

## ORIGINAL PAPER

# Knowledge and attitudes regarding Covid-19 among syrian refugee women in Jordan

Shereen Hamadneh<sup>1</sup>  | Jehan Hamadneh<sup>2</sup> | Zouhair Amarin<sup>2</sup> | Manal Kassab<sup>3</sup> | Rawan Obeidat<sup>2</sup> | Hasan Rawashdeh<sup>2</sup>

<sup>1</sup>Department of Maternal and Child Health, Faculty of Nursing, Al al-Bayt University, Mafraq, Jordan

<sup>2</sup>Department of Obstetrics and Gynaecology, Faculty of Medicine, Jordan University of Science and Technology, Irbid, Jordan

<sup>3</sup>Department of Maternal and Child Health, Faculty of Nursing, Jordan University of Science and Technology, Irbid, Jordan

## Correspondence

Shereen Hamdneh, Department of Maternal and Child Health, Faculty of Nursing, Al al-Bayt University, Mafraq, Jordan, P.O Box: 130040, Mafraq 25113, Jordan.  
 Email: shereen\_hamadneh@yahoo.com; shereenh@aabu.edu.jo

## Abstract

**Objectives:** To explore knowledge and attitude about Covid-19, among Syrian refugee mothers in the Governorate of Irbid, where the first outbreak of Covid-19 in Jordan took place.

**Methods:** This is a cross-section study among Syrian refugee mothers, who were pregnant or having had children. Data was collected through an online questionnaire. The survey link was distributed in April 2020, through the social network's messaging services Facebook and WhatsApp. Contact information was obtained from local community centres and non-governmental organisations in the town of Irbid, the north of Jordan.

**Results:** In total, 389 Syrian refugee mothers participated in the study. It showed that 66% of mother's access information regarding Covid-19. The main sources of information were Facebook 87%, WhatsApp 69%, television 53%, while 21% indicated that they access professional databases or government websites. In general, Syrian refugee mothers were knowledgeable about Covid-19 transmission and prevention. However, they lacked adequate knowledge about transmission of Covid-19 between the mother and the child, and smoking risks associated with Covid-19.

**Conclusions:** There are gaps in the knowledge and attitude of Syrian refugee mothers in the Governorate of Irbid in relation to the Covid-19 pandemic. There is a need for further health education measures.

## 1 | INTRODUCTION

The Covid-19 pandemic is caused by severe acute respiratory syndrome 2 virus, SARS-CoV-2. The outbreak was identified in Wuhan, China, in December 2019, it was declared a public health emergency of international concern on 30 January 2020, and recognised by the WHO as a pandemic on March 11, 2020.<sup>1</sup>

In Jordan, the Governorate of Irbid witnessed the first outbreak of the Covid-19 in the country. Only one case was reported in Jordan in early March 2020, but by 10 April 2020, the number of confirmed cases had increased rapidly. The country initiated a complete lockdown of the city of Irbid, where the outbreak started on 14 March, and was isolated from the rest of the country.<sup>2</sup>

Jordan hosts around 658 000 registered Syrian refugees. The real total number is estimated at around 1.3 million when those not registered are taken into account. The majority, estimated 81%, live in camps,<sup>3</sup> with 20.6% living in the Governorate of Irbid.<sup>4</sup>

The World Health Organization (2020) reports that 80% of infections are mild or asymptomatic, 15% are severe, requiring oxygen and 5% are critical infections, requiring ventilation.<sup>5</sup> The American Centers for Disease Control and Prevention recommends that individuals with breathing difficulty, persistent chest pain or pressure, sudden confusion, difficulty awakening, or bluish face or lips should seek immediate medical attention and support.<sup>6</sup>

Exclusive breastfeeding for six months has many benefits for the infant and mother which far outweigh any risk from the new

coronavirus pandemic, according to WHO. These advantages include the fact that breastmilk, including expressed milk, provides lifesaving antibodies that are protective in childhood.<sup>7</sup>

The World Health Organization recommends that mothers suspected or confirmed to be Covid-19 positive could initiate or continue breastfeeding. Mothers should be advised that the benefits of breastfeeding significantly outweigh the potential risks of disease transmission. Mother and infant could “room in” and may practice skin-to-skin contact, after washing hand and wearing a face mask, especially immediately after birth and during breastfeeding.<sup>7</sup>

The latest available evidence indicates that smoking is associated with increased illness and death in hospitalised Covid-19 patients. Furthermore, the WHO recognises the potential damage associated with tobacco and exposure to second-hand smoke.<sup>8</sup>

In the middle of the Covid-19 pandemic, knowledge and attitudes towards its spread and prevention are important components of the management strategy for combating this highly contagious disease.<sup>9</sup>

Mothers' primary duties are the children and the household, fathers are the main breadwinners. Even though fathers do take interest in the in the household and being more present, research shows that mothers interact more than fathers and take most of the responsibility for running of the household and the children.<sup>10</sup> Alas, there is not enough information about refugee mother's knowledge and attitudes toward the Covid-19 pandemic, hence this study.

## 1.1 | Study significance

This study is the first of its kind in Jordan, exploring Syrian refugee mothers' knowledge and attitudes towards the Pandemic of Covid-19 in Governorate of Irbid, where the first outbreak of Covid-19 took place. The study provides baseline information for implementing initiatives to identify the educational needs and modify routine practices in the fight against this pandemic.

## 1.2 | Study objectives

The objective of this study was to assess knowledge and attitude among Syrian refugee mothers in Jordan in relation to the Covid-19 pandemic, consequently enhance protection.

## 2 | METHODS

### 2.1 | Study design, setting, and population

This is a cross-section study of Syrian refugee mothers, who were currently pregnant or have a newborn child, in the Governorate of Irbid in the north of Jordan. Data were collected during April 2020. All data from any participant with missing values were deleted.

### What's already known about this topic?

In Jordan, the Governorate of Irbid witnessed the first outbreak of Covid-19 in the country. Only one case was reported in Jordan in early March 2020, and by 10 April 2020, the number of confirmed cases had increased rapidly, with little knowledge on its immediate, short and long term effects. To compound matters further, there was little information on the knowledge and attitude of the refugees in relation to this new Covid-19 pandemic.

### What does this article add?

This study highlights the knowledge and attitude of refugee mothers towards Covid-19 epidemic. It is the first of its kind that targets the refugees in Jordan.

## 2.2 | Study tools

The survey questionnaire consisted of 3 sections that covered demographics, knowledge and attitudes related to Caovid-19 infection, based on the main information that is published by the World Health Organization.<sup>1,5,7,8</sup> The questionnaire was pilot tested for readability and clarity.

For reliability, the questionnaire was pilot tested for face validity, entered into a spreadsheet, cleaned, principal component analysed and revised. The survey link was distributed in April 2020, through Facebook pages and WhatsApp groups. The contact information was obtained from community centres and the non-profit organisations.

## 2.3 | Ethical consideration

The study was approved by the Human Research Ethics Committee of the Jordan University of Science and Technology. The survey was conducted according to guidelines on security and confidentiality. Participation in the survey was based upon participants' agreement to access the survey through the provided link.

## 2.4 | Data analysis

Data were analysed using SPSS software. A descriptive statistical analysis was performed to produce the frequencies and percentages for data.

## 3 | RESULTS

A total of 389 Syrian refugee mothers from the Governorate of Irbid completed the survey. Eighty-four per cent were aged between 20

and 45 years. The majority, having at least school degree (71%). Eighty-two per cent of them having at least one child aged less than 6 years at home, with 21% being currently pregnant, and another 11% planning to get pregnant in the near future.

The study investigated knowledge and attitude related to transmission, prevention, and precautionary steps among refugee mothers against Covid-19, including measures that should be taken when outside home, and when returning home, and awareness of aspects that should be considered when diagnosing Covid-19 disease (Table 1).

A high percentage (77%) of mothers believed that Covid-19 could be transmitted by sneezing, and 80% of mothers considered that shaking hands could transmit the virus, while only 27% of mothers believed that touching contaminated surfaces could be a source of infection. In addition, 17% of mothers thought that transmission could take place through close contact with animals (Table 1).

In addition, it shows the results on preventive measures that should be taken when outside home, when returning home, need to wear gloves and masks when outside home, social distancing, avoidance of large gatherings, and handshaking, procedures that should be taken when returning home, taking-off shoes outside home, hand sanitation before touching any objects upon returning home, disposal of the outer shopping bags, washing of vegetables and fruits, hand washing with soap and water for 30 seconds, taking off outside clothes and washing them separately (Table 1).

**TABLE 1** Knowledge and attitude to Covid-19 infection

Mode of transmission	%	No.
Sneezing	77%	299
Hand shaking	80%	312
Surface touching	27%	104
Dealing with animals	17%	65
Preventive measures taken when outside home		
Avoid leaving the home unless necessary	92%	356
Wear gloves and masks when leaving home	92%	358
Keep a safe distance between people	83%	324
Avoid gatherings	80%	311
Avoid handshaking and talking directly to people	80%	311
Procedures taken upon returning home		
Take off shoes outside home	87%	339
Never touch anything before hand sanitizing	88%	343
Disposal of the outer shopping bags	81%	315
Wash vegetables and fruits with soap and water	71%	276
Wash hands with soap and water for 30 s	77%	300
Take off out-door clothes and wash them separately	80%	311
Considerations when diagnosing covid-19		
Connecting with one of the infected	58%	226
Travelling to one of the places of the great spread	75%	292
The emergence of symptoms of pneumonia	83%	324
Having Fever	86%	337

Furthermore, the mothers were asked to indicate the aspects that should be considered when diagnosing Covid-19, including contact with infected others, travelling to infected areas and symptoms of contracting the disease (Table 1).

Regarding awareness about aspects related to the vertical transmission of Covid-19 from mothers to babies, some believed that pregnant women are more susceptible to Covid-19 infection. Others believed that the Covid-19 could be transmitted from a pregnant mother to her fetus across the placenta, or to the newborn through breast milk, or through respiratory droplets while breastfeeding (Table 2).

In relation to smoking, the majority believed that smokers are more susceptible to infection with Covid-19. About one third believed that exposure to passive smoking may transmit SARS-CoV-2. In addition, a high percentage were on the opinion that argilah (hubbly bubbly or hookah) smoking could transmit the virus (Table 3).

The study investigated the frequency of access to information about Covid-19, 66% indicated that they access information often, 18% accessed information sometimes, and 16% rarely accessed information regarding Covid-19. The main sources for information were Facebook 87%, Whatsapp 69%, television 53%, while 21% indicated that they access professional databases or governmental websites.

## 4 | DISCUSSION

The first human cases of COVID-19, the disease caused by the novel coronavirus named SARS-CoV-2 were first reported by officials in

**TABLE 2** Perception about transmission of Covid-19 between mother and baby

Questions	%	No.
Do you think that a pregnant woman is more susceptible to infection with Covid-19?		
Yes	65%	253
No	16%	62
Do not know	19%	74
Do you think that the Covid-19 virus is transmitted from the pregnant mother to her fetus through the blood?		
Yes	29%	113
No	43%	167
Do not know	28%	109
Do you think that the Covid-19 virus is transmitted from the mother to her child through breastfeeding?		
Yes	33%	128
No	28%	109
Do not know	39%	152
Do you think that the infected mother can transmit the Covid-19 virus through respiratory drops while breastfeeding?		
Yes	60%	234
No	23%	90
Do not know	17%	65

**TABLE 3** Perception about the transmission of SARS-CoV-2 and smoking

Questions	%	No.
Do you think that smokers are more susceptible to infection with SARS-CoV-2?		
Yes	60%	233
No	20%	78
Do not know	20%	78
Do you think that exposing to passive smoking is transmitted to the SARS-CoV-2 virus?		
Yes	31%	121
No	40%	156
Do not know	29%	112
Do you think that Argilah (hubbly bubbly) smoking could transmit SARS-CoV-2 virus?		
Yes	28%	109
No	53%	206
Do not know	19%	74

Wuhan City, China in December 2019. Since then, it started spreading worldwide. Jordan, from an early stage, started with the evacuation of hundreds of Jordanians from China to Jordan through emergency flights. The Governorate of Irbid witnessed the first outbreak in the country, emanating from a local wedding celebration.<sup>2</sup>

Since the start of the outbreak, there have been extensive attempts to better understand the disease. However, as with all new diseases, key knowledge gaps remain, including the source of infection, transmissibility, disease progression, surveillance, diagnostics, clinical management, and the effectiveness of prevention and control measures.<sup>11</sup>

In concordance with the Report of the WHO-China Joint Mission on Covid-19, the results of this study revealed that more than two-thirds of the refugee mothers have been able to identify that Covid-19 could be transmitted by sneezing, and a high proportion believed that shaking hands could be a cause. Around one-quarter indicated that touching surfaces could transmit infection, and so when dealing with animals. Furthermore, most mothers could identify some indications for being tested for Covid-19, including contact with infected individuals, travel to areas of infection, development of respiratory symptoms, and pyrexia. These findings are reassuring to an extent, albeit need further reinforcement.<sup>12</sup>

Regarding in- and out-door attitudes and practices, refugee mothers demonstrated a high level of awareness. The majority indicated that they would avoid leaving the home unless necessary, and would wear gloves and masks when out-doors. A high proportion would maintain social distancing and avoid handshaking and large gatherings. Mothers confirmed a high degree of awareness regarding measures upon returning home, including takeoff shoes, not touching objects before hand washing, disposal of shopping bags, vegetables and fruit washing, and taking-off outdoor clothes for washing. These findings are in agreement with the early WHO general recommendations.<sup>7,8</sup>

There is limited evidence on vertical transmission, prevalence, and characteristics of Covid-19 during pregnancy, childbirth, and the postpartum period. Concerns have been raised whether mothers with COVID-19 can transmit the SARS-CoV-2 virus to their infant or young child through breastfeeding.<sup>13</sup>

In this study, refugee mothers showed a lack of knowledge about transmission of Covid-19 between mother and child, perhaps because of limited available information. Almost two-thirds of the mothers believed that a pregnant woman is more susceptible to infection with Covid-19, and less than one-third of the mothers believed that the virus can be transmitted from pregnant mother to her fetus across the placental-blood barrier. A high percentage of mothers believed that the Covid-19 virus could be transmitted from mother to child through breast milk, or through respiratory drops while breastfeeding.

The WHO recommendations on mother-infant contact and breastfeeding are based not only on the potential risks of COVID-19 infection of the infant, but also on the disadvantages of not breastfeeding and the inappropriate use of infant formula milks. Furthermore, the WHO recommends that mothers with suspected or confirmed COVID-19 should be encouraged to initiate or continue to breastfeed, as the benefits of breastfeeding substantially outweigh the potential risks for transmission.<sup>7</sup>

Mother and infant should be enabled to remain together while rooming-in throughout the day and night and to practice skin-to-skin contact, including kangaroo mother care, especially immediately after birth and during establishment of breastfeeding, whether they or their infants have suspected or confirmed COVID-19.<sup>7</sup>

Smoking is most likely associated with the negative progression of Covid-19. Tobacco smoking is a potential means of transmission of the virus for both active and passive smokers.<sup>14-19</sup> In this study, a high percentage of mothers believed that smokers are more susceptible to infection with Covid-19. Less than one third mothers believed that exposure to passive smoking and hubbly bubbly smoking could transmit the virus. Recent advice from the WHO and other reports is that there is a need to regulate such smoking to reduce the chance of such transmission.<sup>14-19</sup>

In agreement with other reports, mothers from the Governorate of Irbid, where the first and the largest outbreak of Covid-19 in Jordan, took place, appeared knowledgeable about most common concepts associated with Covid-19, such as transmission, prevention or diagnoses.<sup>20</sup>

For a large part, this could be because of the wide coverage through all types of media.

In contrast, mothers were not as knowledgeable about risks related to the interaction between mother and the child, or the impact of smoking on the Covid-19 risk of transmission. This could be explained by the fact that most information related to these areas were neither known, nor confirmed by professional evidence at the time.

The results of this research confirm the great impact of the social media, such as Facebook and WhatsApp, on knowledge and attitudes. This is further evidence that the use of social media has become very important in disseminating health information, especially at the time of pandemics to enhance knowledge, and to dispel myths and misinformation.<sup>21,22</sup>

## 4.1 | Strength and limitation

This study is the first attempt to survey the knowledge and attitudes toward Covid-19 in Governorate of Irbid, that has a large proportion of vulnerable refugee families that witnessed the beginning of the Covid-19 pandemic in Jordan. One of the limitations of this study was not to explore the use of face masks when going outside, having in mind that some cultures are ambivalent about face masks,<sup>23</sup> in addition, because of time and budget restrictions, the study was unable to investigate if any change in the knowledge and attitudes to Covid-19 did change once the survey was completed.

## 5 | CONCLUSIONS

In general, mothers appear well knowledgeable about Covid-19 the transition ways and prevention measures, and aspects that should be considered when diagnosing Covid-19 cases. However, they appeared to have a lack of knowledge about the aspects that should be considered for the transition of Covid-19 between the mother and the child, and the aspects associated with smoking risks. Providing health education regarding Covid-19 to mothers in Irbid would be helpful in access to more professional recourse for Covid-19 and reduce sharing myths, or wrong information.

### ORCID

Shereen Hamadneh  <https://orcid.org/0000-0003-2310-7508>

### REFERENCES

- World Health Organization. 2020. Archived: WHO Timeline - Covid-19. <https://www.who.int/news-room/detail/27-04-2020-who-timeline---Covid-19>. (Accessed 27 April 2020).
- Yusef D, Hayajneh W, Awad S, et al. Large outbreak of Coronavirus disease among wedding attendees, Jordan. *Emerging Infect Dis*. 2020;26(9):2020. [https://wwwnc.cdc.gov/eid/article/26/9/20-1469\\_article](https://wwwnc.cdc.gov/eid/article/26/9/20-1469_article)
- ACAPS, Home › Countries › Jordan › Syrian refugees. See the crisis change the outcome. OVERVIEW. 2020. Accessed [19 - 12-2020], <https://www.acaps.org/country/jordan/crisis/syrian-refugees>
- The Syrian Association for Citizen's Dignity (SACD). 2020. Report. <http://data2.unhcr.org/en/situations/syria/location/36>. Accessed [19 - 12-2020].
- World Health Organization. 2020. Clinical management of Covid-19: interim guidance Geneva, Switzerland: World Health Organization. <https://www.who.int/publications/i/item/clinical-management-of-Covid-19>. (Accessed 27 May 2020).
- The American Centers for Disease Control and Prevention. Coronavirus Disease 2019 (Covid-19). Symptoms of Coronavirus. <https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/symptoms.html>. (Accessed 13 May 2020)
- World Health Organization. Breastfeeding and Covid-19. Scientific Brief. <https://www.who.int/news-room/commentaries/detail/breast-feeding-and-Covid-19>. (Accessed 23 June 2020)
- World Health Organization. Smoking and Covid-19. Scientific Brief. <https://www.who.int/news-room/commentaries/detail/smoking-and-Covid-19>. (Accessed 30 June 2020)
- WHO. The Middle East Office. Virus Corona. Information resources. <http://www.emro.WHO.int/ar/health-topics/corona-virus/information-resources.html>; (Accessed 30 June 2020); 2020.

- Gežová KC. Father's and mother's roles and their particularities in raising children. *Acta Technologica Dubnicae*. 2015;5(1): 45-50.
- Zhong B-L, Luo W, Li H-M, et al. Knowledge, attitudes, and practices towards Covid-19 among Chinese residents during the rapid rise period of the Covid-19 outbreak: a quick online cross-sectional survey. *Int J Biol Sci*. 2020;16(10):1745-1752. <https://doi.org/10.7150/ijbs.45221>
- Report of the WHO-China Joint Mission on Coronavirus Disease 2019 (COVID-19). <https://www.who.int/docs/default-source/coronaviruse/who-china-joint-mission-on-covid-19-final-report.pdf>
- Karimi-Zarchi M, Neamatzadeh H, Dastgheib S, et al. Vertical transmission of coronavirus disease 19 (Covid-19) from infected pregnant mothers to neonates: a review. *Fetal Pediatric Pathol*. 2020;29(30):246-250.
- WHO. *Tobacco-free initiative: Tobacco and waterpipe use increases the risk of suffering from Covid-19*. Cairo: WHO Regional Office for the Eastern Mediterranean; 2020.
- Vardavas C, Nikitara K. Covid-19 and smoking: a systematic review of the evidence. *Tobacco Induced Dis*. 2020;18:1-4.
- Guo FR. Active smoking is associated with severity of coronavirus disease 2019 (Covid-19): an update of a meta-analysis. *Tobacco Induced Dis*. 2020. (accessed 29 June 2020).
- Ahmed N, Maqsood A, Abduljabbar T, Vohra F. Tobacco smoking a potential risk factor in transmission of covid-19 infection. *Pakistan J Med Sci*. 2020;36(Covid19-S4).
- Shekhar S, Hannah-Shmouni F. Hookah smoking and Covid-19: call for action. *Canadian Med Assoc J*, 2020;192(17):E462.
- [www.emro.who.int/tfi/know-the-truth/tobacco-and-waterpipe-users-are-at-increased-risk-of-Covid-19-infection.html](http://www.emro.who.int/tfi/know-the-truth/tobacco-and-waterpipe-users-are-at-increased-risk-of-Covid-19-infection.html) (31 June 2020)
- Abuhammad S. Parents' knowledge and attitude towards COVID-19 in children: a Jordanian study. *Int J Clin Practice*. 2020:e13671.
- Le HT, Nguyen DN, Beydoun AS, et al. Demand for Health Information on Covid-19 among Vietnamese. *Int J Environ Res Public Health*. 2020;17(12):E4377.
- Wajahat H. Role of social media in covid-19 pandemic. *Int J Front Sci*. 2020;4(2):59-60.
- Wang C, Chudzicka-Czupala A, Grabowski D, et al. The association between physical and mental health and face mask use during the covid-19 pandemic: a comparison of two countries with different views and practices. *Front Psychiatry*. 2020;11:901.

### AUTHOR BIOGRAPHY

**Shereen Hamadneh** Associate Professor, Department of Maternal and Child Health, Princess Salma Faculty of Nursing, Al al-Bayt University, Mafraq, Jordan. Steering board member, Executive Council of the Center of Excellence Scientific Research, Scientific Society of Arab Nursing Faculties. Head of the Board, Happy Child and Family Association, Ministry of Social Development, Jordan.

**How to cite this article:** Hamadneh S, Hamadneh J, Amarin Z, Kassab M, Obeidat R, Rawashdeh H. Knowledge and attitudes regarding Covid-19 among syrian refugee women in Jordan. *Int J Clin Pract*. 2021;75:e14021. <https://doi.org/10.1111/ijcp.14021>