COVID-19 Prevention Knowledge and Practice Amongst Syrian Refugees

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Abstract

Background: COVID-19 is global health, economic, and social issue that needs to be eradicated, especially amongst vulnerable populations such as refugees. Syrian refugees in Jordan face serious health concerns due to a coronavirus pandemic. COVID-19 prevention needs extensive education and constant adherence to optimal measures.

Objectives: This study assessed Syrian refugees' knowledge and practices regarding COVID-19 prevention at Jordan's Zaatari camp.

Design: A cross-sectional design utilizing an online survey collected data, recruiting a convenience snowball sample of 98 Syrian refugees.

Results: Participants' overall knowledge and practices of COVID-19 prevention were moderate, and statistical significance was found between knowledge and practice for participants with chronic diseases.

Conclusion: An educational intervention and awareness initiatives for the less educated are warranted to increase knowledge and practices regarding COVID-19 prevention among refugees.

Keywords: COVID-19, Syrian, Refugees, Knowledge, Prevention, Jordan.

INTRODUCTION

COVID-19 is permanently altering our way of life. As a result, global health, economy, and society have all suffered (Oldekop et al., 2020). The increased mortality and morbidity were linked to this pandemic (Puntmann et al., 2019)

Fever, dry cough, weariness, soreness in the muscles, and difficulty in breathing are among the symptoms of COVID-19 (Byanaku & Ibrahim, 2020; Singhal, 2020; Zhong et al., 2020). Many of these symptoms intensify slowly and are reported by a small percentage of individuals. However, some people may go unnoticed over an extended period. When it comes to this ailment, around 80 % of clients are cured without the need for particular therapy (Byanaku & Ibrahim, 2020; Singhal, 2020; Zhong et al., 2020). There is a higher chance of severe disease in pre-existing conditions such as diabetes and heart and respiratory diseases (Abed Alah et al.,2020; Glover et al., 2020; Laskar et al., 2020).

The pandemic can only be controlled if people know the COVID-19 route and take appropriate measures. To reduce the transmission of this disease, people need to know how to wash their hands often, use alcohol-based hand rub, wear face masks, cover their nose and mouth while coughing or sneezing, and isolate themselves when ill (Byanaku & Ibrahim, 2020; Singhal, 2020; Zhong et al., 2020). People are more likely to take early actions in the case of an

outbreak if they are well-informed (Olapegba et al., 2020).

Immediate preventative measures must be taken as soon as to stop the spread of COVID-19. People's knowledge and perceptions impact behavior (Geldsetzer, 2020). Finding out what the public thinks about COVID-19 prevention might significantly impact their health. COVID-19 knowledge, attitudes, and community behaviors are lacking in several studies (Doke et al. 2020; Kumar et al., 2021)

Jordan is now hosting almost 1.4 million refugees who left Syria's civil conflict in 2011. Despite Jordan's five Syrian refugee camps, 83% of Syrian refugees in Jordanian cities struggle to make ends meet (Francis, 2015). These refugees lack professional and educational options due to statelessness, psychological trauma, delayed schooling, and poverty (Francis, 2015).

The Purpose and Significance of the Study

Refugees find it difficult to obtain health information in a sparsely populated region, and they also have a limited understanding of the new ailment and its treatment options (Francis, 2015). Furthermore, it reveals just a few research in Jordan examining COVID-19 prevention knowledge and practice of Syrian refugees(Francis, 2015). This is the first study in Jordan to the researchers' knowledge about the studied concept.

Managing COVID-19 in communities is initiated by ascertaining populations' disease prevention knowledge and practice. It is believed that people's knowledge and practice regarding COVID-19 prevention are significantly associated (Olapegba et al., 2020). The current study aimed to evaluate knowledge and practice regarding COVID-19 among Syrian refugees, and determine any differences in knowledge and practice related to COVID-19 prevention among Syrian refugees based on their demographics. More specifically, the study answered the following questions:

1. What is the level of knowledge about COVID-19 amongst Jordan's Zaatari camp refugees?

2. What are the practices of refugees regarding COVID-19 in Jordan's Zaatari camp?

3. Is there a difference in Jordan's Zaatari camp refugees' knowledge regarding COVID-19 depending on their gender, age, level of education, the existence of the chronic disease, and source of information?

4. Is there a difference in Jordan's Zaatari camp refugees' practices regarding COVID-19 depending on their gender, age, level of education, the existence of the chronic disease, and source of information?

This study provides feasible information for the welfare system and, hopefully, help improve the health of Syrian refugees against COVID-19 and make possible recommendations for reducing its consequences.

Methods

Design, Setting, and Sampling

A descriptive cross-sectional approach was performed utilizing an online survey. A convenience sampling technique was used, and 98 participants were recruited from Jordan's Zaatari camp. The inclusion criteria were using the online platforms, having Internet access, and being a resident in the camp. The sample size was determined based on the general rule that each variable in our study required 20-30 participants. Because we have two major variables, we needed 40-60 participants; thus, the 98 participants were satisfactory.

Data Collection and Ethical Consideration

The needed approvals were obtained from the university where the current researchers are working. Data were collected from early October to the end of December 2021. Participants were told about the study aims before collecting data and that their participation was voluntary. The research tools used do not contain a personal identification code. Confidentiality was secured and safeguarded by sharing the overall results with the camp's administrators. Invitation messages were sent, including a statement that answering

this survey is the participant's consent. Data were collected using convenience snowball sampling utilizing google forms. We used social media channels like WhatsApp groups and Facebook to disseminate the link of the study. Frequent reminders were sent while assuring the participant to discard the invitations if they answered the questionnaire before. The electronic form was designed to allow one submission only by the participant.

Measurement

The questionnaire by Abdelmalik et al. (2021) was adapted to assess COVID-19 prevention knowledge and practice among Syrian refugees in Jordan.14The questionnaire consists of 3 sections: Seven demographic characteristics were included in the first section: gender, age, level of education, having chronic diseases, and information sources. On a 5-point Likert scale, the second section had 10 items testing the respondent's knowledge of COVID-19, with the answers ranging from 1 to 5 with 1 being "always true," 2 being "usually true," 3 being "neutral," 4 being "rarely true," and 5 being "never true." Part three included ten practices for preventing COVID-19 infection. Every question was scored on a 5-point Likert scale with 1 being "never do," 2 being "rarely do," 3 being "sometimes do," 4 being "frequently do," and 5 being "often do." The averages of everyone's responses to the knowledge and practice had been tallied up.

To ascertain that the research questionnaire was culturally appropriate, it was submitted to a panel of specialists. Experts assessed the content validity index of the questionnaire, and they were asked to evaluate the items' relevance to the aims and provide the needed feedback. Each questionnaire item was given a relevance value of 1 to 4 (1 being irrelevant, 2 being slightly relevant, 3 being rather important, and 4 being extremely relevant). Using data from the pilot study as a guide, the researchers made adjustments to the feasibility, content applicability, and timeframe before beginning the main data-gathering phase.

Internal consistency and test-retest reliability were used to assess the instrument's reliability. Analysis of Cronbach's alpha coefficient was carried out, and test-retest reliability was carried out at two-week intervals with a sample consisting of 10 participants excluded from the study. For the instrument, Cronbach's alpha coefficient was 0.86, and test-retest reliability was 0.90; hence, the stability coefficients are considered acceptable.

Data Analyses

Data were analyzed using Statistical Package for Social Sciences (SPSS) (version 25) at the significance level of 0.05. Different descriptive and inferential statistics were used according to variables' levels of measurement.

Results

Demographic Data

This research surveyed a total of 98 participants. More than half of the participants, 59(60%) were female, aged 40-60; 31(32%) had completed secondary education; 66(67%) did not have a chronic disease; and 42(43%) had learned about COVID-19 through social media, Facebook, or WhatsApp (Table 1).

Table 1. *Distribution of nurses by their demographic characteristics (N=98).*

Variable	N	%
Gender		
Female	59	60
Male	39	40
Age		
<20	21	22
21–40	24	24
41–60	30	31
>60	23	23

Level of education		
Uneducated	21	21
Primary	29	30
Secondary	31	32
Graduate	17	17
Do you have a chronic disease?		
Yes	32	33
No	66	67
Source of information		
Television	18	18
Workers in humanitarian aid organizations	17	17
Relatives and friends	21	22
Social media, Facebook, WhatsApp	42	43

The variables rating were converted into a triple rating scale to describe the values of the arithmetic averages (low level / moderate level / high level). The previous classification categories were reached according to the equation of Class Width = Range (Maximum – Minimum) / Number of classes; Class Width = (5-1)/3=1.33; thus 1-2.33 were considered low level; 2.34-3.66 were medium level, and 3.67-5 were high level. The sections below will summarize the study's findings and their interpretation.

1- Knowledge level regarding prevention of COVID-19

To answer the first research question, the means and standard deviations of variables, in decreasing order, related to knowledge regarding COVID-19 prevention were presented (Table 2).

Table 2: *Participants' knowledge regarding COVID-19 disease prevention (N=98).*

Variable	Mean	Standard Deviation	Severity
The new coronavirus infection has the potential to be fatal.	4.18	1.11	High Level
COVID-19 is characterized by lethargy, a dry cough, and fever.	4.13	0.95	High Level
The new corona illness is a newly identified infectious disease in the Chinese city of Wuhan.	3.87	0.90	High Level
Isolating infected individuals is one of the most efficient strategies to prevent the virus from spreading.	3.81	0.88	High Level
Avoiding congested areas is an efficient strategy to help prevent the transmission of the disease.	3.76	0.81	High Level
Coronaviruses are diverse viruses that might infect both animals and humans.	3.54	0.84	Moderate Level
There is no definitive treatment available to prevent or cure the emerging coronavirus illness at the moment.	3.10	0.75	Moderate Level
Coronavirus transmission happens when droplets distributed by an infected individual come into direct contact with contaminated surfaces and then come into contact with the eyes, nose, and mouth.	2.68	0.66	Moderate Level
The elderly and those with hypertension, heart disease, lung illness, cancer, or diabetes are at a higher risk of developing serious complications	2.32	0.70	Low Level
The incubation period of COVID-19 ranges from one to fourteen days? Coronavirus infection has a 1 to 14 days incubation period.	2.30	0.61	Low Level
Total	**3.37**	**0.91**	**Moderate Level**

"The new COVID-19 has the potential to be fatal" ranked the highest mean (M= 4.18., SD= 1.11). In contrast, " COVID-19 has a 1 to 14 days incubation period" ranked the lowest mean (M= 2.30, SD= 0.61). The knowledge regarding COVID-19 disease prevention

among Jordan's Zaatari camp refugees was moderate (2.30 – 4.18). More specifically, the total number of items that obtained a high ranking was 3. In contrast, 5 items achieved a moderate rank, while the remaining 2 achieved low-level ranks.

2- Practice level regarding prevention of COVID-19

To answer the second question, the means and standard deviations of variables, in decreasing order, related to practices regarding COVID-19 prevention were reported (Table 3). "do you make an effort to avoid eating raw animal products such as raw meat, milk, or animal organs?" rank the highest mean (M= 4.19, SD= 1.96). In contrast, "do you keep a minimum of three feet away from somebody who is coughing or sneezing?" ranked the mowest mean (M=1.63, SD= 0.71). The practices regarding COVID-19 disease prevention among Jordan's Zaatari camp refugees were moderate (1.63 – 4.19). Overall, there were 3 high-ranking items while 5 items achieved moderate level rank and the remaining 2 achieved low-level ranks.

Table 3: Participants' practices regarding COVID-19 disease prevention (N=98).

Variable	Mean	Standard Deviation	Severity
Do you make an effort to avoid eating raw animal products such as raw meat, milk, or animal organs?	4.19	1.96	High Level
Do you make a conscious effort to avoid touching your eyes or nose with a dirty hand?	3.74	1.45	High Level
If you have a headache and a runny nose, should you lock yourself in a room away from family members until you recover?	3.71	1.40	High Level
Do you avoid sharing anything that comes into contact with your mouths, such as cups, plates, and bottles?	3.61	1.33	Moderate Level
Do you regularly clean your hands with an alcohol-based hand rub or with soap and water after contact or activity?	3.52	1.20	Moderate Level
Do you like to remain in and only go out when absolutely necessary?	3.47	1.10	Moderate Level
Do you always wear a mask if you have a fever, a cough, or difficulty breathing?	3.40	0.98	Moderate Level
Do you avoid shaking hands with your relatives?	3.32	0.94	Moderate Level
When coughing or sneezing, do you attempt to cover your mouth and nose with a flexed elbow or a tissue?	1.94	0.90	Low Level
Do you keep a minimum of three feet away from somebody coughing or sneezing?	1.63	0.71	Low Level
Total	**3.25**	**0.91**	**Moderate Level**

3-Differences of knowledge and practices regarding prevention of COVID-19

The means and standard deviations of knowledge and practice scores were compared based on the participant's demographics to answer the third and fourth questions. At the level of the significance level of 0.05, T-test analyses were used to compare between knowledge and practices of the participants regarding COVID-19 based on gender (female, male), and there are no significant differences (Table 4).

Table 4: *Means, standard deviations, and significant differences of t-tests based on gender.*

Characteristics	Variable		Number	Mean	Standard Deviation	F	Sig
Gender	**Knowledge**	Female	59	36.18	2.11	0.98	2.21
		Male	39	38.01	2.21		
	Practice	Female	59	32.40	1.96	0.91	2.02
		Male	39	31.15	2.01		

To find out whether there were statistically significant differences in the level of participants' knowledge and practice attributed to the education level (uneducated, primary, secondary, graduate), the means and standard deviations and One-Way-Analysis of Variance (ANOVA) of the participants' responses were calculated at the significance level of 0.05. There were no significant differences (Table 5).

Table 5: *Means, standard deviations, and significant differences of ANOVA based on education*

Characteristics	Variable		Number	Mean	Standard Deviation	F	Sig
Level of education	**Knowledge**	Uneducated	21	30.26	11.16	2.87	1.01
		Primary	29	29.18	9.26		
		Secondary	31	31.00	10.13	*DF=3, 94	
		Graduate	17	31.13	11.18		
	Practice	Uneducated	21	25.13	13.12		
		Primary	29	25.90	12.21		
		Secondary	31	26.70	11.56		
		Graduate	17	26.92	12.92		

*DF: Degree of Freedom

To determine whether there were statistically significant differences in the level of participants' knowledge and practice attributed to the source of information variable (television, workers in humanitarian aid organizations, relatives and friends, social media such as Facebook and WhatsApp), the means and standard deviations and One-Way-Analysis of Variance (ANOVA) of the participants' responses were calculated at the significance level of 0.05. There were no significant differences (Table 6).

Table 6. *Means, standard deviations, and significant differences of ANOVA based on the source of information.*

Characteristics		Variable	Number	Mean	Standard Deviation	F	Sig
Source of information	**Knowledge**	Television	18	28.37	9.91	2.15	1.31
		Workers in humanitarian aid organizations	17	27.29	8.01	*DF=3, 94	
		Relatives and friends	21	29.11	8.88		
		Social media, Facebook, WhatsApp	42	29.24	9.93		
	Practice	Television	18	23.24	11.87		
		Workers in humanitarian aid organizations	17	24.01	10.96		
		Relatives and friends	21	24.81	10.31		
		Social media, Facebook, WhatsApp	42	25.03	11.67		

*DF: Degree of Freedom

To determine whether there were statistically significant differences in the level of participants' knowledge and practice attributed to chronic disease (yes, no), the means and standard deviations and t-tests of the participants' responses were calculated at the significance level of 0.05. There were significant differences in knowledge and practices (p-value= 0.01); they were higher in participants with chronic disease (Table 7).

Table 7. *Means, standard deviations, and significant differences of t-test based on the presence of chronic disease.*

Characteristics	Variable		Number	Mean	Standard Deviation	T value	Sig 0.05
Having chronic disease	**Knowledge**	Yes	32	40.22	3.30	3.12	0.01*
		No	66	33.80	2.98		
	Practice	Yes	32	38.21	2.70	2.99	0.01*
		No	66	31.13	2.53		

Discussion

This study aimed to assess knowledge and practices of COVID-19 prevention among Syrian refugees in Jordan's Zaatari camp.

1- Knowledge and practice regarding prevention of COVID-19

In the current research, respondents scored moderately on COVID-19 knowledge (Mean=3.37) and practices (Mean=3.25) of preventative interventions against COVID-19. Participants accurately identified the virus's origins, symptoms, signs, and indicators of infection, repercussions, and preventative measures. In contrast, many participants in a study of Somalian internally displaced persons (IDPs) did not know how to stop the spread of COVID-19 (Alawa et al., 2020). To avoid this disease; people need to be well-informed on the illness and adopt reasonable and effective precautions to prevent contracting the disease. While there was no association between knowledge and practice in Ethiopian research,

there was a high correlation between respondents' knowledge and attitudes (Desalegn et al., 2021).

As one becomes more informed, there will be several avenues for knowledge regarding COVID-19 prevention and practicing properly.9Furthermore, their awareness of COVID-19 control measures and prevention techniques improves, as does their capacity to implement suggestions safeguard COVID-19 (Brunello et al., 2016). Participants with poor knowledge were more likely to engage in ineffective practices. These results are similar to the findings from research conducted in China (Zhong et al., 2020), India, and Pakistan (World Health Organization, 2020; Centers for Desiease Control and Prevention, 2021). This might be because knowledge is the primary moderator of positive attitudes regarding COVID-19 preventive practices. These activities are undertaken with awareness and understanding of the tasks at hand (Zhong et al., 2020; World Health Organization, 2020; Centers for Desiease Control and Prevention, 2021). By enhancing patients' practices, knowledge of COVID-19 reduces the risk of infection (McEachan et al., 2016).

3-Differences of knowledge and practices regarding prevention of COVID-19

This study also aimed to evaluate differences in knowledge and practice based on the sample's demographic. While this research results did not reveal statically significant differences in participants' knowledge and practices regarding COVID-19 disease prevention in terms of gender, level of education, and sources of information variables, it revealed a statically significant difference in the knowledge and practice among individuals with chronic diseases. These results are consistent with those of studies conducted in Jimma, Ethiopia (Kebede etal., 2020), Kenya (Austrian et al., 2020), China (Zhong et al., 2020), Central AppalachiaAhuja et al., 2021), and Iran (Paul et al., 2020; Taghrir et al., 2020), all of which found a low incidence of inadequate knowledge. Given their elevated risk of COVID-19-related hospitalization and death, persons with chronic diseases are most

susceptible, which may explain the link with their risk perception (Xia et at., 2020).

During a pandemic, behaviors and preventative actions are often influenced by

the individual's perceived risk and susceptibility to disease (Khosravi, 2020; Irigoyen-Camacho et al., 2020; Shahin & Hussien, 2020; O'Brien et al., 2021), as well as the perceived risks that are monitored by channels of communication such as the media, television, the internet, and the community (Sandman, 1989). Risk perception is a significant predictor of health behaviors (Schmälzle et al., 2017). According to health behavior theories, individuals who perceive increased risks are more inclined to participate in preventative measures (Fischhoff, 1995). Thus, risk perception will very certainly influence people's choices to adhere to preventative and mitigation measures, including decisions on COVID-19 vaccines to minimize risk (Ibuka et al., 2010; van der Weerd et al., 2011; Bruine de Bruin & Bennett, 2020; Karlsson et al., 2020; Al-Dlalah et al. 2021).

Limitations

The research was conducted amongst Syrian refugees in the Zaatari camp using a non-probability convenience snowball sampling approach. Using an online survey limits the responses to those who have Internet access. Thus, we can't generalize the results to the whole population of refugees.

Implications

There is a need to empower vulnerable people, such as refugees, to avoid and self-manage specific ailments, emphasizing health literacy and telemedicine. In addition, strengthening community surveillance and establishing effective health systems for disease prevention and treatment are crucial in the COVID-19 era, particularly in resource-constrained areas.

The information gleaned from this study is beneficial to other researchers and health policymakers, who may utilize it to develop awareness campaigns to increase understanding and enhance the effectiveness of current infection prevention strategies among refugees regarding COVID-19.

Concerning prospects, a robust training and behavior change communication campaign may aid in improving the situation and preventing disease outbreaks. Follow-up research with two groups of refugees (trained and untrained) might be done to determine how to enhance the content and quality of training programs.

Additionally, community members, leaders, and lower-level institutions must be equipped to react successfully. Collaboratively engaging local [political, administrative, technical, cultural, and religious] leaders to take ownership and emphasize adherence to prevention measures will significantly contribute to health system resilience, as well as community agency, meaningful involvement beyond long-standing tokenism, and a more substantial capacity to address current and future pandemics.

Refugee camps are at a higher risk of transmitting COVID-19, and their risk may be worsened. All relevant entities, including the government, the United Nations, bilateral agencies, and humanitarian non-governmental organizations directly involved in managing the Syrian community in Jordan, must prioritize acquiring more accurate information and teaching these individuals. Additional studies should be performed to determine specific risk groups within different demographic variables.

Failure to provide accurate information may exacerbate the pandemic's spread and impact in these crowded areas. Health professionals and non-governmental organizations (NGOs) are critical sources of health information for refugees. Consequently, they should get ongoing training to keep their skills current. Additionally, as part of infodemic management, it is necessary to offer health literacy interventions that target behavior at all levels—

individual, community, hospital, and humanitarian workers.

Conclusion

COVID-19 was well-understood and somewhat practiced by the current participants moderately. Participants with chronic diseases were more knowledgeable and proficient toward COVID-19 than their counterparts. Research findings imply that activities aimed at educating and raising awareness of the plight of the uneducated should be implemented immediately. Because of this, we recommend an immediate effort to raise awareness of practical precautions by offering formal education programs that promote adherence to COVID-19 preventative measures.

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