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RESEARCH ARTICLES

Factors associated with noncompliance of COVID-19 guidelines recommended by Government of Pakistan for international travelers arriving at Islamabad International Airport, 1st June to 30th July 2021

Sara Saeed[1], Ambreen Chaudhry[1], Zeeshan Baig[1], Khurram Akram[1], Zakir Hussain[1], Mumtaz Ali Khan[1], Muhammad Wasif Malik[2], Aamer Ikram[3]

[1] Field Epidemiology & Laboratory Training Program (FELTP), Pakistan
[2]Field Epidemiology & Disease Surveillance Division, National Institute of Health, Islamabad, Pakistan
[3]Executive director, National Institute of Health, Islamabad, Pakistan

Abstract

Introduction: Since the start of pandemic new variants have been evolving and moving from one country to another either by air travel or ground crossings.

Objective: To find out factors associated with noncompliance of recommended guidelines by international passengers so that we can improve the arrangements at airports where required, improve future preparedness, and give recommendations to concerned authorities for improvement in enforcing guidelines.

Methodology: A cross-sectional study was carried out at Islamabad International Airport during the months of June and July 2021. The study population included international arriving passengers aged 12 years and above. Questions were asked about following guidelines before boarding, on board, and after disembarkation. Twenty questions were asked to assess compliance level. A median cut off value was set for assessment of noncompliance.

Results: The male to female ratio was 1:1. The age range was 12 – 75 years. The odds of noncompliance to guidelines were higher in females compared to males. The results revealed a significant association between region of arrival of respondents and noncompliance. Passengers arriving from Afghanistan, the UK and the USA were more likely to be noncompliant to guidelines (p-value = 0.00). There was a significant association between occupation of participants and noncompliance. Housewives and retired were more likely to be noncompliant (p-value = 0.00). A significant association was observed between vaccinated people and noncompliance.

Conclusion: Travelers arriving from some specific countries were noncompliant to guidelines. Vaccinated were most noncompliant which indicates still we need to work on awareness and need legislations, fines, or travel restrictions for noncompliant travellers.

Keywords: Noncompliance, COVID-19, travel health, biosecurity, pandemic

Introduction

The COVID-19 pandemic is a global public health challenge, causing acute respiratory illness leading to pneumonia and even death in severe cases. Irrespective of location, there is always a threat of cross border disease transmission due to increasing trend of air travel. Islamic Republic of Pakistan is bordered by India to the east, Afghanistan to the west, Iran to the southwest, and China to the northeast (1). It also shares a maritime border with Oman. During this pandemic all these areas were affected by COVID-19. The first case of COVID-19 was detected in Pakistan during February 2020 with a travel history from Iran (2). Since the start of the pandemic, new variants have been evolving and moving from one country to another either by air travel or ground crossings. It is important to take vigorous measures to limit the spread of the virus in early phases of new outbreaks. This has prompted the demand for the detection, isolation, and quarantine of suspected cases at points of entries including airports, seaports and ground crossings (3) (4). In view of the above, a protocol was prepared and implemented by Ministry of National Health Services, Regulations and Coordination at all point of entries in early 2020 to contain COVID-19 (5). These protocols are equally applicable to arriving passengers as well as the crew. However, with the appearance of new variants and speed of spread, the on-the-ground situation has been changing continuously (6). Keeping pace with the evolving epidemiological situation across the world, these guidelines are reviewed and updated

periodically by Ministry of National Health Services, Regulations and Coordination (3).

During the coronavirus (SARS-CoV-2) pandemic in 2020, citizens from the United States of America, United Kingdom, Netherlands, and Germany experienced relatively high levels of mis- and disinformation about COVID-19 that lowered their compliance towards following guidelines (7). Many countries are conducting entry screening for arriving passengers as per International Health Regulations (2005) screening guidelines. Pakistan, being a signatory of IHR (2005), was mandated to conduct entry screening at airports, seaports and ground crossings.

In general, successful control of the spread of COVID-19 through entry screening is possible only with sufficient resources in terms of human resource and logistics. For efficient and effective screening, updated equipment such as thermal scanners and thermal guns are required along with trained human resource to operate and interpret such equipment. Refresher courses for the training of staff are also required on regular basis (8).

In Pakistan, testing on arrival began for arriving passengers in December 2020 and has continued to date. Rapid antigen tests are being conducted for all arriving passengers. Those passengers who turned out positive are quarantined at designated quarantine facilities set up by government of Pakistan. From the first variant to every new variant, all have been imported to Pakistan from other countries**. A**t present we are experiencing a surge in cases for the fourth time since start of pandemic despite standard operating procedures for arriving international travelers, so it is important to probe the factors associated with non-compliance of guidelines by travelers as well as to know if any other stake holder is responsible for non-compliance (9). The objective of this study was to find out factors associated with non-compliance of Ministry of National Health Services Regulation and Co-ordination, Government of Pakistan recommended guidelines by the international arriving passengers so that we can improve the arrangements at airports wherever required, improve future preparedness, and give recommendations to concerned authorities for improvement in enforcing guidelines.

Methods

A cross sectional study was carried out at Islamabad International Airport during the months of June and July 2021. The study population included international arriving passengers aged 12 and above arriving to Islamabad from different countries during the study period. The lower age limit of 12 was selected because many of the standard operating procedures does not apply to passengers less than 12 years old. The sample size was calculated using Open Epi calculator. The population was taken as the total number of arriving passengers from different countries in one month. The sample size for the study was calculated with 95% confidence interval, anticipated frequency as 50 % and 10% non-response rate as 421. The total number of international arriving passengers at Islamabad International Airport was approximately 6,000 per day (information collected from civil aviation authority arrival desk), so the number of arrivals over 30 days was approximately 180,000. Simple random sampling was done. Out of 450 travelers asked to participate in the study 426 participated voluntarily giving a response rate of 95%.

Inclusion criterion

International passengers of 12 years and above arriving from different countries at Islamabad International Airport during study duration.

Exclusion criterion

Passengers with any mental disability who were unable to respond properly.

Data Collection

The data collection tool was a semi-structured questionnaire as well as observation. The travelers were observed for wearing masks and maintaining social distance at time of arrival and during interview. The questionnaire consisted of 3 main sections: a consent form and questions about sociodemographic characteristics, travel preparedness and their level of compliance to follow guidelines recommended by Government of Pakistan, Ministry of National Health Services, Regulations and Co-ordination, before boarding, on board and after disembarkation (3). Passengers were also asked about reasons for noncompliance of specific guidelines. Travelers were interviewed and questionnaires were filled by principal investigator after taking informed verbal consent from the respondents. Twenty questions were asked about compliance of recommended guidelines. All questions were designed to be responded as YES or NO, as for following the recommended guidelines there was no mid-way, either they are following or not. A median cut off value was set for evaluation of noncompliance in travelers. Those following less than 50 % of the recommended precautionary measures were considered noncompliant whereas those following more than 50 % were considered compliant.

Data was collected both during the day and at night to include as many travelers as possible arriving from different regions of the world. A pilot study was carried out on 10 % of sample size to check the validity and reliability of the questionnaire, to check the understanding of the questions by respondents and to check time to complete one questionnaire. Data cleaning was carried out and analysis was done using Epi info version 7. Independent variables included sociodemographic characteristics of the respondents whereas the dependent variable was noncompliance of guidelines. Frequencies and percentages for categorical variables were calculated. Chi square test

was applied to find out any significant association between dependent and independent variables.

Ethical approval was sought from airport management after describing the importance of the study and its public health impact. Informed written consent was taken from all study participants. Confidentiality of the respondents and collected data was strictly maintained. Respondents were given the right to withdraw from the interview if it is rendered unsuitable to them.

Results

The study participants included 225 males and 201 females, giving a male-to-female ratio of 1:1. The age range was 12 – 75 years, with median age 39 and mean age 40 years. The majority of respondents (35%) were from 26 to 40 years of age. The majority of respondents arrived from Middle East (21.4%) and United Kingdom (21%). Participants had varied education levels. Among all the 426 participants, 54 (13%) were illiterate, 177 (41%) were undergraduate (less than 14 years of education according to Pakistan's education system), 128 (30%) graduate (more than 14 years of education) and 27 (7%) were postgraduate (more than 16 years of education). Among the 426 participants, 97 (23%) were office workers, 74 (17%) were professionals (including doctors, engineers, teachers, research officers and others), 85 (20%) homemakers, 27 (6%) were self-employed, 39 (9%) retired or those who stay at home, and 49 (12%) were students.

Inferential Results

Detailed inferential results have been explained in Table 2 below. The results revealed a significant association between region of arrival of respondents and noncompliance. Passengers arriving from Afghanistan, France, United Kingdom and United States of America were more likely to be noncompliant to guidelines (p-value = 0.000). There was a significant association between occupation of participants and noncompliance. Homemakers and retired or those stay at home were more likely to be noncompliant (p-value = 0.000). A significant association was observed between vaccination status and noncompliance (p-value = 0.000). There was no significant association between education level and nationality of the respondent and noncompliance.

Table 1. Sociodemographic characteristics of study participants

Demographic characteristics	Number	Percentage
Sex		
Male	225	53%
Female	201	47%
Age (in years)		
12 – 25	63	15%
26 – 40	151	35%
41 – 55	145	34%
56 – 70	52	12%
70 +	15	4%
Education Level		
Illiterate	54	13%
Primary	40	9%
Undergraduate	177	41%
Graduate	128	30%
Postgraduate	27	7%
Nationality		
Pakistani	221	52 %
Dual	205	48 %
Marital Status		
Married	256	60 %
Unmarried	170	40 %
Occupation		
Home makers	85	20%
Students	49	12%
Laborer	54	13%
Office Job	97	23%
Professionals	74	17%
Retired	39	9%
Self Employed	27	6%

Figure 1. Number of travelers arrived from different countries of the world during study duration at Islamabad International Airport

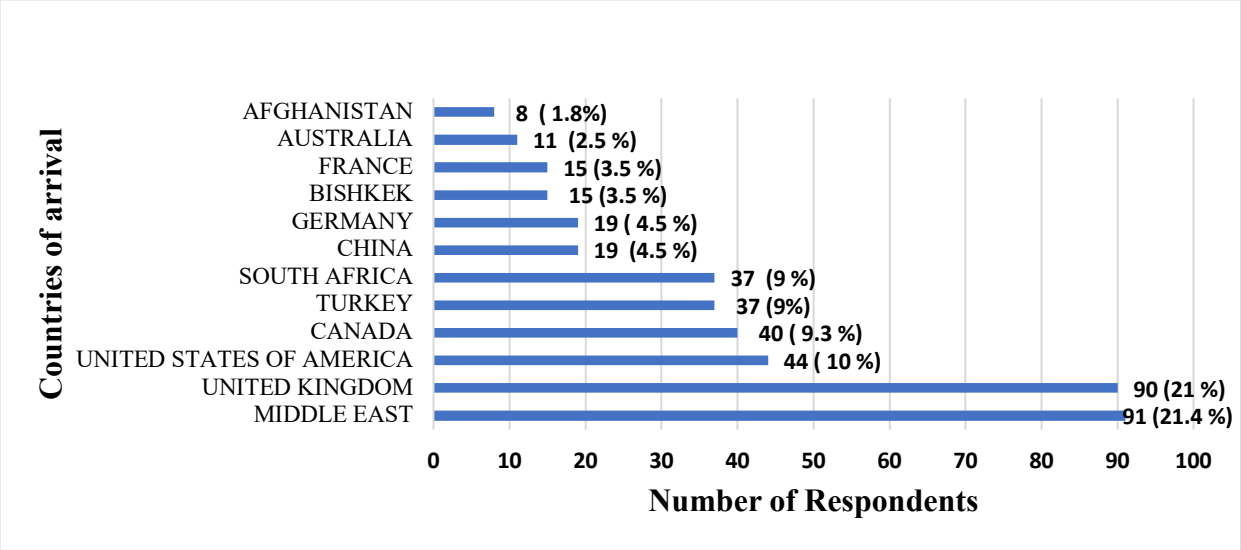

Table 2. Association of independent variables with noncompliance of guidelines among international travelers arriving at Islamabad International Airport during June and July 2021

Variable	Noncompliance of guidelines		X^2	*p-value*
	Yes	No		
Occupation			49.5	**0.000**
Self employed	8 (30%)	19 (70%)		
Homemakers	52 (61%)	33 (39%)		
Laborer	15 (28%)	39 (72%)		
Office Job	33 (34%)	65 (66%)		
Professional	43 (58%)	31 (42%)		
Retired / Stay at Home	27 (69%)	12 (31%)		
Student	10 (20%)	39 (80%)		
Vaccination			96.3	**0.000**
Vaccinated	221 (70%)	96 (30%)		
Unvaccinated	9 (8%)	100 (92%)		
Gender			5.776	**0.016**
Male	87 (39%)	138 (61%)		
Female	106 (53%)	95 (47%)		
Nationality			2.162	0.141
Dual	98 (48%)	107 (52%)		
Pakistani	90 (41%)	131 (59%)		
Education Level			1.37	0.849
Illiterate	21 (39%)	33 (61%)		
Primary	17 (42%)	23 (58%)		
Undergraduate	78 (44%)	99 (56%)		
Graduate	58 (45%)	70 (55%)		
Postgraduate	14 (52%)	13 (48%)		
Arriving From			71.7	**0.000**
Afghanistan	5 (63%)	3 (37%)		
Australia	0 (0 %)	11 (100%)		
Bishkek	6 (40%)	9 (60%)		
Canada	10 (25%)	30 (75%)		
China	16 (84%)	3 (16%)		
France	2 (13%)	13 (87%)		
Germany	4 (21%)	15 (79%)		
Middle East	39 (43%)	52 (57%)		
South Africa	12 (32%)	25 (68%)		
Turkey	19 (51%)	18 (49%)		
UK	56 (62%)	34 (38%)		
USA	24 (55%)	20 (45%)		

Discussion

The objective of this study was to identify factors associated with noncompliance of recommended

guidelines for COVID-19 in international travelers. The results of the study revealed travelers arriving from Afghanistan, United States of America and United Kingdom were more likely to be noncompliant as compared to travelers arriving from other countries. The study results revealed that people arriving from Middle East and Australia, irrespective of their nationality, were most compliant, possibly due to strict rules in their countries. Vaccinated people were more noncompliant, probably due to perceived feeling of being safe from getting infected post vaccination. (10).

There is a dire need to emphasize education and awareness at all levels. Vaccinated individuals need awareness that even if they will not develop complications or severe symptoms after getting infected post-vaccination, they might act as carriers and can infect others around (11). Awareness before travel is also necessary. Individuals who perceive COVID-19 as a serious threat and those who have greater trust in science and scientists are more likely to act in accordance with the proposed guidelines (12).

Above all, we need legislation and fines for strict implementation of standard operating procedures. Pakistan formulated guidelines for COVID-19 screening according to recommendations of International Health Regulations (2005), but compliance remains inadequate. The introduction of mandatory restrictions is to enhance enforcement of guidelines to safeguard our communities from any new threat/variant entering Pakistan. Ministry of National Health Services, Government of Pakistan is working hard in its capacity to formulate and update guidelines for COVID-19 prevention and protection, but they will benefit only if imposed in true spirit. An intrinsic feeling of duty to support authorities are specifically important in this context. Non-compliant travelers must be fined and strict actions are required as at this moment we cannot afford any more burden of disease in Pakistan. Numerous studies have examined compliance with public health recommendations during pandemic outbreaks (13). Until now, however, no published studies have included a full complement of demographic, instrumental and normative factors in prior research. The most important factor towards compliance is self-interest or sense of duty (14). Awareness needs to be created in the community that COVID-19 is something that not only affects you, but can be more hazardous to children and older adults (15).

Conclusion

The results of this study suggest that travelers arriving from some specific countries, such as Afghanistan, France, United States of America and United Kingdom were more likely to be noncompliant to recommended guidelines. Those from Afghanistan were found to be noncompliant probably due to lack of COVID-19 restrictions in their country. Those from developed countries and vaccinated were more likely to be noncompliant, possibly due to perceived feeling of safety from infections, which indicates that medical education and awareness are required at all levels. As the COVID-19 pandemic is still progressing, we need to research further. In order to determine the true association of these variables with the outcome further analytical studies are required.

Competing Interests

The authors have no competing interests to declare.

References

1. Bender F, Raza HA. Geology of Pakistan. 1995. Retrieved on: 11th May 2021. https://www.schweizerbart.de/publications/detail/isbn/9783443110253/Geology_of_Pakistan.
2. Noreen N, Dil S, Niazi S, Naveed I, Khan N, Khan F, Tabbasum S, Kumar D. COVID 19 pandemic & Pakistan; limitations and gaps. Global Biosecurity. 2020 May 21;1(4).
3. Umair M, Ikram A, Salman M, Alam MM, Badar N, Rehman Z, Tamim S, Khurshid A, Ahad A, Ahmad H, Ullah S. Importation of SARS-CoV-2 variant B. 1.1. 7 in Pakistan. Journal of Medical Virology. 2021 May 1.
4. Waris A, Atta UK, Ali M, Asmat A, Baset AJ. COVID-19 outbreak: current scenario of Pakistan. New Microbes and New Infections. 2020 May 1;35:100681.
5. Retrieved on: 11th May 2021. www.covid.gov.pk>guidelines. Document Code: 48-05 Version: 05
6. Abdullah M, Ali N, Hussain SA, Aslam AB, Javid MA. Measuring changes in travel behavior pattern due to COVID-19 in a developing country: A case study of Pakistan. Transport Policy. 2021 Jul 1;108:21-33.
7. Hameleers M, van der Meer TG, Brosius A. Feeling "disinformed" lowers compliance with COVID-19 guidelines: Evidence from the US, UK, Netherlands, and Germany. Harvard Kennedy School Misinformation Review. 2020 May 31;1(3).
8. Kaplan EH, Forman HP. Logistics of aggressive community screening for coronavirus 2019. InJAMA Health Forum 2020 May 1 (Vol. 1, No. 5, pp. e200565-e200565). American Medical Association.
9. Assessment RR. Risk related to the spread of new SARS-CoV-2 variants of concern in the EU/EEA–first update. European Centre for Disease Prevention and Control An agency of the European Union. 2021 Jan 21.
10. Rahamim-Cohen D, Gazit S, Perez G, Nada B, Moshe SB, Mizrahi-Reuveni M, Azuri J, Patalon T. Survey of Behaviour Attitudes Towards Preventive Measures Following COVID-19 Vaccination. medRxiv. 2021 Jan 1.
11. O'Donohue LS, Fletcher-Gutowski S, Sidhu A, Verma A, Phillips TC, Misra PG. Mask use among

health care workers and feelings of safety at work pre-and post-COVID-19 vaccine. American journal of infection control. 2021 Nov 15.
12. Plohl N, Musil B. Modeling compliance with COVID-19 prevention guidelines: The critical role of trust in science. Psychology, Health & Medicine. 2021 Jan 2;26(1):1-2.
13. Wright L, Steptoe A, Fancourt D. What predicts adherence to COVID-19 government guidelines? Longitudinal analyses of 51,000 UK adults. MedRxiv. 2020 Jan 1.
14. Murphy K, Williamson H, Sargeant E, McCarthy M. Why people comply with COVID-19 social distancing restrictions: Self-interest or duty?. Australian & New Zealand Journal of Criminology. 2020 Dec; 53(4):477-96.
15. Kar SK, Verma N, Saxena SK. Coronavirus infection among children and adolescents. Coronavirus Disease 2019 (COVID-19). 2020:71.

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