

Ugandan Pregnant and New Mothers' Perceptions, Knowledge, and Information Sources on COVID-19 at Jinja Regional Referral Hospital

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ABSTRACT

COVID-19, caused by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2), has posed a global challenge since December 2019. This study aimed to explore risk perceptions, knowledge, and information sources among prenatal and postnatal women at Jinja Regional Referral Hospital (JRRH) – a group particularly vulnerable to the pandemic's impact. Using a cross-sectional approach, 209 women were surveyed, employing a thematic questionnaire. Data analysis involved coding and input into Epi Info version 7, then exported to SPSS version 22.0 for analysis. Descriptive statistics summarized variables: numerical data as means and standard deviations, and categorical data as frequencies and proportions. Chi-square tests assessed associations between variables, with inferential statistics exploring relationships among study variables. Statistical Package for the Social Sciences version 26.0 conducted all analyses, with significance set at $\alpha = 0.05$. Prenatal and postnatal women at JRRH perceived a lower risk of contracting or succumbing to COVID-19 compared to influenza, yet many expressed concerns about potential COVID-19 infection. Overall, participants demonstrated adequate knowledge about the disease. Their primary information sources were doctors, nurses/midwives, and television, which they regarded highly. Notably, there was no significant relationship found between perceived risk of contracting COVID-19 and knowledge levels. These findings offer insights to healthcare *adequate knowledge, participants had misconceptions regarding some World Health Organization recommendations. Addressing these misunderstandings is crucial in improving preventive practices among this vulnerable demographic.

Keywords: coronavirus disease, risk perceptions, knowledge, women

INTRODUCTION

Coronavirus disease 2019 (COVID-19) is caused by Severe Acute Respiratory Syndrome Coronavirus two (SARS-CoV-2), a newly emergent coronavirus, that was first recognized in Wuhan, China, in December 2019. Genetic sequencing of the virus suggests that it is a beta coronavirus closely linked to the SARS virus [1-6].

Epidemiology and virologic studies suggest that transmission mainly occurs from symptomatic people to others by close contact through respiratory

droplets, by direct contact with infected persons, or by contact with contaminated objects and surfaces. Clinical and virologic studies that have collected repeated biological samples from confirmed patients demonstrate that shedding of SARS-CoV-2 is highest in the upper respiratory tract (URT) (nose and throat) early in the course of the disease, within the first 3 days from onset of symptoms. The incubation period for COVID-19, which is the time between exposure to the virus (becoming infected)

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and symptom onset, is, on average, 5-6 days, but can be up to 14 days. During this period, also known as the “presymptomatic” period, some infected persons can be contagious, from 1-3 days before symptom onset [7-14].

All countries have been challenged by the novel coronavirus, but they have not all fared the same. Early scenarios of the COVID-19 pandemic often depicted waves, including a possible second wave in late 2020. By the end of August, countries around the globe had reported over 25 million cases, with nearly 850,000 deaths attributed to the disease [15-19].

Since the outbreak of the novel coronavirus disease (COVID-19), which was first reported in Wuhan, China, on December 31, 2019, there has been a steep increase in the numbers of confirmed cases, deaths, and affected countries. According to the World Health Organisation (WHO), it took more than three months to reach the first 100,000 confirmed cases, 12 days to reach the next 100,000 cases, 4 days to reach 300,000 cases, and only 3 days to reach 400,000 cases [20-22].

Uganda implemented a range of actions and policies to manage the situation, which one of them was closing all institutions of learning. With the resumption of final year students, it's prudent that the knowledge, attitude and practices towards COVID-19 is known, hence this study.

The strategies established worldwide to reduce the transmission are mostly behavioral (e.g., social distancing, regular washing of hands), largely depending on rapid change in behavior, which relies on one's knowledge about the problem, ability to perceive the risk, and willingness to change their attitude [23].

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METHODOLOGY

Study design

The study used a cross-sectional descriptive study design where quantitative approaches were applied to obtain data that suites the objectives of the study.

Study site

The study was conducted at Jinja Regional Referral Hospital located in the newly created Jinja City in Jinja district.

Study population

The study comprised of prenatal and postnatal women attending JRRH at the time of data collection.

Inclusion criteria

- All pregnant women of 16 weeks gestation or at JRRH that who consented to take part in the study.
- All mothers with infants 6 weeks old and below at JRRH that consented to take part in the study.

Exclusion criteria

- Women or mothers that were admitted for a different reason other than nursing a child, antenatal care or delivery.
- Women or mothers perceived not to be coherent.

Sample size determination

Fisher's formula was used to determine the sample size.

$$n = \frac{z^2 \cdot 1 - \alpha / 2 \times p(1-p)}{d^2} \quad [25]$$

N=Minimum sample size.

α =Level of significance (0.05).

$Z_{1-\alpha/2}$ = Standard normal deviate at 95% confidence interval (1.96).

P= Proportion in the target population with specific characteristic [14.5% pre and post natal women with adequate knowledge on infections [26]

d=Absolute precision (Error margin), (0.05).

Therefore $n = 1.96^2 \times (0.47)(0.53) / 0.05^2$
 $n = 190$

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The minimum required sample size was **190**. However, allowing for **10%** non-response the sample size was adjusted upwards to **209**.

Sampling Procedure

The study site of Jinja Hospital was purposively selected because of its identification it's the biggest referral hospital in the eastern region, and the study subjects were sampled by simple random sampling.

Data analysis

Questionnaire tools were checked for their accuracy and data completeness, then data was coded and entered into Epi info version 7, then exported into SPSS version 22.0 for analysis. Descriptive statistics was used to summarize the variables. Numerical data was summarized as means and standard deviations. Categorical data was summarized as frequencies and

Among the 209 women that participated in the study, majority 82.2% were pregnant at the time of data collection, and the rest had given birth within the past six weeks. Their mean age was 29.55 ±3.82 years (range = 21-39). Almost all of them reported that they had not experienced any complications during

proportions. Associations between independent variables and dependent variables were assessed using chi-square test. Inferential statistical analyses (correlation analysis, t-test, and chi-squared analysis) were conducted to examine group differences and relationships among the study variables. All statistical analyses were conducted using Statistical Package for the Social Sciences version 26.0. The level of significance was set as $\alpha = 0.05$

Ethical considerations

Approval to conduct this study was obtained from KIU - Western campus Faculty of Clinical Medicine & Dentistry and JRRH hospital administration. The respondents will only participate in the study upon informed consent and they will be allowed the freedom to refuse to take part at any time.

RESULTS

pregnancy (91.8%) or chronic diseases before pregnancy (94.5%). Most of them held had attained a secondary education (79.6%) and were living in a rural setting 72.5%. Regarding their occupations, majority were peasant farmers 51.4% as shown in Table 1 and Figure 2.

Table 1: Distribution of Sociodemographic Characteristics of prenatal and postnatal women attending JRRH

Variable	Category	Frequency (N=209)	Percentage (%)
Obstetric status	Pregnant	172	82.2
	postpartum	37	17.8
Age (years)	< 20	19	9.1
	20 - 30	102	48.8
	31 - 40	87	41.6
	>40	1	0.5
Educational level	None	7	3.2
	Primary	24	11.5
	Secondary	166	79.6
	Tertiary	12	5.7
Occupation	None	31	14.4
	Peasant Farmer	107	51.4
	Business	58	27.7

	Employed (self/civil)	13	6.5
Place of usual residence	Rural	151	72.5
	Town	57	27.7
Experience of complications during pregnancy	Yes	17	8.2
	No	192	91.8
Presence of chronic diseases prior to pregnancy were assessed	Yes	11	5.5
	No	198	94.5

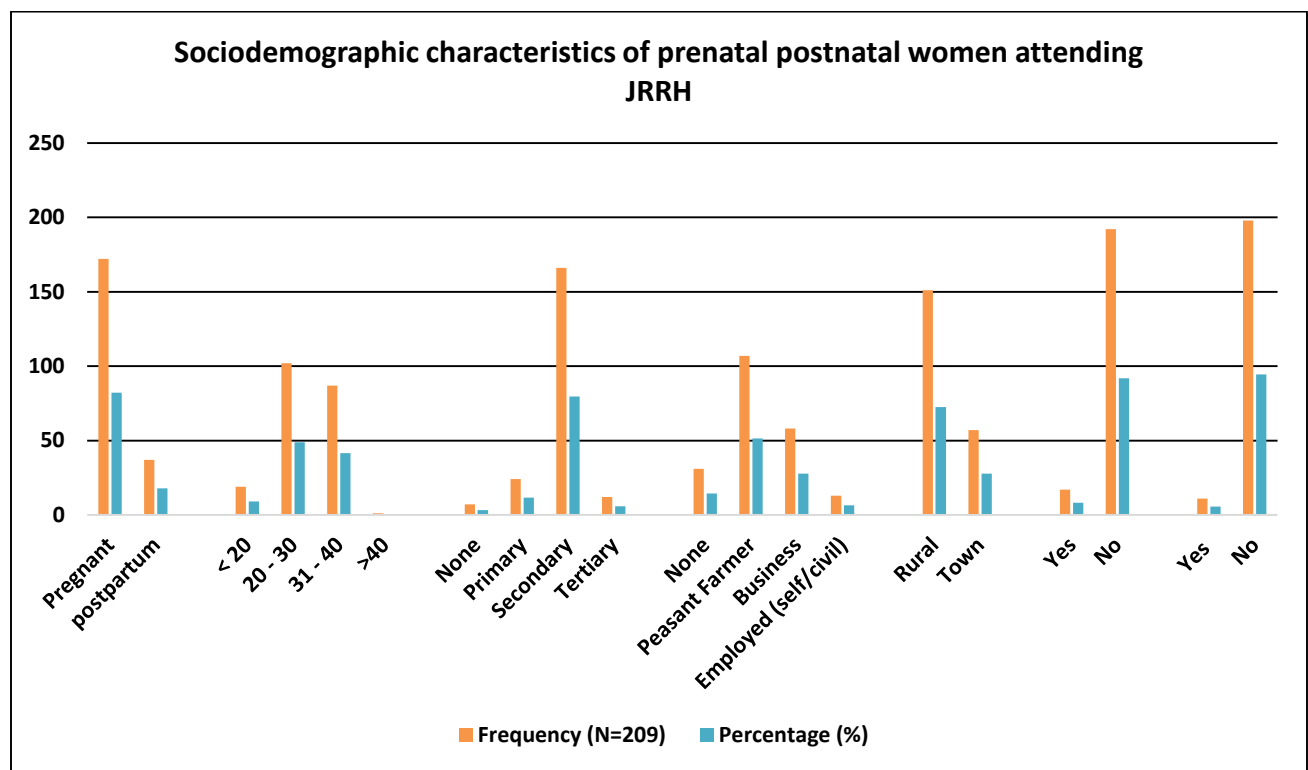


Figure 2: Column bar graph showing Socio-demographic characteristics of prenatal and postnatal women attending JRRH

The total perceived risk scores ranged from 8 to 32 (Mean = 18.24, SD = 5.48). The perceived risk by prenatal and postnatal women attending JRRH of contracting COVID-19 was lower than the perceived risk of contracting influenza

and H1N1 infection but higher than the perceived risk of experiencing other adverse events (e.g., accidents, food poisoning, cancer, and heart attack) as shown in Table 2 and Figure 3.

Table 2: Perceived risk of contracting COVID - 19 among prenatal and postnatal women attending JRRH

Item	Mean	Very unlikely (%)	Unlikely (%)	Neutral (%)	Likely (%)	Very likely (%)
Influenza	3.32	8.6	7.3	45.7	31.3	7.3
H1N1	2.42	18.7	31.3	41.3	8.7	0
COVID-19	2.34	18.4	28.9	45.4	6.6	0.7
Traffic accident	2.21	27.3	27.3	43.3	2.0	0
Home accident	2.16	28.7	28.7	40.7	2.0	0
Food poisoning	2.12	28.7	34.7	34.0	2.7	0
Cancer	2.04	32.9	34.9	29.5	2.7	0
Heart attack	1.89	40.0	32.7	26.0	1.3	0

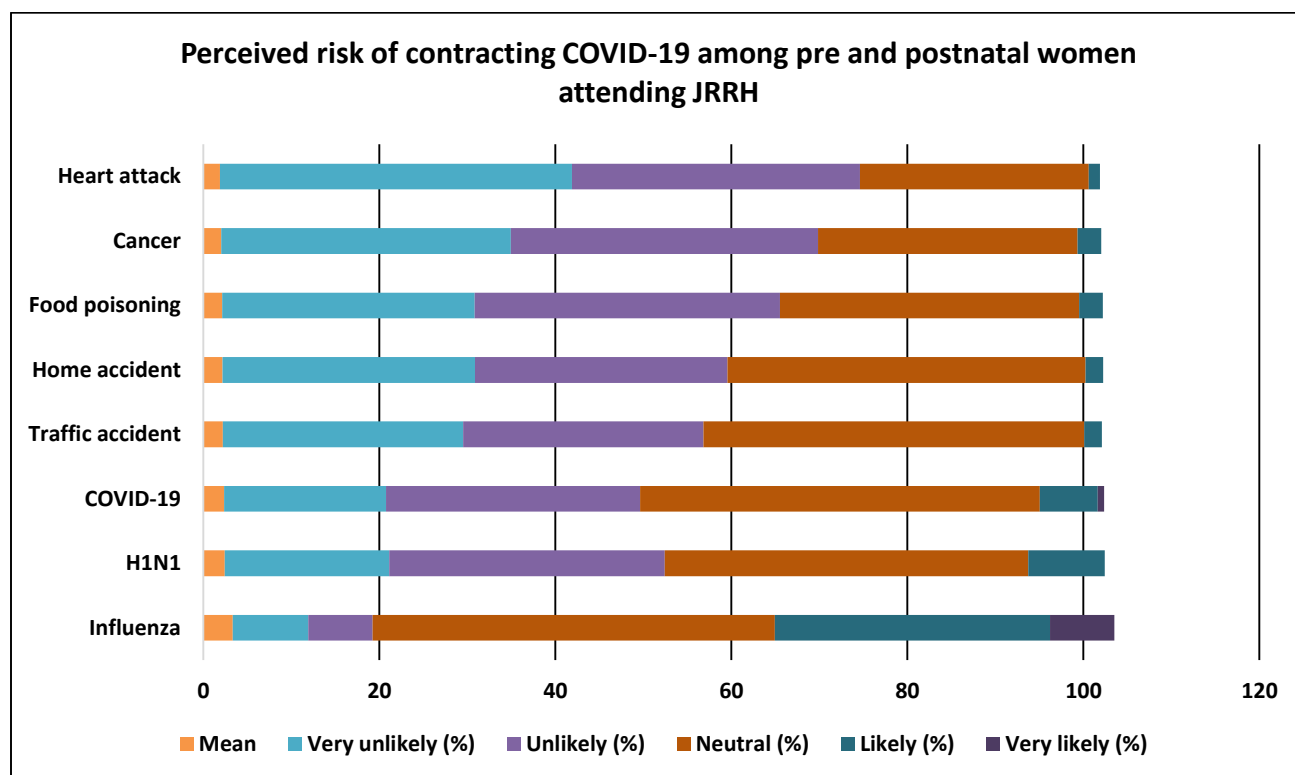


Figure 3: Stacked bar graph showing perceived risk of contracting COVID - 19 among prenatal and postnatal women attending JRRH

The perceived risk of dying from COVID-19 was lower than the perceived risk of dying from influenza but higher than the perceived risk of dying from other adverse events as shown in Table 2. In addition, 37.7% of the women reported that they were worried about contracting

COVID-19 whereas 45.7% of them were concerned about their family members contracting COVID-19. Further, more than half of them were worried about the spread of COVID-19 to the areas in which they resided as shown in Table 3 and Figure 4.

Table 3: Perceived risk of death due to COVID-19 and other adverse events among prenatal and postnatal women attending JRRH

Item	Mean	Very unlikely (%)	Unlikely (%)	Neutral (%)	Likely (%)	Very likely (%)
Influenza	2.01	39.6	29.5	22.8	6.7	1.3
COVID-19	1.99	35.3	33.3	28.7	2.7	0
Traffic accident	1.98	36.5	31.3	29.7	2.7	0
Home accident	1.96	37.8	31.8	27.7	2.0	0.7
H1N1	1.93	37.2	35.1	25.7	2.0	0
Food poisoning	1.91	38.5	34.5	25.0	2.0	0
Cancer	1.84	42.6	32.4	23.6	1.4	0
Heart attack	1.78	45.3	33.1	20.3	1.4	0

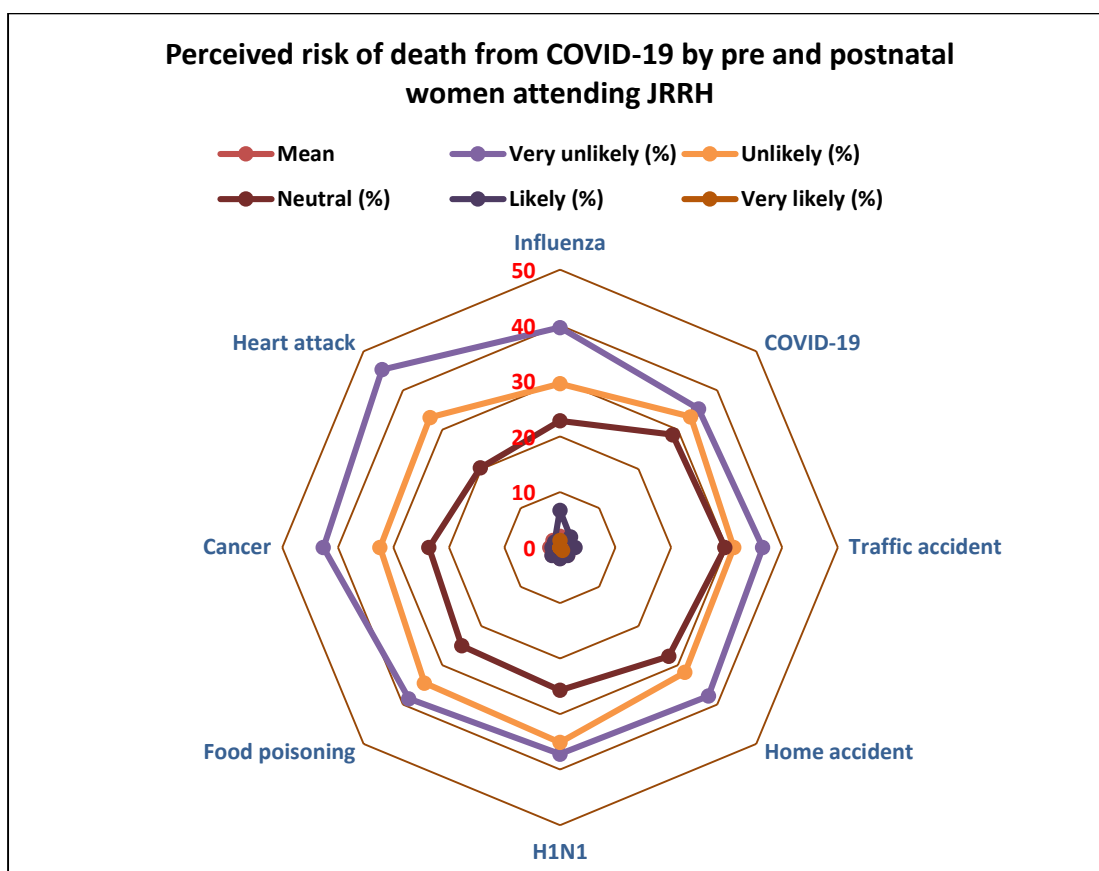


Figure 4: Radar chart showing perceived risk of death due to COVID-19 and other adverse events among prenatal and postnatal women attending JRRH

The rate at which correct answers were provided to the 17 items that assessed knowledge about COVID-19 among prenatal and postnatal women attending JRRH was 76.4%. The total scores ranged

from 15 to 33 (Mean = 25.99, SD = 3.75). The rate at which correct answers were provided to the four items that pertained specifically to pregnancy was 77.5%

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(range = 3-8, Mean = 6.20, SD = 1.05) as shown in Table 4.

Table 4: Knowledge about COVID-19 among prenatal and postnatal women attending JRRH

Item	Yes (%)	No (%)	Not sure (%)
If you are healthy, you need to wear a mask only if you are taking care of a person with suspected COVID-19.	9.1	90.9 ^a	0
You should wear a mask if you have been coughing or sneezing	82.3 ^a	14.5	3.2
Masks are effective only when you frequently clean your hands with alcohol-based hand sanitiser or soap and water.	47.6 ^a	46.8	5.6
Before wearing a mask, you should clean your hands with alcohol-based hand sanitiser or soap and water	99.2 ^a	0.8	0
You should cover your mouth and nose with a mask and make sure that there are no gaps between your face and the mask	97.6 ^a	1.6	0.8
You should avoid touching the mask while using it; if you do end up touching the mask, you should clean your hands with alcohol-based hand sanitiser or soap and water	98.4 ^a	1.6	0
You should replace a mask with a new one as soon as it becomes damp, and you should not reuse single-use masks.	98.4 ^a	0.8	0.8
You should remove the mask from behind (i.e., you should not touch the front of mask).	27.4	2.4	0
You should immediately discard the used mask in a closed bin and clean your hands with alcohol-based hand sanitiser or soap and water.	29.8	52.4 ^a	0
Ultraviolet lamps should be used to sterilize hands or other areas of the skin.	34.7	52.4 ^a	17.7
Thermal scanners can detect those who have not developed a fever	27.4	52.4 ^a	12.9
Spraying alcohol or chlorine all over your body will kill the novel coronavirus	26.6 ^a	58.9 ^a	13.7
It is safe to receive a letter or package from China	19.4	50.0	23.4
Pets (dogs or cats) can spread COVID-19	8.9	45.2 ^a	35.5
Vaccines against pneumonia can protect you from COVID-19	3.2	74.2 ^a	16.9
Eating garlic can protect you from COVID-19.	13.7	81.5 ^a	15.3
Antibiotics are effective in preventing and treating COVID-19	12.1	54.0 ^a	32.3
Currently, there are specific medicines that can be used to prevent or treat COVID-19	39.5	58.9 ^a	29.0
The vertical transmission of COVID-19 from a pregnant woman to her foetus has been confirmed	83.1 ^a	18.5 ^a	41.9
Pregnant women are more susceptible to COVID-19 than the general population	85.5 ^a	4.0	12.9
Pregnant women are more susceptible to COVID-19 than the general population	3.2 ^a	4.8	9.7
The neonates of pregnant women with suspected or confirmed COVID-19 should be isolated in a designated unit for at least 14 days after birth	31.5	52.9 ^a	24.0
Women with suspected or confirmed COVID-19 can breastfeed their neonates.	8.9	45.2 ^a	35.5

^a *correct response*

The three major sources from which prenatal and postnatal women attending JRRH obtained information about COVID-19 were physicians (Mean = 4.22), nurses/midwives (Mean = 4.15), and the

television (Mean = 4.14). Their level of confidence in these three sources was also higher than their level of confidence in other information sources as shown in Table 5.

Table 5: Mean reliance and confidence scores for different sources of information about COVID-19

Source	Reliance Score (1 - 5)	Confidence Score (1 - 5)
Physicians	4.22	4.22
Nurses/midwives	4.15	4.14
Radio	4.14	4.14
Television	3.84	3.85
Facebook	3.52	3.56
Internet	3.48	3.49
Family and friends	3.45	3.49
Whatsapp	3.30	3.41

DISCUSSION

The study has been able to establish that nearly half of the pre and postnatal women (47.3%) at JRRH considered it unlikely or very unlikely that they would contract COVID-19 disease. This shows that pre and postnatal women at JRRH consider the disease that has ravaged the world quite more lightly. This finding is inconsistent with the statistics that have been reported for Hong Kong; specifically, 88% of the participants believed that they were at risk of contracting the disease [27].

The study observes that pre and postnatal women at JRRH perceived their risk of contracting influenza to be greater than their risk of contracting COVID-19 as evidenced by the study results. This perceived risk of the women is not farfetched, as its corroborated by a recent Centers for Disease Control and Prevention (CDC) report that there have been 9-45 million infected cases, 140,000-810,000 hospitalizations, and 12,000-61,000 deaths annually since 2010 [28]. Results from this study show that almost 3 times as many women at JRRH believed that they were likely or very likely to die from influenza than from COVID-19 thus demonstrating that their

beliefs reflected the true statistics as published by the CDC.

Pre and postnatal women at JRRH returned possessed relatively high scores that depict high levels of knowledge about COVID-19 (rate of correct responding: 76.4%).

Although the pre and postnatal women at JRRH possessed adequate knowledge about COVID-19, they did not provide the correct answers to several items. For example, only 47.6% of them were aware that masks are effective only when the wearer also frequently cleans his or her hands with alcohol-based hand sanitiser or soap and water. Similarly, 29.8% of them were unaware that ultraviolet lamps should not be used to sterilise hands or other areas of the skin. Moreover, 34.7% of them did not know that thermal scanners cannot detect individuals who have not developed a fever. Furthermore, many women were unsure about the effectiveness of antibiotics in preventing and treating COVID-19 and the existence of specific medicines that can be used to prevent or treat this disease.

Nevertheless, many participants were unsure about the possibility of the vertical transmission of COVID-19, and 81.3% of them believed that pregnant

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women are more susceptible to COVID-19 than the general population. The literature on the effects of COVID-19 on pregnant women and their children is limited. The CDC in the US reported that severe acute respiratory syndrome coronavirus 2 was not found in the amniotic fluid, placenta, or breast milk of pregnant women with COVID-19 whom they had tested and that their babies had not contracted the disease [29].

In addition, there is insufficient evidence to support the claim that pregnant women are at a greater risk of contracting COVID-19 than the general public. Further, there is a lack of empirical evidence regarding the possibility of the trans-placental transmission of COVID-19 from mothers to fetuses. In one study, women who had contracted COVID-19 during their third trimester experienced only mild

Prenatal and postnatal women attending JRRH perceived their risk of contracting COVID-19 to be higher than their risk of contracting other health conditions except influenza. They were worried that they or their family members might contract COVID-19. They possessed adequate

symptoms. However, COVID-19 is a novel viral infection, and much remains unknown about its impact on pregnancy; therefore, further investigation is needed [29].

Pre and postnatal women at JRRH obtained information about COVID-19 from various sources. However, fewer women relied on social media, family members, and friends for information, and they placed lower levels of confidence in these sources. Physicians, nurses/midwives, and the television were the sources upon which they most frequently relied, and they placed greater confidence in them. It is not surprising that the preferred source of information about COVID-19 was doctors and that their confidence in doctors ranked the highest among the various sources of information.

CONCLUSION

knowledge about COVID-19. Doctors, nurses, and the television were the three major sources from which they obtained information about COVID-19, and they placed high levels of confidence in these sources.

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