

## Effect of Accessing Antenatal Care Information via Social Media Platforms on Maternal and Fetal Well-Being during COVID-19 Pandemic

Eman Ali Hassan <sup>1</sup>, Sahar Mousa <sup>2</sup>, Walaa Fathy <sup>3</sup>.

<sup>1</sup>B. Sc.

<sup>2</sup>Professor of Maternal and Neonatal Health Nursing, Faculty of Nursing Ain Shams University.

<sup>3</sup>Assistance Professors at Maternal and Neonatal Health Nursing, Faculty of Nursing – Ain Shams University.

### Abstract

**Background:** The onset of the COVID-19 pandemic push the social media platforms rapidly to become the best choice for pregnant women to be used for accessing antenatal care information. So, the use of social media platforms could be effective in promoting maternal and fetal wellbeing. **Aim of the study:** the study aimed to assess the effect of accessing antenatal care information via social media platforms on maternal and fetal well-being during COVID-19 pandemic. **Study design:** Descriptive study was used to conduct this study. **Setting:** The study was conducted online on social media platforms through Facebook group. **Sampling:** A Purposive sample included 355 pregnant women. **Three tools of data collection were used; I)** Online questionnaire, **II)** Satisfaction Likert scale, **III)** Pregnancy follow up condition's questionnaire. **Result:** The present study revealed that the majority of the studied pregnant women reported that accessing antenatal care information via social media platforms was effectively on maternal well-being, (77.5%,71.5%) socially, psychologically and 56.3% physically, respectively. In addition to, it was effectively on fetal well-being. Moreover, there was statistically significant relation between total score of knowledge and total score of satisfaction and total score of effect of accessing antenatal care information via social media platforms on maternal and fetal well-being, respectively. **Conclusion:** The Majority of the studied pregnant women had satisfactory level of knowledge about antenatal care information during COVID-19 Pandemic. Most of the pregnant women have many channels of social media platforms as Facebook, Twitter, Instagram, YouTube, Google, WhatsApp, and Telegram and also, they satisfied with them. In addition to, majority of the studied pregnant women reported that accessing antenatal care information via social media platforms was effectively on maternal and fetal well-being. **Recommendation:** Integrate web or mobile technology-based program about pregnant women in nursing clinical practice. **Further study,** to explore the effect of digital educational program on a diverse areas as postnatal, high risk, gynecology and family planning

**Keywords:** Accessing, Antenatal care, Maternal and Fetal Well-being, Social media Platforms, Coronavirus disease (COVID-19).

### Introduction:

Pregnancy is a precious time for the pregnant women, full of excitement and anticipation and it is creative and productive period in the life of a pregnant women. Good pregnancy-related care is paramount for maternal and fetal well-being (*World health organization, 2020*).

The Coronavirus Disease 2019 (COVID-19) is highly infectious disease and its outbreak started in Wuhan City China since December

2019. People across the world have been greatly affected by the ongoing coronavirus disease (COVID-19) pandemic. The high infection risk of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) in hospitals is particularly problematic for currently pregnant women who require professional antenatal care (*Huynh et al., 2020*).

Also Accessing antenatal care through social media platforms used would be a preferable alternative for these pregnant women since it can provide pregnancy-related information and help to

provide relatively economical medical services and diminish health care inequality due to its convenience and cost-effectiveness, so the use of social media platforms could be effective in promoting maternal and fetal wellbeing (*Overdijkink et al., 2018; Huailiang et al., 2020*).

Important roles of the nurse in providing high quality antenatal care and supporting pregnant women during a public health emergency as COVID-19 Pandemic. Also, the nurse should anticipate that the pregnant women are using the internet for health information and should be proactive in referring them to reputable websites and helping them identify trustworthy websites as part of routine prenatal care and childbirth education (*Zhong et al., 2020*).

### **Significance of the study:**

COVID-19 is a substantial international public health issue. Globally, as of 6 April 2023, there have been 762,201,169 confirmed cases of COVID-19, including 6,893,190 deaths, reported to WHO. In Egypt, from 3 January 2020 to 6 April 2023, there have been 515,882 confirmed cases of COVID-19 with 24,821 deaths (*WHO, 2023*).

Pregnant women might be at increased risk for severe illness from COVID-19 compared to non-pregnant people. Additionally, there may be an increased risk of adverse pregnancy outcomes, such as preterm birth, among pregnant people with COVID-19. So, Social media platforms is becoming the best choice for pregnant women. to be used for accessing antenatal care information (*CDC, 2020; Tadesse, 2020*).

### **Aim of the study:**

The aim of this study is to assess the effect of accessing antenatal care information via social media platforms on maternal and fetal well-being during COVID19 pandemic.

### **Through:**

- 1-Assessing the pregnant women knowledge about accessing antenatal care information via social media platforms during COVID19 pandemic.
- 2-Determining the different channels used by the pregnant women for seeking information

about antenatal care via social media platforms during COVID19 pandemic.

- 3-Identifying barriers that affect pregnant women & satisfaction level toward accessing antenatal care information via social media platforms during COVID19 pandemic.
- 4-Studying the effect of accessing antenatal care information via social media platforms on maternal and fetal well-being during COVID19 pandemic.

### **Research questions**

**Q1-** What is the pregnant women knowledge about accessing antenatal care information via social media platforms during COVID19 pandemic?

**Q2-** What are the different approaches used by pregnant women for seeking antenatal care information via social media platforms during COVID19 pandemic?

**Q3-** What are the barriers that affect pregnant women & satisfaction toward accessing antenatal care information via social media platforms during COVID19 pandemic?

**Q4-** What is the effect of accessing antenatal care information via social media platforms on maternal and fetal well-being during COVID19 pandemic?

### **Subjects and Methods:**

#### **I. Research design:**

A descriptive research design was used to conduct the study.

#### ▪ **Setting:**

The study was conducted online on social media platforms through Facebook group  
**Sample:**

A Purposive Sample included 355 pregnant women with the following criteria:

#### **Inclusion Criteria:**

- Ability to deal with different social media platforms.
- Pregnant women with different gestational ages.
- Prim gravida and multiparous women.
- Literate pregnant women.
- Have smart mobile and internet access.

**Exclusion Criteria:**

Pregnant women with high risk medical complications

**Tools of Data Collection:**

The data for this study were collected by using three tools:

**Tool (I):** Online questionnaire: It was designed by the investigator based on review of pertinent literature. It was composed of four parts:

**The first part consist of:**

Question to assess the studied pregnant women socio-demographic characteristics included: Age, Educational level, Occupation, Place of residence, and Economic level. It composed of questions from 1-5.

**The Second part:**

It was consisted of questions about Obstetrical history for the pregnant women. It included: Gravidity, Parity, Abortion, level of gestational age, Complications of previous pregnancies, and Mode of previous delivery. It composed of questions from 6-11.

**The Third part:**

**Knowledge assessment sheet:** It was designed by the investigator based on review of pertinent literature to assess pregnant women knowledge about accessing antenatal care information via social media platforms during covid19 pandemic including questions about:

**A- Antenatal care information** as definition, importance, frequency of visits, vaccine take during pregnancy, examinations and investigations, diet during pregnancy, importance of dietary supplement (iron and folic acid), minor discomfort, danger signs during pregnancy, information sources of antenatal care during pregnancy before the usage of social media platforms. It composed of questions from 12-21.

**❖ Scoring System:****Knowledge scoring system:**

The correct response to each question was given 2 grades and 1 grade for the incorrect. The total scores were graded as < 75 % unsatisfactory level, ≥ 75 satisfactory level.

**B- Social media platforms**

**information:** It included: channels of social media platforms, frequency of use, advantages and disadvantages of social media platforms, source of information to use social media platforms, usefulness of information obtained, and correct use of information. It composed of questions from 22-30.

**The Fourth part:**

**Barriers assessment:** It included one open question about barriers facing the pregnant women toward accessing antenatal care information via social media platforms which included: sociocultural barriers, economical barriers, language barriers and technological barriers. It composed of one open question number 31.

**Tool (2): Satisfaction Likert scale:**

It was adopted from *Zedan et al. (2021)* and modified by the investigator. It considered six items to assess pregnant women's satisfaction regarding different channels of social media platforms used and content introduce through it as easy methods for communication, fast reach for the needed information, available of the channel at any time, attractive method of learning experiences about pregnancy, safe time, effort and money, positive effect of pregnancy on woman condition. It composed of questions from 1-6.

**Satisfaction Scoring system**

Start from disagree Scored 1, undecided scored 2, agree scored 3. The total scores were graded as < 75 % unsatisfied, ≥ 75 satisfied.

**Tool (3): Pregnancy follow up condition's questionnaire.**

It designed by the investigator based on review of pertinent literature and designed by Arabic language. It included two main items

**Section I:** It considered with maternal well-being as Social media platforms changes lifestyle as taking healthy diet, drinking enough amount of water, practice exercise during current pregnancy, take enough rest and sleep, ability to perform daily activity, dietary complement. Also, occurs of problems during current pregnancy and method to deal with it, such as nausea and vomiting, backache, heart burn, foot edema, leg cramps, frequent

urination, constipation, stress and anxiety. It composed of questions from 1-22.

**Section II:** It considered with fetal wellbeing as gestational age, fetal heart rate, fetal kicks, and maternal ultrasonography to identify normal condition of the fetus and any abnormalities. It composed of questions from 23-30.

**The Effect on maternal and fetal well-being scoring for each answer given as follows:**

2= Correct answer

1= Incorrect answer

**The total score of knowledge = 30**

The total effect on maternal and fetal well-being was considered effective if the total score  $\geq 75\%$  (45-60 score) and considered ineffective if the total score  $< 75\%$  (30-45 score).

## II. Operational design:

The operational design includes preparatory phase, Content validity and reliability, pilot study and field of work.

### Preparatory Phase:

It includes reviewed the current, local and international related literature using books, articles, magazines, internet. This review helped the investigator to be more acquainted with the study and guided the investigator to prepare data collection tools and tested for being valid & reliable.

### Validity and Reliability:

#### Validity:

The content validity of the study tools was assessed by a jury consisted of three expertise in maternity and gynecological nursing department to review the tools for clarity, relevance, and comprehensiveness, and according to their opinion some modifications were considered.

#### Reliability

Internal consistency reliability was assessed in the present study tools via Cornbrach's alpha reliability analysis to indicate how the items in instrument will fit together conceptually; alpha

Cornbrash's test scores were 88 and 92 for the questionnaire about accessing antenatal care information via social media platforms and effect on maternal and fetal well-being during COVID19 pandemic, gynecology nursing field to judge the tool for its comprehensiveness, clarity, relevance, understanding and applicability. The tools were rephrased based on the jury opinion based on their recommendations; additions, correction and modification of some items were done.

### Pilot Study:

It was used to evaluate time needed for pregnant women to fill tools of the study. It involved 36 pregnant women's (10% from total sample size). Pregnant women included in the pilot study, included in the sample too. According to the results of the pilot, no omissions of items were performed, so the pregnant women were included in the study sample.

## III- Administrative Design:

An official approval to conduct this study was obtained from dean of faculty of nursing, Ain Shams University through an issued letter containing the title and aim of the study. And scientific research ethical committee in the faculty of nursing as an approval to conduct this study. The purpose of the study was explained to them to get their consent and cooperation.

### Ethical Considerations:

The investigator approval was obtained from the ethical committee of the faculty of nursing at Ain Shams University. The investigator clarified the objective and aim of the study to the pregnant women included in the study before starting. Oral consent was obtained from the investigator to assure that all the gathered data was confidential and used for research purpose only. The investigator was assuring maintaining anonymity and confidentiality of the subject data included in the study. All pregnant women were informed that they are allowed to choose to participate or not in the study and that they have the right to withdraw from the study at any time without giving any reason and confidentiality of the information were assured.

### Field of Work:

Field of work included the following:

- Approval was obtained from a scientific, and ethical committee of the faculty of nursing at Ain Shams University, and the data was collected online on social media platforms through Facebook group. The study subjects gave oral agreement online to participate in the study.
- Firstly, the investigator designed a group on Facebook (<https://facebook.com/groups/1028522324536849/>) named as antenatal care information via social media platforms during COVID-19 pandemic by Arabic language, and introduced herself to the pregnant women, explains the aim of the study to the pregnant women whom participate in the study and keep privacy until the study is completed, assessed individually using the previously mentioned tool.
- Participants were informed about voluntary participation, the right to withdraw at any stage of data collection and the pregnant women were assured that the information collected would be treated confidentially and that it would be used only for the study.
- Then, the online questionnaire tools were sent to all the pregnant women on social media platforms sites by sent link of the questionnaire to pregnant women's smart mobile phone directly via social media platforms and pregnant women used it by clicking the link using smart mobile phone, iPad or other digital devices then filled questionnaire:

([https://docs.google.com/forms/d/e/1FAIpQLScpqJBgPI2r8PDZErSelr4BVpeYVs\\_gi6UueK2YgoY65YkOg/viewform?usp=pp\\_url](https://docs.google.com/forms/d/e/1FAIpQLScpqJBgPI2r8PDZErSelr4BVpeYVs_gi6UueK2YgoY65YkOg/viewform?usp=pp_url)).

- The investigator observed response on Google form of every pregnant women who used the online questionnaire to ensure actually participation in the study. Time required to complete the online questionnaire was around 20-30 minutes.

- Availability of the investigator to answer for any question from the pregnant women related to online questionnaire from 9:00Am to 5:00Pm by leave link of a group on telegram for pregnant women included in the study:

(<https://t.me/+RPfFK7tMUZ9jMWJk>)

- The investigator designing online questionnaire by red star on every question required to guide the pregnant women to answered it completely before transfer to the next question, by this method used by the pregnant women, the investigator make sure that all questions answered completely without missing any items by the pregnant women.
- After submission of the pregnant women answer on questionnaire. This response reaches to the investigator immediately on Google form where questionnaire present.
- Data were collected through six months, from the beginning of March 2022 to the end of August 2022. The investigator was available online on social media platforms through Facebook and telegram.

#### Limitation of the study:

- Problems in internet network connection when contact with pregnant women included in the study.

#### IV. Statistical design:

Data collected online from the studied pregnant women was revised, coded and entered using Personal Computer (PC). Computerized data entry and statistical analysis were fulfilled using the Statistical Package for Social Sciences (SPSS) version 22 (SPSS Inc., Chicago, Illinois, USA). Data were presented using descriptive statistics. Quantitative data were expressed as mean± standard deviation (SD). Qualitative data were expressed as frequency and percentage. Suitable statistical tests used to test the significance of the results obtained.

**Results:**

**Table (1):** Presented socio-demographic characteristics of the studied pregnant women. It was found that 49.9% of the studied pregnant women were in age group 25-30 years with mean age 26.54±4.51 years and 57.7% of the pregnant women had secondary education. Also, were employed and from urban residence with percentage (55.2%, 59.7%) respectively. In addition, 49.9% of them were moderate income.

**Table (2): illustrates that,** 68.5% of the studied pregnant women had satisfactory level of knowledge about antenatal care information during COVID19 Pandemic.

**Table (3): illustrates that,** 42.2% of the pregnant women had different channels of social media platforms like Facebook, Twitter, Instagram, YouTube, Google, WhatsApp, and Telegram. 73.0% of them daily using time to social media platforms sites with 59.7% of them attended <2hr using social media platforms sites. In addition, 55.8% of them using social media platforms during pregnancy for seeking the information and understanding the development of the baby, respectively.

Also, the most favorite channels of social media platforms that used for accessing antenatal care information during covid19 pandemic among the studied pregnant women was Facebook and Telegram with percentage (28.1%&27%)

respectively. Moreover, 27.9% & 27.6% use this type of social media platforms because the ability to access and trust any information and follow the physician instructions through the groups, respectively.

**Table (4): illustrates that,** 34.6% of the studied pregnant women faced economical barriers and 30.7% of them faced language barriers toward accessing antenatal care information via social media platforms, respectively.

**Table (5): illustrates that,** 73.0% of the studied pregnant women satisfied with different channels of social media platforms used and content during COVID19 Pandemic.

**Table (6): illustrates that,** 58.0% effect of accessing antenatal care information via social media platforms on maternal well-being was effective, (71.5%, 77.5%) socially, psychologically and 56.3% physically, respectively. On the other hand, 57.2% effect on fetal well-being was effective. **Additionally,** 64.2% total effect accessing antenatal care information via social media platforms on maternal and fetal well-being.

**Table (7): shows that,** there was statistically significant relation between total score of knowledge and total score of satisfaction and total score of effect of accessing antenatal care information via social media platforms on maternal and fetal well-being, respectively.

**Table (1): Number and percentage distribution of the studied pregnant women according to their socio-demographic characteristics (N=355).**

Socio-demographic data	No.	%
Age (years)		
≤20-25 years	141	39.7
<b>25-30 years</b>	177	<b>49.9</b>
≥30-35 years	37	10.4
Mean ± SD	26.54±4.51	
Educational level		
<b>Primary education</b>	24	6.8
<b>Secondary education</b>	205	<b>57.7</b>
<b>University</b>	126	35.5
Occupational status		
<b>Employed</b>	196	<b>55.2</b>
<b>Housewife</b>	159	44.8
Residence		
<b>Rural</b>	143	40.3
<b>Urban</b>	212	<b>59.7</b>
Economical level		

Low income	125	35.2
Moderate income	177	49.9
High income	53	14.9

**Table (2): Number and percentage distribution of the studied pregnant women according to their level of total knowledge about antenatal care information during COVID19 Pandemic (N=355).**

Level of total knowledge about antenatal care information	No.	%
Satisfactory $\geq 75\%$	243	68.5
Unsatisfactory $< 75\%$	112	31.5
Total	355	100.0

**Table (3): Number and percentage distribution of the studied pregnant women according to their information about social media platforms during COVID19 Pandemic (N=355).**

Information about social media platforms	No.	%
<b>Different channels of social media platforms that the pregnant women know</b>		
Facebook	74	20.8
Twitter	10	2.8
Instagram	14	3.9
You tube	8	2.3
Google	23	6.5
Whatsapp	16	4.5
Telegram	60	16.9
All the above	<b>150</b>	<b>42.2</b>
<b>The appropriate using time to social media platforms sites</b>		
Daily	259	<b>73.0</b>
Weekly	64	18.0
Monthly	32	9.0
<b>The appropriate hours for using social media platforms sites</b>		
<2hr	212	<b>59.7</b>
3-4hrs	111	31.3
>6hrs	32	9.0
<b>Reasons for using social media platforms during pregnancy</b>		
Information seeking and understanding the development of the baby	198	<b>55.8</b>
Connecting with family and friends	46	13.0
Medical advice and reassurance	78	22.0
Socially support	33	9.3
<b>The most favorite channels of social media platforms that you use for accessing antenatal care information during covid19 pandemic</b>		
Facebook	<b>100</b>	<b>28.1</b>
Twitter	2	0.6
Instagram	45	12.7
You tube	70	19.7
Google	7	2.0
Whatsapp	35	9.9
Telegram	<b>96</b>	<b>27</b>
<b>Reasons to use this type of social media platforms</b>		
Reliable	62	17.5
The ability to communicate and benefit from the experiences of mothers	98	27.6
Follow the physician instructions through the groups	96	<b>27.0</b>
The ability to access and trust any information	99	<b>27.9</b>

**Table (4): Number and percentage distribution of the studied pregnant women according to their barriers toward accessing antenatal care information via social media platforms (N=355).**

Barriers	No.	%
Sociocultural barriers	46	13.0
Economical barriers	123	<b>34.6</b>

Language barriers	109	30.7
Technological barriers	77	21.7

**Table (5): Number and percentage distribution of the studied pregnant women according to their level of total satisfaction regarding different channels of social media platforms used and content during COVID19 Pandemic (N=355).**

Level of total satisfaction regarding different channels of social media platforms used and content	No.	%
Satisfied $\geq 75\%$	259	73.0
Unsatisfied $< 75\%$	96	27.0
Total	355	100.0

**Table (6): Number and percentage distribution of the studied pregnant women according to their level of total effect of accessing antenatal care information via social media platforms on maternal and fetal well-being during COVID19 Pandemic (N=355).**

Effect of accessing antenatal care information via social media platforms on maternal and fetal well-being	Effective $>75\%$		Ineffective $<75\%$	
	No.	%	No.	%
Effect on Maternal well-being	206	58.0	149	42.0
- Physical Effect	200	56.3	155	43.7
- Psychological Effect	254	71.5	101	28.5
- Social effect	275	77.5	80	22.5
Effect on fetal well-being	203	57.2	152	42.8
Total effect on maternal and fetal well-being	228	64.2	127	35.8

**Table (7): Correlation matrix between total score of knowledge about antenatal care information; total score of satisfaction regarding different channels of social media platforms used and content and total score effect of accessing antenatal care information via social media platforms on maternal and fetal well-being.**

Item		Total score of knowledge	Total score of satisfaction	Total score Effect
Total score of knowledge	R		0.136	0.143
	p-value		0.011*	0.007*
	N		355	355
Total score of satisfaction	R	0.136		.202
	p-value	0.011*		0.003*
	N	355		355
Total score Effect	R	0.143	.202	
	p-value	0.007*	0.003*	
	N	355	355	

*r*-Pearson Correlation Coefficient; \**p*-value  $< 0.05$  significant correlation; \*\**p*-value  $< 0.001$  highly significant

## Discussion:

A major effect of the COVID-19 pandemic response has been to impose restrictions on face-to-face antenatal care interactions of all kinds. So, accessing antenatal care information through social media platforms can be a useful, alternative option for pregnant women and could be effective in promoting maternal and fetal wellbeing during the pandemic (*Li et al., 2020*).

**Pertaining to patient's age,** the findings of the present study revealed that near half of the studied pregnant women were in age group 25-30 years with mean age  $26.54 \pm 4.51$  years.

This result was consistent with *Muhaidat et al. (2020)* in a study entitled "Pregnancy during COVID-19 outbreak: The impact of lockdown in a middle-income country on antenatal healthcare and wellbeing" who found almost half of the participants belonged to the 25–29-year age group.

This result agreed with *Tadesse (2020)*, who studied the antenatal care service utilization of pregnant women attending antenatal care in public hospitals during the COVID-19 pandemic period and found that most of the pregnant women are in their active productive stage of life in the age group 25-35 years.

On the other hand, this result was contradicted with *Vasilevski et al. (2022)* in a study entitled "Receiving maternity care during the COVID-19 pandemic: Experiences of women's partners and support persons" who found aged almost half of the participants belonged to the 31–40-year age group.

**Owing to the educational level** of the studied pregnant women, the findings of the present study revealed that more than half of pregnant women were had secondary educational level.

These results were in accordance with *Ariani (2022)* in a study entitled "Antenatal care services utilization during COVID-19 second wave attack in Pasuruan, Indonesia" who reported the educational status wise observation showed that less than half of the studied pregnant women had up to secondary level of education.

This result was contradicted with *Jiang et al. (2021)* in a study entitled "Maternal mental health status and approaches for accessing antenatal care information during the COVID-19 epidemic in China" who found the majority of women had completed college and above level of education.

They attributed this to the fact that less educated women may lack knowledge and practice regarding accessing antenatal care information, which in turn give special concern in referring them to reputable websites and helping them identify trustworthy websites as part of routine prenatal care and childbirth education.

**Regarding occupational status**, the findings of the present study revealed that more than half of the studied pregnant women were employed.

This result was consistent with *Musiimenta et al. (2022)* who conducted a study about "Challenges in accessing maternal and child health services during COVID-19 and the potential role of social networking technologies" who reported more than two third of studied pregnant were employed.

This result was contradicted with *de Guzman et al. (2022)* in their study entitled "Antenatal care utilization during the COVID-19 pandemic: an online cross-sectional survey

among Filipino women" who reported that Majority of pregnant women were unemployed.

**Regarding to pregnant women's residence**, the findings of the present study revealed that more than half of the studied pregnant women were from urban.

this result is in agreement with *Ali & Abo-Kresha (2021)* who studied the Patterns and Determinants of Utilization of Antenatal Care Services by Pregnant Women in Egypt and reported that most pregnant women in their study are residing urban areas.

On the other hand, this result was contradicted with *An et al, (2023)* in his study entitled "Social media reconstructions of urban identity during the COVID- 19 pandemic" who reported majority of pregnant women were from rural area.

**Concerning to knowledge about antenatal care information during COVID19 Pandemic**, the present study revealed that more than two third of the studied pregnant women had satisfactory level of knowledge about antenatal care information during COVID19 Pandemic, as the majority of studied pregnant women have satisfactory level of knowledge about importance of antenatal care for pregnant women, antenatal care visits schedule, examinations and investigations during pregnancy, and also minor discomfort, dangerous signs during pregnancy

This result was consistent with *Chatwin et al. (2020)* who conducted study about "Experiences of pregnant mothers using a social media based antenatal support service during the COVID-19 lockdown in the UK: findings from a user survey" who reported that, a high proportion of pregnant women who completed the survey (82.5%) to agree or strongly agree that during COVID-19 they had been able to access more pregnancy related information.

**Regarding to the social media platforms that the pregnant women use**, the present study showed that about 42.2% of the studied pregnant women used different channels of social media platforms like Facebook, Twitter, Instagram, YouTube, Google, WhatsApp, and Telegram.

This finding was in harmony with *Ng et al. (2020)* who conducted a study about "Perception and feelings of antenatal women during COVID-19 pandemic: A cross-sectional survey" who found the most common sources used by antenatal women for obtaining information regarding COVID-19 infection and its effects were social media platforms, constituting Facebook and WhatsApp message forwards.

This result disagreed with *Khadpe et al. (2019)* who conducted a study about "Barriers to utilizing social media platforms in emergency medicine residency programs" who reported that audio-based platforms (e.g., podcasts) and blogs were the most common platforms utilized with more than half of respondents indicating they were currently or had previously attempted them for residency education.

From the researcher's point of view, this result might be due to the COVID-19 pandemic has seen unprecedented restrictions on face-to-face antenatal care encounters. This has led to an increase in the use of online antenatal resources by the pregnant women.

**According to the appropriate using time to social media platforms sites**, the present study demonstrated that more than half of the studied pregnant women daily using time to social media platforms sites with 59.7% of them attended <2hr using social media platforms sites for information seeking and understanding the development of the baby.

This finding was in harmony with *Zhang et al. (2021)* in a study entitled "Social media use, unhealthy lifestyles, and the risk of miscarriage among pregnant women during the COVID-19 pandemic" who found the pregnant women attend social media <2hr in the day.

This result was contradicted with *Saud et al. (2020)* in their study entitled "Usage of social media during the pandemic: Seeking support and awareness about COVID-19 through social media platforms" and reported that more than half of the pregnant women included in the study using social media platforms more than 2hrs (up to 2hrs).

**Concerning to the most favorite channels of social media platforms** that used for accessing antenatal care information during covid19 pandemic, the present study

demonstrated that the studied pregnant women using Facebook and Telegram with percentage (28.1%&27%). They use this type of social media platforms because the ability to access information, communicate and benefit from the experiences of mothers. And follow the physician instructions through the groups.

This finding supported by *Shieh et al. (2020)* in their study about "Engagement design in studies on pregnancy and infant health using social media: Systematic review" who reported that Facebook and telegram was the most frequently used social media platform followed by Google· Craigslist, university clinical trial website, local city classifieds or individual study websites; Twitter; and social media sites created by researchers or special interest groups.

On the other hand, this result was contradicted with *Meahni et al., (2020)* who conducted a study about " Knowledge translation and social media: Twitter data analysis of the 2019 Canadian Guideline for Physical Activity throughout Pregnancy" who reported that the highest percentage of pregnant women was used hashtags to capture tweets and re-tweets related to physical activity and antenatal care information during covid19 pandemic.

**Regarding barriers toward accessing antenatal care information via social media platforms**, the present study showed that more than one third of the studied pregnant women faced economical barriers and more than one quadrant (30.7%) of them faced language barriers toward accessing antenatal care information via social media platforms.

These study findings were in harmony with *Sriwijitalai & Wiwanitkit (2023)* who studied Social media campaign and research program to address COVID-19 vaccine hesitancy in pregnancy, and reported that the highest studied pregnant women faced economical barriers and less access to the internet and smartphones, as well as cultural and language barriers to app referral and content.

**Related their total satisfaction regarding different channels of social media platforms used and content introduce through it during COVID19 Pandemic**, the present study illustrates that 73% of the studied

pregnant women were satisfied with different channels of social media platforms used and content introduced. While, 27% of them weren't satisfied regarding time, effort and money while using social media platforms.

These study findings were in agreement with *Tsoy et al. (2021)* who studied role of social media in shaping public risk perception during COVID-19 pandemic and the study conducted by *Chen et al. (2020)* about characteristics of online medical care consultation for pregnant women during the COVID-19 outbreak and reported that the majority of pregnant women were completely or comparatively satisfied with e-health, and most of online obstetric consultations were completely or mostly solved.

On the other hand, this result was contradicted *Li & Liu (2020)* in their study about social media use, eHealth literacy, disease knowledge, and preventive behaviors in the COVID-19 pandemic: Cross-sectional study on Chinese netizens. And reported that high percentage of studied pregnant women were not satisfied with different channels of social media platforms used and content during COVID-19 Pandemic.

**Regarding total effect of accessing antenatal care information via social media platforms on maternal and fetal well-being during COVID-19 Pandemic**, the present study revealed that the majority of the studied pregnant women reported that accessing antenatal care information via social media platforms was effectively on maternal well-being, (77.5%,71.5%) socially, psychologically and 56.3% physically, respectively. In addition to, it was effectively on fetal well-being.

These study findings were in harmony with *Marcell et al. (2022)* who studied "a social media campaign and research program to address COVID-19 vaccine hesitancy in pregnancy" who found that the majority of the studied pregnant women that used the social media to get information in this period reported the effect of accessing antenatal care via social media platforms was effective on psychological, social, and physical status of the pregnant women. On the other hand, this result was contradicted with *Vasilevski et al. (2022)* in a study entitled "Receiving maternity care during

the COVID-19 pandemic: Experiences of women's partners and support persons" who found the social media not had psychological effect, and physical effect.

**Regarding Correlation matrix between total score of knowledge about antenatal care information; total score of satisfaction regarding different channels of social media platforms used and content and total score effect of accessing antenatal care information via social media platforms on maternal and fetal well-being**, the present study shows that there was statistically significant relation between total score of knowledge and total score of satisfaction and total score of effect of accessing antenatal care information via social media platforms on maternal and fetal well-being, respectively. This result went in the same line with *Jiang et al. (2020)* in a study entitled " Evidence of accessing antenatal care information via social media platforms supports mental wellbeing in COVID-19 epidemic" who founded that, there was statistically significant relation between knowledge about antenatal care and satisfaction about social media platforms and effect of accessing antenatal care information via social media platforms on maternal and fetal well-being.

#### **Conclusion:**

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The Majority of the studied pregnant women had satisfactory level of knowledge about antenatal care information during COVID-19 Pandemic. Most of the pregnant women have many channels of social media platforms as Facebook, Twitter, Instagram, YouTube, Google, WhatsApp, and Telegram and also, they satisfied with them. In addition to, majority of the studied pregnant women reported that accessing antenatal care information via social media platforms was effectively on maternal and fetal well-being.

#### **Recommendation:**

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- Integrate web or mobile technology-based program about pregnant women in nursing clinical practice.
- Implementing of health education sessions are needed to equip pregnant women with the skills to properly identify and access useful

information from social media, as well as to educate them about the potential negative impact that social media use may pose to their health.

**Further study**, to explore the effect of digital educational program on a diverse areas as postnatal, high risk, gynecology and family planning.

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