University education and post graduate	1250 (83.3)
Type of education, (n = 1410)	
Literature	419 (29.7)
Scientific	867 (61.5)
Medical	124 (8.8)
Monthly income	
Not enough	416 (27.7)
Enough	1073 (71.5)
Enough and saving	11 (0.7)

Table 2. Distribution of the Travelers at Cairo International Airport According to the Journey Details

Journey details (n = 1500)	No. (%)
Travel destination (country and city)	
East Africa	211 (14.1)
Central Africa	285 (19.0)
West Africa	254 (16.9)
Southern Africa	169 (11.3)
South East Asia	221 (14.7)
South Asia	125 (8.3)
Asia Others	81 (5.4)
North Latin America	25 (1.7)
Central Latin America	41 (2.7)
South Latin America	88 (5.9)
Type of destination (rural/urban)	
Urban	1279 (85.3)
Rural	1 (0.1)
Do not know	220 (14.7)
Altitude of destination	
Do not know	689 (45.9)
High	51 (3.4)
Sea level	760 (50.7)
Type of accommodation in destination	
Hotel	641 (42.7)
Private house	790 (52.7)
Youth hostel	23 (1.5)
Others (residency in a factory, residency in a hospital, worship places)	46 (3.1)
Purpose of travel	
Tourism	176 (11.7)
Work	1037 (69.1)
Study	3 (0.2)
Seeking medical treatment	4 (0.3)
Sports	140 (9.3)
Others**	140 (9.3)
Length of stay in days, Mean ± SD	115.97 ± 118.748
Presence of companions*	
No	295 (19.7)
Spouse	312 (20.8)
Offspring	163 (10.9)
Relatives	37 (2.5)
Friends	47 (3.1
Work colleagues	845 (56.3)
Others (parents)	3 (0.2)
Duration between journey planning and date of travel	
Two weeks or less	85 (5.7)
Three weeks	81 (5.4)
1 month	579 (38.6)
More than 1 month	755 (50.3)

*Multiple response question

**Others = Accompanying parents or husband, visiting relatives, attending conference, making a movie, Qur'an memorization competition, relief committee, traditional arts competition.

Central Africa (Sudan, South Sudan, Chad, Niger, Central Africa, and Congo), West Africa (Mali, Mauritania, Senegal, Gambia, Sierra Leone, Liberia, Cote d'Ivoire, Burkina Faso, Ghana, Benin, Togo, Nigeria, Cameroon, Equatorial Guinea, and Gabon), East Africa (Tanzania, Kenya, Uganda, Rwanda, Burundi, Djibouti, Eretria, Ethiopia, Somalia, Seychelles, and Union of Comoros), Southern Africa (Mozambique, Madagascar, Malawi, Zambia, Angola, Namibia, and Botswana), Southeast Asia (Thailand, Malaysia, Indonesia, Singapore, Philippines, Cambodia, Brunei, Vietnam, and Burma), South Asia (Sri Lanka, India, Bangladesh, and Pakistan), other Asian countries (Yemen, Oman, and South Korea), North Latin America (Mexico), Central Latin America (Bahamas, Cuba, Honduras, Haiti, Jamaica, Puerto Rico, Panama, Salvador, and Nicaragua), South Latin America (Brazil, Venezuela, Bolivia, Argentina, Paraguay, Peru, Colombia, and Ecuador).

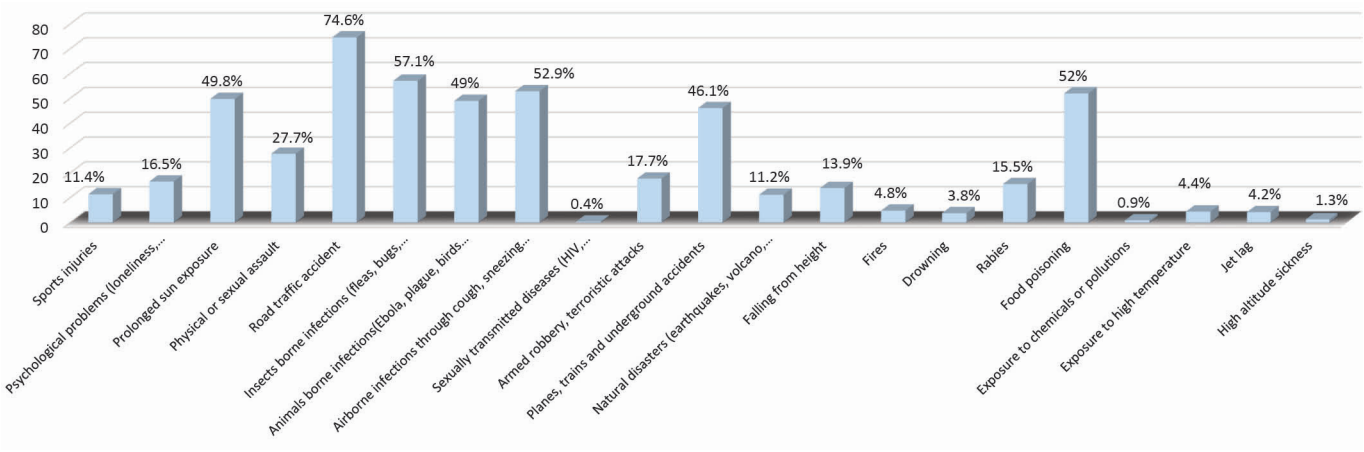

Figure 1. Types of Risks at Destination for Travelers Who Perceived any Travel Health-Related Risks.

Table 3. Distribution of Travelers at Cairo International Airport According to Travel Risk Management Plans

Travel Risk Management Plans (n=1500)	No.	%
Presence of risk plan for potential risks		
Not perceiving risks	713	47.5
No risk management plan	586	39.1
Yes, for most of them	86	5.7
Yes, for some of them	115	7.7
Infection control measures (n=175)*		
Food, drink sanitation	166	94.9
Vaccination	87	49.7
Masks	19	10.9
Sports injuries preventive measures (n=53)*		
Sports shoes	51	96.2
Helmets	0	0.0
Safety belt	4	7.5
First aid bag	6	11.3
Occupational accidents preventive measures (n=19)*		
Protective clothing	2	10.5
Helmets	18	94.7
Earpieces	1	5.3
Antislip shoes	1	5.3
Violence accidents preventive measures (n=98)*		
Commitment to organized program	69	70.4
Commitment to laws	55	56.1
Car seat belt	23	23.5
Healthy lifestyle measures (n=146)*		
Personal hygiene measures	105	71.9
Safety rules	11	7.5
Not exposed to sun for long periods	98	67.1
Carrying protective measures (n=455)*		
Antidiarrheal drugs	161	35.4
Antiallergy drugs	79	17.4
Antibiotics	178	39.1
Drugs for chronic diseases	120	26.4
Malaria chemoprophylaxis	137	30.1
Mosquito repellents	12	2.6
Sunscreens	24	5.3
Helmets	1	0.2
Special clothes or shoes	46	10.1
Other**	36	7.9
Requirement of special health certificate for the country of destination		
Do not know	600	40.0
No	899	59.9
Yes	1	0.1

*Multiple response question; **Others= Antipyretics and ear drops.

(19.6%) and less frequently fever (7.9%), dizziness (7.9%), syncope (3.8%), insomnia (3.6%), jet lag (3.5%), and high-altitude sickness (0.8%). On the other hand, about one third (33.6%) of travelers did not declare any previous post-travel health conditions.

About half of the travelers (47.5%) did not perceive any travel-associated risks. The frequencies of various risk perception are illustrated in Figure 1, and the distribution of travelers according to their travel risks management plan is presented in Table 3.

The mean total score of perceived travel-associated risks was low (2.7). The differences in total score of travel-associated risks perception according to various travelers and travel-related factors are shown in Table 4.

Only 12.1% of travelers sought pre-travel health services, and the mean time between travel and obtaining health services was 1.74±4.8 days. Two main sources for pre-travel health services were mentioned by travelers, namely governmental hospitals and malaria prophylaxis centers (40.7% and 78.6%, respectively). About 30.8% sought pre-travel health services in traveler's vaccination centers and 13.7% in private hospitals. Only one traveler sought services in a private clinic.

The health services received by travelers were mainly vaccinations and prophylactic drugs (70.9% and 78.6%, respectively). Other health services included health education (1.1%), laboratory investigations (1.1%), and radiological investigations (0.5%). General medical examinations were obtained by 14.3% of them.

Seeking pre-travel health services was significantly higher among travelers above the age of 40 years (19.2%, $P<0.001$). There was no gender or residence predilection for seeking pre-travel health services. Moreover, this practice did not differ significantly among experienced and first-time travelers (11.1% vs. 12.9%, respectively) or by the time of trip preparation. However, it was significantly higher among travelers traveling for seeking medical treatment ($P<0.001$).

Regarding the feasibility of obtaining pre-travel health services, 73.6% stated that it was difficult to get pre-travel health services due to distance and inaccessibility (46.7%), lack of specialized travel clinics (33%), overcrowding (16.5%),

Table 4. Mean (SD) and Median of Studied Travelers' Total Score of Perceived Travel-Associated Risks by Some Socio-demographic and Travel Characteristics

Socio-demographic and Travel Characteristics	Perception of TravelAssociated Risks Total Score[a]				Test of Sig.	*P*
	No.	Mean	±SD	Median		
Gender						
Male	1340	2.82	2.9	2.0	z= 4.493*	<0.001*
Female	160	1.69	2.4	0.0		
Age (y)						
<30	538	3.0	2.87	3.0		
30 to <40	691	2.73	2.98	2.0	$^{KW}x^2$ = 24.774*	<0.001*
40+	271	2.01	2.84	0.0		
Residency						
Rural	163	3.15	2.97	4.0	z = 2.031*	0.042*
Urban	1337	2.64	2.93	1.0		
Marital status						
Not married	512	3.26	2.87	4.0	z = 6.038*	<0.001*
Married	988	2.40	2.93	0.0		
Education level						
Illiterate	9	4.0	3.16	5.0		
Less than 9 years education	81	3.92	2.97	5.0	$^{KW}x^2$ = 29.110*	<0.001*
Secondary	160	3.42	2.93	4.0		
University and postgraduate education	1250	2.52	2.90	0.0		
Education type						
Literature	419	2.25	2.66	0.0		
Scientific	867	2.65	2.94	1.0	$^{KW}x^2$ = 16.407*	<0.001*
Medical	124	3.63	3.32	4.0		
Monthly income						
Not enough	416	3.65	3.03	4.0		
Enough	1073	2.34	2.82	0.0	$^{KW}x^2$ = 57.728*	<0.001*
Enough and saving	11.0	1.82	2.23	0.0		
Medical history						
No	1178	2.72	2.89	2.0	z= 1.079	0.280
Yes	322	2.61	3.11	0.0		
Previous travels						
No	842	3.48	2.98	4.0	z = 11.685*	<0.001*
Yes	658	1.69	2.54	0.0		
Destination						
Africa	919	2.98	3.01	3.0		
Asia	427	2.21	2.81	0.0	$^{KW}x^2$ = 24.752*	<0.001*
America	154	2.35	2.64	0.0		
Purpose of travel						
Tourism	176	2.34	2.85	0.0		
Work	1037	2.83	3.02	2.0		
Study	3	2.67	3.06	2.0		
Seeking medical treatment	4	3.0	3.46	3.0	$^{KW}x^2$ = 5.268	0.384
Sports	140	2.33	2.21	2.0		
Other**	140	2.56	3.03	0.0		
Presence of health insurance						
No	1152	2.82	2.96	2.0	z = 3.124*	0.002*
Yes	348	2.27	2.81	0.0		

Abbreviation: SD, Standard Deviation; KW, Kruskal Wallis test for comparing between the different studied groups; z, z value for Mann-Whitney test.

*Statistically significant; ** Others = Accompanying parents or husband, visiting relatives, attending conference, making a movie, Quran memorization competition, relief committee, traditional arts competition; [a] Travel's associated risks total score range (0-23).

high cost (1.6%), or lengthy routine procedures (0.5%). Less than half of the studied travelers sought any information before travel; health information accounted for only 11.9% of the general information sought by travelers. The type of information, barriers, sources, and degrees of satisfaction are detailed in Table 5.

Travel health-related practices were described in general as poor. The details are illustrated in Table 6.

Inquiries into the travelers' opinions of the quality of travel health services resulted in 61.3% of travelers stating that the quality of travel health services is very poor and only 0.5% stating that it is of good quality. Their suggestions to improve services are listed in Table 7.

Discussion

Unlike most European travelers among whom travelers to

Table 5. Distribution of Travelers at Cairo International Airport According to Travel Health-Seeking Information

Travel Information (n=1500)	No.	%
Seeking any information about destination		
No	864	57.6
Yes	636	42.4
Type of general information sought (n=636)*		
Weather	552	86.8
Altitude	120	18.9
Rural or urban	102	16.0
Lifestyles	158	27.8
Prices	515	81.0
Crowding	87	13.7
Transportation	388	61.0
Entertainment places	225	35.4
Crime rates	56	8.8
Health information	76	11.9
Other**	42	6.6
Type of health information sought (n=76)*		
Prevalent diseases	32	42.1
Mode of transmission of these diseases	3	3.9
Preventive measures for these diseases	8	10.5
Therapeutic modalities for these diseases	3	3.9
Required vaccination	66	86.8
Perceived barriers for not seeking health information (n=1424)*		
Scarcity of time	241	16.9
It is not necessary	217	15.2
I will know what I need there	306	21.5
I depend on companions	243	17.1
I am not susceptible as I received the preventive measures	89	6.3
I do not know that there are health risks associated with travel	878	61.7
Sources of pretravel health information (n=76)*		
Travel agency	3	3.9
Tourism offices	1	1.3
Family	4	5.3
Friends, work colleagues	30	39.5
Specialized physician	4	5.3
Pharmacist	3	3.9
Internet	75	98.7
Embassy	3	3.9
Other	1	1.3
Degree of satisfaction with received pretravel health information. (n=76)*		
Not satisfied at all	16	21.1
Not satisfied	38	50.0
Satisfied	21	27.6
Extremely satisfied	1	1.3

* Multiple response question; ** Other = Hotels, shopping places, political information, residential places, life expenses, recreational activities, libraries and museums.

tropical countries are usually above the age of 40 years and travel mostly for leisure,[12] travelers from less developed countries[13] including Egypt are young, and their main purpose of travel is for work. This reflects the importance of keeping this productive and active group healthy.

Diarrhea was the most frequent health problem among experienced travelers, having a percentage similar to that found by other studies.[14-16] Ear problems represented the second most frequent health problem (one-fifth), which were related mainly to changes in air pressure inside the plane itself rather than being caused by injury or infection acquired at destinations.[17] A similar figure (19%) was reported among travelers on a South American expedition.[18] None of the experienced travelers in this study reported respiratory infection in their previous travels, and this result disagrees with many studies reporting respiratory infections as a major travel health-associated problem.[19,20] However, this may be attributed to recall bias or low perceived importance of the flu/common cold as a respiratory disease. Only 7.9% of experienced travelers mentioned fever as a travel-associated problem. Likewise, in Italy, fever accounted for 7% of health problems in travelers returning from the tropics.[21] Fever represented 26% and 29% of travel-associated problems in the GeoSentinel surveillance and in German travelers destined to tropical and subtropical zones, respectively.[22,23] Only one third of the present study participants claimed they did not encounter any health problems in their previous travels compared to 74% of American travelers, which could be attributed to better pre-travel health services and awareness in the latter group.[24]

Only 34% of experienced travelers had received pre-travel vaccinations comprised mainly of required or highly recommended vaccines, namely the meningococcal vaccine received by travelers to KSA for pilgrimages and the yellow fever vaccine received by travelers to Africa which represented the most frequent previous travel destination (51.8%).

The perceived health risk in the current survey was poor and reflected the absence of a risk management plan for most travelers. Moreover, less than one third of the participants were carrying protective measures. The situation was different in other studies in Spain[25] and Peru,[13] where 91.2% and 47.3% of travelers, respectively, were carrying medications.

Risk perception is a very important safeguard for self-protection.[26] This was higher among the younger age group (<30 years) despite their poor travel health-related knowledge and poor practices. This might be attributed to more apprehension or more concern about the risks and temptations of traveling, which could compel travelers to express more positive attitudes about various hazards in destinations.

Moreover, there was higher perception of travel risks among illiterate travelers, despite having less knowledge about travel-associated risks. This can be explained by hidden fears and the inability to cope with stress and risks.[27] Education provides better opportunities and skills to deal with risks, and that might decrease one's perception of endangering risks. However, gender, age, destination, and region-related travel experience had different impacts on the travelers' risk perception.[28] Having an older age and a higher level of education were predictors of increased travel risk perception in KSA[29] and Qatar.[30]

Only 12.1% of travelers sought pre-travel health services, although 83.3% were well educated, 89.1% were urban residents, 72% had a satisfactory income, and 43.9% had a previous travel history. This was far lower than what was reported in South African (86%),[31] Spanish (83.1%),[25] European (40%),[12] American (36%),[32] Australian (32%),[9]

Table 6. Distribution of Travelers at Cairo International Airport According to Level of Travel Health-Related Practices

Traveler Practices	Level of Practices Score (n = 1500)					
	Poor <50%		Fair 50%-75%		Good 75%+	
	No.	%	No.	%	No.	%
Preparing risk management plan	1299	86.6	115	7.7	86	5.7
Detailed risk management plan	1468	97.9	32	2.1	0	0.0
Carrying protective measures	1056	70.4	353	23.5	91	6.1
Seeking pre-travel health services	1318	87.9	0	0.0	182	12.1
Seeking information about destination	864	57.6	0	0.0	636	42.4
Received pre-travel vaccines	1370	91.3	0	0.0	130	8.7
Use of malaria chemoprophylaxis	1359	90.6	0	0.0	141	9.4
Use of malaria chemoprophylaxis as required (right timing)	1356	90.4	47	3.1	97	6.5
Intent to use prophylactic measures	995	66.3	427	28.5	78	5.2

Table 7. Distribution of Travelers at Cairo International Airport According to Evaluation of Travel Health Service and Suggestions About Travel Health

Evaluation of Travel Health Service and Suggestions About Travel Health (n=1500)	No.	%
Opinion about the quality of travel health services		
Very bad	919	61.3
Bad	171	11.4
Undetermined	403	26.9
Good	7	0.5
Very good	0	0.0
Traveler's suggestions to improve travel health services*		
I do not know	625	41.7
Decline to answer	272	18.1
Suggestions related to travel heath education and public health awareness	313	20.9
Suggestions related to access to travel heath service	356	23.7
Suggestions related to vaccination and malaria chemoprophylaxis	47	3.1
Traveler's suggestions about the information they would like to receive before traveling*		
I do not know	345	23.0
Decline to answer	277	18.5
Destination's climate	103	6.9
Transportation in destination county	77	5.1
Ways of communication	82	5.5
Safety and security	90	6.0
Economic aspects	255	17.0
Religious issues	39	2.6
Tourism information	190	12.7
Culture and language	34	2.3
Information about sanitation	26	1.7
Information related to malaria	54	3.6
Information related to other diseases	587	39.1
Miscellaneous issues	163	10.9

* Multiple response question.

Dubaian (22.8%),[33] and Qatari (19%),[30] travelers.

Moreover, in the present study, only 11.9% of travelers sought health information about their destination. This explains in part the low risk awareness and perception. LaRocque et al[34] found that 46% of international travelers in Australia did not pursue health information of any type; a lack of concern about health problems related to the trip was the most commonly cited reason, and this was also the case in the current study.

The internet proved to be the most popular source for health information for more Egyptian travelers (98.6%) than for Japanese (64.1%),[35] European (24%),[12] or US travelers (19%).[32] This reflects the unavailability of professional travel health services, and it can be anticipated that the information was unsatisfactory and the quality may vary greatly between and within sources.[12]

Ideally, travelers should seek medical advice at least 4–6 weeks before departure. An important factor for inadequate pre-travel-seeking behavior was reported to be the increasing number of last minute travelers who planned their trips in less than 2 weeks.[6,33]

Conversely in the current study, although the majority of travelers had enough time to plan their travel (3 weeks or more), 85% and 93.1% of those who had planned their trip more than one month prior to their trip did not seek pre-travel health services or health information, respectively, and

the mean time for obtaining health services before travel for those who did was too short (1.74±4.8 days).

Egyptian travel health services were not satisfactory, as most participants reported them as very bad and one quarter were neutral, unlike elsewhere[9,33] where satisfaction was highly rated.

A high proportion of travelers would like to have information about diseases in their destinations (39.1%), even though 61.7% of them did not know that there are diseases associated with travel. However, some travelers may have been sensitized by the interview questionnaire which may have made them more curious about the importance of getting health information and services before traveling.

Conclusion

Egyptian travelers to tropical areas are usually young educated males traveling for work. They generally have a poor perception of travel-associated health risks and do not have a risk management plan. Travel health awareness is poor regardless of age, education, or any other socio-demographic factor. A minority of travelers seek health information before traveling, and the internet is their main source of information. Their pre-travel practices are poor, and only one eighth seek any pre-travel services. The travel health services in Egypt were evaluated by the travelers as poor and must be improved.

Authors' Contributions

Study conception and design: EGEM; Acquisition of data: AMAM, AEWEW; Analysis and interpretation of data: EGEM, FAG, AEGES, AEWEW, AMAM; Drafting of manuscript: EG EM, AMAM, AEWEW; Critical revision: EGEM , FAG, AEGES, AEWEW.

Conflicts of Interest Disclosures

None.

Ethical Approval

The study strictly followed the ethical guidelines of the Helsinki Declaration and was approved by the High Institute of Public Health Ethics Committee. Participation of travelers was voluntarily and a written informed consent was obtained from each participant.

Funding/Support

None.

Research Highlights

What Is Already Known?

Almost nothing is known about travel health knowledge and practices in Egypt.

What This Study Adds?

This study represents baseline data describing all travel health-related aspects in Egypt. The important data provided by this article includes but is not restricted to the following:

1. Sociodemographic data is given on travelers, their destinations, reasons for and duration of travel and reflects the importance of providing sound travel health awareness and practices in Egypt.
2. This is the first study in Egypt to develop a scoring system for knowledge, risk perception, and practice.
3. The questionnaire was comprehensive and described all travel medicine-related areas of KAP among Egyptians.
4. The study highlights how the KAP of this field of medicine are deficient in Egypt and the alarming and urgent need to improve.

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