Knowledge level of Postpartum Women towards COVID-19

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Abstract

Background: Postpartum women are at high risk of severe complications accompanied with COVID-19 due to the anatomical and physiological changes occurring during pregnancy and continue postpartum. **Aim of the study:** was to assess knowledge level of postpartum women towards COVID-19. **Subjects and methods; Study design:** Descriptive study. **Setting:** The study was conducted at the Obstetrics (postnatal unit) building at Zagazig University Hospital. **Study subjects:** A convenient sample of 181 postpartum women collected within 6 months. **Tools of data collection:** Two tools were used; Structured interview questionnaire and women knowledge towards COVID 19 questionnaire. **Results:** The mean age of the studied women was 30.6±4.7 years. Almost half of them had secondary education, less than two thirds of them were from urban areas. Concerning occupation and income level, less than two thirds were housewives and almost half of them had low income. As for obstetric history, less than half of women delivered two times and the vast majority had no previous obstetric complications. **Conclusion:** According to the present study findings, it can be concluded that the majority of the studied women had adequate level of knowledge, while less than one fifth of them had inadequate knowledge towards COVID-19. **Recommendations:** Health education interventions should specifically target postpartum women who may be at increased risk of contracting COVID-19.

Keywords: Knowledge, postpartum and COVID-19

Introduction:

SARS-CoV-2 (the causative agent for coronavirus disease COVID-19) is the latest addition to this growing list of unwelcomed novel agents. The WHO declared COVID-19 a public health emergency of international concern on 30 January and a pandemic on 11 March 2020. Coronaviruses belong to a large group of enveloped, single-stranded, positive-sense RNA viruses having the capability of infecting a wide variety of animals, including humans, birds, rodents, carnivores, chiropters and other mammals [1].

In Egypt, the Ministry of Health and Population on 14 February 2020, declared the first infection of COVID-19 [2]. There were 750 verified cases and 56 deaths among health-care professionals in October2020 [3].

Symptoms of COVID-19 may range from headache, fatigue with pain and aches, cough, sore throat to high fever, gastro-intestinal distress, diarrhea, nausea, myalgia, dyspnea, lymphopenia, difficulty in breathing and pneumonia [4].

Unfortunately, COVID-19 symptoms, at the initial stage cannot make the basis for diagnosis as they mimic many respiratory and common infections. Moreover, SARS-CoV-2 infected per-sons might also be asymptomatic carriers [4].

The duration for which a patient with COVID-19 remains infective is unclear. Viral load in the oro-pharyngeal secretions is highest during the early symptomatic stage of the disease. The patient can continue to shed the virus even after symptom resolution. In a study from China, the median duration of virus shedding was 20 days (interquartile range [IQR] 17.0-24.0) amongst the survivors. A study of viral dynamics in mild and severe cases revealed that mild cases tend to clear the viruses early, while severe cases can have prolonged viral shedding [5].

COVID19 is mainly reported in terms of clinical signs, on vital parameters (temperature, pulse oximetry saturation) and radiological settings (X-ray, chest CT scan). Laboratory findings could frequently show lymphopenia and high LDH. Nasopharyngeal and oropharyngeal swab, enabling isolation of the virus, and confirm the diagnosis [6].

The postpartum period begins upon birth of the newborn. The end is less well defined, but is often considered the six to eight weeks after birth because the effects of pregnancy on many systems have largely returned to the pre pregnancy state by this time. However, all organ systems do not return to baseline within this period, and the return to baseline is not necessarily linear over time. For this reason, the American College of Obstetricians and Gynecologists considers postpartum care to extend up to 12 weeks after birth. Some investigators have considered individuals to be postpartum for as long as 12 months after birth [7].

Postpartum women are at high risk of severe complications accompanied with COVID-19; as the anatomical and physiological changes occurring during pregnancy make the pregnant women more susceptible to severe infections as an increase in the transverse diameter of the thoracic cage and a rising level of the diaphragm, decrease maternal tolerance to hypoxia. Lung volume changes and vasodilation may lead to mucosal edema and increased secretions of the upper respiratory tract. In addition, alterations in cell-mediated immunity lead to the increased vulnerability of pregnant women to be infected by intracellular organisms such as viruses [8].

The most proper measure to control the spread of COVID-19 infection in postpartum women is frequent hand wash with water and soap or with an alcohol-based hand sanitizer if water and soap not available from 20 to 30seconds; as hand wash can protect the woman from transmitting this highly infectious virus and after latter spreading this infection to others. Recurrent and proper hand washing is one of the most important precautions that can be used to prevent spread infection with the COVID-19 virus. Face mask application by mother and visitors to eliminate the risk of spread of respiratory droplets remains argument [9].

Significance of the study:
COVID-19 is a highly transmissible human-to-human disease via droplets resulting from coughing or sneezing [10]. Lacking awareness about the control of COVID-19 represents a major health threat. Increasing awareness and defensive behaviors help in the containment of the disease [11], and this first research study in the faculty of nursing, Zagazig University on this subject, due to its importance. So this study was done to assess knowledge level of postpartum women towards COVID-19.

Aim of the study:
The aim of the current study was to assess knowledge level of postpartum women towards COVID-19.

Research question:
What is knowledge level of postpartum women towards COVID-19?

Subjects and Methods:
Research design:
A descriptive design was adopted to carry out this study.

Study Setting:
The current study was conducted in the Obstetrics (postnatal unit) building, at Zagazig University Hospital. This building consists of 5 floors whereas delivery reception in the first floor, postnatal ward in second floor, high risk pregnancy in the 3rd floor, operation ward in 4th floor. It works in Saturday, Monday, and Wednesday. Zagazig University Hospital provides low cost services and free with high quality of care for all levels of population in Zagazig city and its villages.

Study Subjects:

A convenient sample of 181 postpartum women collected within six months.

Tools for data collection:

The data of this study were collected by using three tools as the following;

Tool I: Structured interview questionnaire:

This was developed by the researcher in simple Arabic language to collect the necessary data for achieving the study objectives. It was composed of two parts:

- **Part (A):** Socio demographic characteristics of women. It included five questions about women's age, level of education, occupation, place of resident and level of income.

- **Part (B):** Obstetric history of women. It consisted of questions about number of pregnancy (gravity), number of live births (parity), mode of delivery, any complications before/during/after delivery. It composed of 4 questions

Tool II: Questionnaire of women knowledge level towards COVID-19.

It was developed by the researcher in simple Arabic language to collect the necessary data based on previous studies related COVID-19 as **World Health Organization** [12]. It consisted of (16) items of closed-ended questions such as definition of COVID-19, women high risk factor, incubation period, main symptoms of COVID-19 .etc. As well as, source of information about COVID-19 as TV, internet … etc.

Knowledge scoring:

Each item was scored as; correct answers assigned a score of (1), incorrect or I don't know answers assigned a score of (0). The total knowledge score was classified by **Nwafor et al.** [13] as the following:

- **Inadequate knowledge:** Total knowledge score of less than 60%.
- **Adequate knowledge:** Total knowledge score of 60% to 100%.

Content Validity and Reliability:

Validity of the tools was tested for content validity by Jury of three experts' one professor and other assistant professor Obstetrics and gynecological Health Nursing. They assessed the tool for clarity, relevance, comprehensiveness, applicability, and understanding. All recommended modifications in the tools were done. The reliability was done by Cronbach's Alpha coefficient test to ensure that the tools of data collection consisted of relatively homogenous items, it was (0.910) for knowledge tool.

Field work:

Once permission was approved to proceed with the study, the researcher started to prepare a schedule for collecting the data. All data was collected by the researcher, using face to face interview, for one time. The researcher followed all protective measures as wearing masks (both the researcher and the postpartum women), use of sanitizer and distancing. The researcher introduced herself and explained the aim of the study briefly. Data collection was within the period of six months from the beginning March, 2021 to August 2021. The researcher allocated three days per week. The average number which interviewed was 3 women per day. The approximate time spent was around 30- 45 minutes before women discharge from the hospital according to response of postpartum women.

The study has some limitations that could be addressed in future studies as the study focused only on knowledge level of postpartum women. Differences in the level of health care providers, availability of different resources, and communication factors were not covered in the study.

Pilot study:

The pilot sample was applied on 10% of the study sample who selected from the study setting. The purpose of the pilot study was to ascertain the feasibility of the tools, and to detect any problems peculiars to the statement as sequence and clarity. After conducting the pilot study, found that the questions of the tools were clear and relevant, but few words were modified to increase clarity. The data collection form was finalized based on the results of the pilot. The subjects of pilot sample were excluded in the main study sample.

Administrative and ethical considerations:

Permission to collect data and implement of the educational program in the outpatient clinics building at Zagazig University hospitals was obtained. This was through submission of a formal letter from post-graduate department then referred to the dean of the Faculty of Nursing Zagazig University, followed to the hospital director seeking permission to perform the study after clarifying the objective.

The ethical issues were taken into consideration during all phases of the study. Firstly, the study approved by the pertinent authority of research ethics committee of the Faculty of Nursing at Zagazig University (M.D ZU.NURS/162/14/12/2021).

Then, approved was taken by the director of Zagazig university hospital. On the other hand, verbal agreement for participants was taken after fully explanation of the aim of the study. Participants was given the opportunity to refuse the participation, and they were notified that they could withdraw at any stage of the data collection interviews without giving any reason and with no consequences; also, they assured that information would be confidential and used for the purpose of the study only. The researcher assured maintaining anonymity and confidentiality of the subject's data.

Statistical Analysis:

Data entry and statistical analysis were done by using the Statistical Package for Social Sciences (SPSS) version 26. Data were presented using descriptive statistics in the form of frequencies and percentages for qualitative variables, and means and standard deviations for quantitative variables. Cronbach alpha coefficient was calculated to assess the reliability of the developed tools through their internal consistency.

Results:

Table 1 shows socio-demographic and obstetric characteristics of the studied women. It is obvious that the mean age of the studied women was 30.66 ± 4.79 years. 51.9% of the studied women had secondary education and 64.1% of them were from urban areas. Concerning occupation and income level, 62.4% were housewives and 52.5% of them had low income.

Table 2 shows obstetric history of the studied women. The highest percentage of them (43.1% and 41.4%) had two pregnancies and two deliveries. With regard to the number of children, 40.9% of them have one child, and 98.9% did not have any complications during the last childbirth.

Table 3a demonstrates women knowledge towards COVID-19. It shows that 95.6% of the studied women knew that COVID-19 can spread from person-to-person within close distance of each other (less than one meter) and 93.4% of them knew that COVID-19 can spread through respiratory droplets, which occur when infected people cough and sneeze. In addition, 95.0% of them knew that COVID-19 can be contracted by touching a surface or object, on which the virus is attached, and then touching one's mouth, nose, or perhaps eyes and 91.2% of them knew that COVID-19 is present with symptoms such as fever, tiredness, dry cough and shortness of breath. While, 46.4% of them knew that unlike the common cold, congestion, runny

nose, and sneezing are less common in people infected with COVID-19.

Table 3b continues to describe women knowledge towards COVID-19. It is evident in this table that 89.0% of them knew that postpartum women are more susceptible to infections than other women and 92.8% of them knew that after visiting a public place, after nose- blowing, coughing or sneezing, people must wash their hands with soap and water, or use alcohol-based hand sanitizer. Moreover, 94.5% of them knew that people should avoid touching their eyes, nose, and mouth with unwashed hands to prevent COVID19 and 91.2% of them knew that wearing of facemask can prevent COVID-19 infection. Also, 87.8% of them knew that avoiding crowded places can prevent transmission of COVID-19.

Table 3c continues to describe women knowledge towards COVID-19. It illustrates that 70.2% of the studied women knew that people with COVID-19 can transfer the virus to others if they do not have a fever and 86.7% of them knew that people who come into contact with someone infected with COVID-19 must be immediately isolated in a particular place, generally an isolation period of 14 days. This table also revealed that 91.7% of them knew that there is no effective cure for COVID-19 currently, but early symptomatic and supportive treatment can help most patients recover from the infection and 56.4% of them mentioned that they are allowing visitors/ friends at home. Moreover, 88.4% of them mentioned that they have confidence that our country will win the battle against COVID-19 pandemic.

Figure 1 shows the total level of knowledge towards COVID-19; it is evident that 82.3% of the women had adequate knowledge towards COVID-19, while 17.7% of the women had inadequate knowledge.

Table 4 shows the relation between socio-demographic characteristics as (age, level of education, occupation, residence, and income level) and total level of knowledge towards COVID-19. There was no significant relation (P > 0.05).

Discussion:

COVID-19 is an emerging infectious disease that poses a significant threat to public health. Given the severe threats imposed by COVID-19 and, preventive measures play a vital role in decreasing infection rates and halting the spread of the disease (**Chakraborty & Maity** [14]).

Postpartum women are at high risk of severe complications accompanied with COVID-19; as the anatomical and physiological changes occurring during the postpartum period make women more susceptible to severe infections as an increase in the transverse diameter of the thoracic cage and a rising level of the diaphragm, decrease maternal tolerance to hypoxia. Lung volume changes and vasodilation may lead to mucosal edema and increased secretions of the upper respiratory tract. In addition, alterations in cell-mediated immunity lead to the increased vulnerability of pregnant women to be infected by intracellular organisms such as viruses (**Schwartz & Graham** [8]).

The current study aim was to assess knowledge level of postpartum women towards COVID-19.

Concerning socio-demographic characteristics of the studied women, the current study showed that the mean age of women was 30.66 ± 4.79 years. More than half of them held secondary education and less than two-thirds were lived in urban areas. Regarding occupation and the level of income, less than two-thirds of them were housewives and more than half had low income.

This was similar to **Nwafor et al.** [13] who investigated "Knowledge and preventive measures against COVID-19 among postpartum women in a low-resource African setting". They noted that the study participants had secondary education and resided in urban areas.

In contrast, to a study conducted about postpartum woman's knowledge, attitude, and practice of self-protection measures in relation to the prevention of coronavirus: a health education intervention by **Mohamed et al.** [15] who reported that most postpartum women were living in rural areas and were not working. The differences in culture and society among women may be the reasons for this discrepancy.

Concerning knowledge of women towards COVID-19, the present study indicated the mean knowledge score of them towards COVID-19 was 12.17 with (SD±1.089), and a higher percentage of them had adequate knowledge of COVID-19. This finding is consistent with a study in Iraqi by **Saeed et al.** [16] about the sociodemographic relationship of knowledge and practices towards Covid-19. They revealed that a knowledge mean score (12.91±1.67) towards COVID-19.

Also, similar results, studies conducted in Turkey as **Yıldırım & Güler** [17] and Bangladesh as **Ferdous et al.** [18] reported low levels of COVID-19-related knowledge. In contrast, **Fikadu et al.** [19] noticed that 54.84% of postpartum women attending hospitals, Ethiopia had adequate knowledge about COVID-19 prevention measures. **Serwaa et al.** [20] found that knowledge of postpartum women in Ghana were 62.7%. Also, **Maharlouei et al.** [21] found that 70% of the participants had an adequate level of knowledge about COVID-19.

This disparity in the level of knowledge could be attributed to differences in study cultures and efforts by healthcare systems to raise awareness about COVID-19. Also, inadequate knowledge in the present study could be due to COVID-19 is a new and unknown disease, as well as the demographic characteristics of women in both groups, may explain the lack of knowledge. Postpartum women in rural areas with secondary education and housewives may have limited access to up-to-date information and gain more knowledge about COVID-19.

Regarding the relationship between sociodemographic characteristics and the level of knowledge towards Covid-19, there was a significant relationship between occupation and the level of knowledge towards Covid-19 (P <0.000).

This finding is consistent with a study about the sociodemographic relationship of knowledge and practices towards Covid-19 among in Iraq by Saeed et al [16] revealed that there was a significant relationship between sociodemographic characteristics and the level of knowledge (P<0.05). So, this finding was concluded that increasing the knowledge and encouraging adequate preventive practice towards COVID-19 should be targeted towards this group.

Conclusion:
Based on the present study findings, it can be concluded that the majority of the studied women had adequate knowledge, while less than one fifth of them had inadequate knowledge towards COVID-19.

Recommendations:
The following recommendations are suggested based on the findings of the present study:

1. Health education interventions should specifically target postpartum women who may be at increased risk of contracting COVID-19.
2. Highlight the necessity of following COVID-19 preventative precautions during standard postnatal care instructions.
3. **Conduct further studies to:**
   - Identify barriers to COVID-19-related health behaviors during postpartum by applying the health belief model.
   - Examine the impact of health belief model based education on postpartum women's intention to get the COVID-19 vaccine.

Table 1: Distribution of the studied women according to their socio demographic characteristics (n = 181)

Socio-demographic characteristics		No	%
Age (year)	20-26	44	24.3
	27-35	102	56.4
	35-42	35	19.3
Mean ± SD		30.6575±4.79164	
Range (Min- Max)		22.0 (20- 42)	
Education Level	Illiterate	4	2.2
	Read and write	4	2.2
	Primary education	1	0.6
	Preparatory	10	5.5
	Secondary School	94	51.9
	University	68	37.6
Occupation	House	113	62.4
	Working	68	37.6
Residence	Urban	116	64.1
	Rural	65	35.9
Monthly income level	Low	95	52.5
	Medium	79	43.6
	High	7	3.9

Table 2: Distribution of the studied women according to their obstetric history (n = 181)

Obstetrics History		No	%
Number of pregnancy	1.00	34	18.8
	2.00	78	43.1
	3.00	53	29.3
	4.00	12	6.6
	5.00	3	1.7
	6.00	1	0.6
Mean±SD		2.3094±.94479	
Number of Delivery	1.00	57	31.5
	2.00	75	41.4
	3.00	41	22.7
	4.00	7	3.9
	6.00	1	0.6
Mean±SD		2.0110±.88813	
Number of Children	1.00	74	40.9
	2.00	65	35.9
	3.00	34	18.8
	4.00	7	3.9
	6.00	1	0.6
Mean±SD		1.8785±.91082	
Complications during last child birth	No	178	98.9
	Yes	2	1.1

Table 3a: Distribution of the studied women according to their knowledge towards COVID-19 (n = 181)

Knowledge of women	No	%
▪ COVID-19 spread from person-to-person within close distance of each other (less than one meter).		
No	8	4.4
Yes	173	95.6
▪ COVID-19 spread through respiratory droplets, which occur when infected people cough and sneeze.		
No	12	6.6
Yes	169	93.4
▪ COVID-19 is contracted by touching a surface or object, on which the virus is attached, and then touching one's mouth, nose, or perhaps eyes.		
No	9	5.0
Yes	172	95.0
▪ COVID-19 present with symptoms such as fever, tiredness, dry cough and shortness of breath.		
No	16	8.8
Yes	165	91.2
▪ Unlike the common cold, congestion, runny nose, and sneezing are less common in people infected with COVID-19.		
No	97	53.6
Yes	84	46.4

Table 3b: Distribution of the studied women according to their knowledge towards COVID-19 (n = 181)

Knowledge of women	No	%
▪ Postpartum women are more susceptible to infections than other women.		
No	20	11.0
Yes	161	89.0
▪ After visiting a public place, after nose- blowing, coughing or sneezing, people must wash their hands with soap and water, or use alcohol-based hand sanitizer.		
No	13	7.2
Yes	168	92.8
▪ People should avoid touching their eyes, nose, and mouth with unwashed hands to prevent COVID19.		
No	10	5.5
Yes	171	94.5
▪ Wearing of facemask can prevent COVID-19 infection.		
No	16	8.8
Yes	165	91.2
▪ Avoiding crowded places can prevent transmission of COVID-19.		
No	22	12.2
Yes	159	87.8

Table 3c: Distribution of the studied women according to their knowledge towards COVID-19 (n = 181)

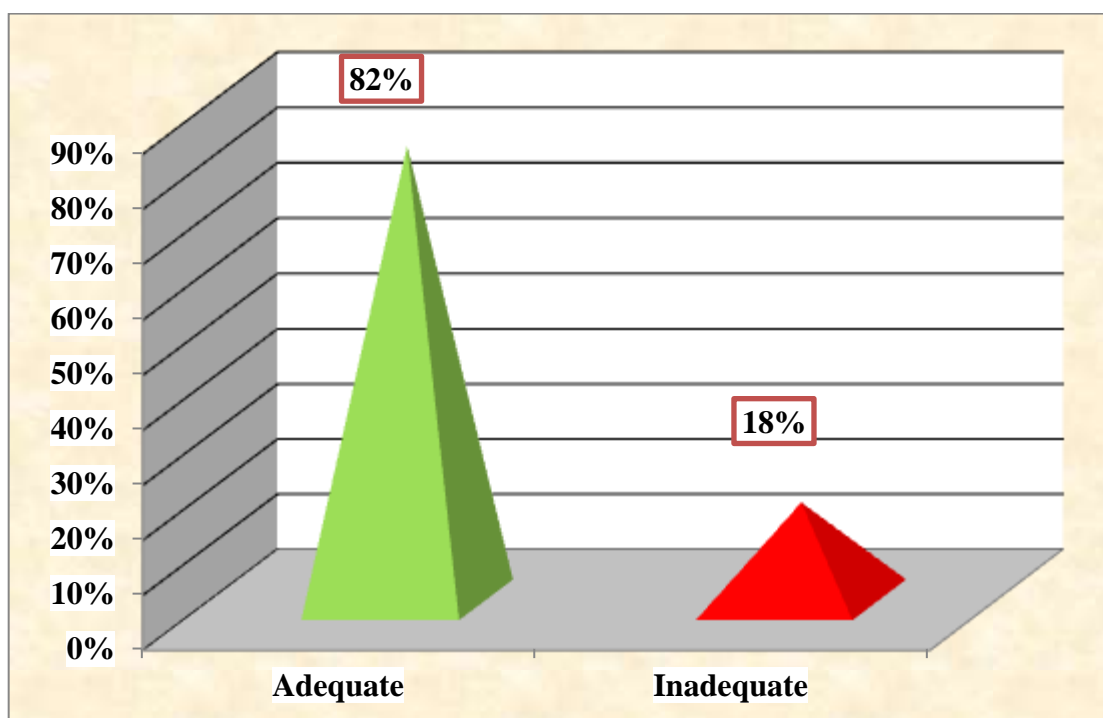| Knowledge of women	No	%
▪ People with COVID-19 can transfer the virus to others if they do not have a fever.		
No	54	29.8
Yes	127	70.2
▪ Are people who come into contact with someone infected with COVID-19 must be immediately isolated in a particular place, generally an isolation period of 14 days.		
No	24	13.3
Yes	157	86.7
▪ There is no effective cure for COVID-19 currently, but early symptomatic and supportive treatment can help most patients recover from the infection.		
No	15	8.3
Yes	166	91.7
▪ Are you allowing any visitors / friends at your home?		
No	102	56.4
Yes	79	43.6
▪ Do you have confidence that our country will win the battle against COVID-19 pandemic.		
No	21	11.6
Yes	160	88.4
Mean ± SD	12.1713±1.08957	

Figure 1: Distribution of the studied women according to their total level of knowledge towards COVID-19 (n = 181)

Table 4: Distribution of the studied women according to the relation between socio-demographic characteristics and total level of knowledge towards COVID-19 (n = 181)

| Socio-demographic characteristics | | Level of knowledge | | | | X^2 Test | P value |
| | | Inadequate | | Adequate | | | |
		No	%	No	%		
Age (year)	20-26	6	18.8	38	25.5	1.364	0.506
	27-35	21	65.6	81	54.4		
	36-42	5	15.6	30	20.1		
Education Level	Illiterate	0	0.0	4	2.7	5.997	0.307
	Read and write	1	3.1	3	2.0		
	Primary education	0	0.0	1	0.7		
	Preparatory	4	12.5	6	4.0		
	Secondary School	13	40.6	81	54.4		
	University	14	43.8	54	36.2		
Occupation	House	20	62.5	93	62.4	0.000	0.993
	Working	12	37.5	56	37.6		
Residence	Urban	18	56.3	98	65.8	1.038	0.308
	Rural	14	43.8	51	34.2		
Monthly income	Low	14	43.8	81	54.4	3.483	0.175
	Medium	18	56.3	61	40.9		
	High	0	0.0	7	4.7		

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