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Barriers to regular antenatal follow up among pregnant women during corona virus pandemic

Mona R Ahmed[1], Nabila Taha Ahmed[2], Shaimaa Mohammed Goda[3] & Heba Atef Osman[4]
[1.] Lecturer of Obstetric & Gynecological Nursing, Faculty of Nursing, Assiut University, Egypt
[2.] Professor of Obstetric & Gynecological Nursing, Faculty of Nursing, Assiut University, Egypt
[3.] Lecturer of Community Health Nursing, Faculty of Nursing, Assiut University, Egypt.
[4.] Lecturer of Women Health and Obstetrics Nursing, Faculty of Nursing, Minia University, Egypt.

Abstract
COVID-19 pandemic has impacted the delivery of regular services, which might have an impact on pregnant women's use of antenatal care (ANC). **Aim:** Assess barriers to regular antenatal follow up among pregnant women during corona virus pandemic **Design:** Descriptive exploratory cross sectional research design. **Setting**: The study was carried out at two MCH centers from Assuit city and three villages from Assuit district. **Sample:** 350 pregnant women. **Study tool:** A structured interview questionnaire. **Results:** There was statistically significant difference between urban and rural in relation to distance and transportation problems, lack of income, lack of awareness about ANC& Fear of getting Covid-19 infection with p-value .001, .005, 005 respectively. **Conclusion:** Fear of getting Covid- 19 infection, distance and transportation problems and lack of income are the most common barriers to irregular attendance of ANC visits duringCovid-9 Pandemic **Recommendations:** Community awareness campaigns for women regarding importance of antenatal care through various mass media

Keywords: Antenatal care, Barriers &COVID19 Pandemic

Introduction
Antenatal care (ANC) refers to the care provided to a pregnant woman during pregnancy through a series of consultations with skilled health care workers such as midwives, nurses, and a doctor who specialized in pregnancy and childbirth. It consists of monitoring and enhancing the health of both the mother and the fetus through education, counseling, screening, and treatment. Pregnant women who receive good antenatal care have the opportunity to interact with their healthcare provider, which increases the likelihood that they will use a skilled birth attendant. (**Hassen et al., 2021).**

Antenatal Care (ANC) provides essential healthcare services to pregnant women in terms of disease prevention, health promotion, and disease screening and diagnosis. When ANC is useful with appropriate practices and along recommended timelines, it can save life. (**Al Daajani et al., 2020).**

The World Health Organization (WHO) classified SARS-CoV-2 a global pandemic on March 11 due to the coronavirus's rapid spread since it first emerged in late 2019 **(Zacharias et al., 2021).** SARS-CoV-2 is a new coronavirus, community-based responses are necessary in addition to hospital-based interventions. Pregnant women deserve a human birth that prioritizes the physical and emotional well-being of the mother and the fetus first in this protracted health crisis. Innovative approaches are urgently required in an already overburdened health system to prevent the deterioration of mother and child outcomes **(Kimani et al., 2020**)

Countries are facing significant obstacles in maintaining the vital, high-quality maternal and newborn health care because to the COVID-19 pandemic. Preventing Covid-19 infection in pregnant women while still ensuring that they receive proper prenatal care is a big challenge. **(Zacharias et al., 2021)**

The impact of COVID-19 pandemic on maternal and perinatal health extends beyond the disease-related morbidity and mortality. The safety of expectant mothers and their newborn babies may also have been affected by widespread lockdowns, disruptions to health services, and fear of visiting medical facilities. **(Roberton et al., 2020)**

In a studies performed by **Zacharias et al., 2021** reported that commonest barriers faced by pregnant women to regular antenatal follow up were fear of getting Covid-19 infection, distance and transportation problems , lack of income lack of family support to go for ANC and laboratories being closed

Pregnant women may experience troubles in accessing services due to transport disruptions and lockdown or be reluctant to visit to health facilities due to fear of infection **(Tadesse, 2020).**

Nurses play a significant role in the prevention of COVID 19 among pregnant women through appropriate education and tele nursing follow-up. Also, by directing women and their families to the right healthcare services, act as a vital link between the healthcare system and them (**Landrian et al., 2022).**

Significance of the study

Egypt 2022, By of September 2022, there were more than 610,866,075 confirmed COVID-19 cases worldwide, with 6,510,139 deaths (**WHO ,2022)** Maternal mortality has been on the rise in developing nations, and a number of international organizations have noted that a significant contributing factor to maternal mortality has been linked to inadequate antenatal care. Regular antenatal care must be implemented or strengthened in order to reduce these mortality rates, which can only be done by identifying the causes of inadequateantenatal care service utilization. **(Ahmed et al., 2021)**

Globally, COVID-19 pandemic has an impact on people's health and way of life. Antenatal care services have been severely impacted by the COVID-19 epidemic. Movement restrictions, a decline in healthcare services, and a shortage of healthcare professionals as a result of the requirement to respond to COVID-19 are the main causes of this. **(Adebisi et al., 2020)**

It is crucial that governments continue to make the necessary efforts to ensure that the global Sustainable Development Goal 3 Target 1 is achieved by 2030. This includes making sure antenatal care services and other related healthcare services are not disrupted due to the urgent need to contain the COVID-19 pandemic. **(Ogunkola et al., 2021)**

Pregnant women are one of the groups that are most susceptible to COVID 19 due to physiological and immunological changes. But regrettably, there is no data on the obstacles to routine prenatal care for pregnant women during a corona virus pandemic.

Due to the quarantine measures and the obstacles which causes by the pandemic; large number of pregnant women faced many barriers to follow their pregnant women which may have adverse effects on their fetus. Also, there was limited researches studying this topics, the current study conducted to assess these barriers for future management and overcome.

Aim of the study

Assess barriers to regular antenatal follow up among pregnant women during corona virus pandemic

Research question

What are the barriers to regular antenatal follow up among pregnant women during corona virus pandemic?

Subjects and Methods:

Research Design

The current study used a descriptive exploratory cross sectional research design. This type of observational study, also known as descriptive research, examines data on a population at a certain moment **(Polit & Beck, 2022).**

Setting

Assiut governorate is composed of 11 districts and Assiut city. Assiut District include 18 villages with rural health center. The study was conducted in three rural villages named (El shagaba - salaam - Drunka village) that were chosen by simple random sample.

Assiut city is containing 19 Maternal and Child Health Care centers (MCH) which include 11 centers in East and 8 centers in West; the current study was conducted in two MCH centers, Alwaleedah and Qolta MCH centers, which were chosen random through closed envelope method. MCH center provide health services such as family planning, child and antenatal vaccination, investigation and follow up for mother and children.

Sample type:

A Multi stage randomly sampled technique was used in this study. This sampling is a technique for gathering a sample from a population that involves dividing the population into smaller groups and selecting individuals from the smallest of the resulting groups **(Polit & Beck, 2022).**

Sample size:

The sample was 350 women (50% was from Assiut city to represent the urban and 50% was from Assiut district to represent the rural)

Sample size calculation:

Current study was conducted on 350 women. The sample was calculated according to the following equation:

n = [DEFF*Np (1-p)]/ [(d2/Z21-α/2*(N-1) + p*(1-p)]

DEFF (Design effect) = 1
N (population) = 4000
p (Hypothesized %) = 50%+/-5
d (tolerated margin of error) = 0.05
Z (level of confidence) = 1.96
α (Alpha)= 0.05
n = [1*4000*50%+/-5 (1-50%+/-5)/ [(0.05)2/ (1.96)21-0.05*(4000-1) + 50%+/-5 (1-50%+/-5)]
n= 350 woman

Inclusion criteria:

Women who was pregnant during covid19 pandemic and accepted to be involved in the study.

Tool of the study:

A **structured interview questionnaire** was adapted from much the same studies and modified to meet our goal of ensuring the data's content validity **(Zacharias et al., 2021, Rabbani et al., 2021, & Landrian et al, 2022)**

Part 1: Personal data included 4 close question (multiple choice) as age, residence, educational level& pregnant women occupation.

Part 2: obstetrical history included 4 open question (multiple choice) as number of gravidity, parity, no of abortion and still birth.

Part 3: Antenatal care attendance included 3 close question (as time of first antenatal visit, number of antenatal care visits & place of antenatal care visits

Part 4: Barriers for antenatal care included 7 close question (Yes ,No) as closed hospitals /diagnostic centers , Lack of family support to access (family refused), Distance and transportation problem, lack of income, lack of awareness about important ANC,Attitude of caregiver and fear of getting COVID19 infection.

Validity:

The study tool was reviewed for content validity by four experts in the fields of maternity and newborn health nursing, and community health nursing

Reliability

A reliability test was carried out by the researcher in order to examine the internal consistency of its questions. It was done during the pilot study before starting of data collected on 10% of women. The value of Cronbach's alpha was = 0.834.

Pilot study

To assess the tool's clarity, usefulness, and application, a pilot study involving 10% of the sample (35 women) was conducted. Also, in order to estimate the time required to complete the questionnaire

Ethical Considerations:

Prior to data collection, an official approval was taken from faculty of nursing council. The study's nature and objective was described to the women. Then the women gave their oral agreement to participate in the study. The women were informed that the study didn't cause any hurt or pain. Also, the data would be confidential and utilized only for the study. The women were informed that participating in the study is voluntary & they have the right to leave the study at any time.

Methods:

Preparatory phase:

Firstly, before the study began, an official approval letter was obtained from the undersecretary of the ministry of health in order to obtain a list of the names locations and number of Maternal and Child Health centers.

Secondly, an official approval was obtained from Maternal and Child Health centers director for obtaining a list of name and number of women who was pregnant during covid19 pandemic.

The implementation phase:

As a data base to Assiut health directorate; for the previous mentioned setting, address of women was taken and then health centers director assign health care worker to guide the researchers to identify the selected families' home and to be a source of security and confidentiality for the women .Data collection was done through home visits from march 2022 to the end of August 2022. The data were collected three days/week; 4-6 women / day were interviewed.

During the interview:

At the beginning of each interview, the researchers introduced themself to the woman then briefly explained the purpose and the nature of the study and oral consent was obtained from every woman to participation.The interview took about 30 minutes for each woman to collected data.

Statistical analysis

Data entry and statistical analysis was carried out using statistical package for social science program (SPSS. Version 2).Qualitative variables were presented as number and percentage.Quantitative variables were presented as mean +SD. Comparison between qualitative variables was done by using chi-square. Comparison between quantitative variables was done by using student t-test.

Results

Table (1): Distribution of the studied women according to their personal data

Personal data	N. (350)	%
Age:		
< 20yrs	53	15.1%
20- < 30 yrs	143	40.8%
30 - < 35yrs	86	24.6%
≥35yrs	68	19.4%
Residence:		
Urban	175	50%
Rural	175	50%
Educational level:		
Illiterate	14	4%
Primary	62	17.8%
Secondary	175	50%
University	99	28.2%
Occupation:		
Employee	114	32.6%
House wife	236	67.4%

Table (2): Distribution of the studied women according to their obstetrical history

Obstetrical history	N. (350)	%
1- Gravidity		
Primigravida	70	20%
<3	206	58.9%
>3	74	21%
2-Parity		
Nulliparous	92	26.3%
<3	200	57.1%
>3	58	16.6%
3- No of abortion		
No abortion	298	85.1%
1-2	50	14.3%
More than 2	2	.6%
4- No of still birth		
No stillbirth	336	96%
1	12	3.4%
2	2	.6%

Table (3): Pattern of Antenatal Care Utilization in the studied women

Antenatal Care Utilization	No	%
Number of antenatal care visits		
1-3	298	85.2%
≥4	52	14.8%
Time of first antenatal visit		
First trimester	78	22.3%
Second trimester	188	53.7%
Third trimester	84	24%
Place of antenatal care		
Governmental hospital	54	15.5%
MCH	168	48.0%
Private clinic	128	36.5%

Table (4): Distribution of the studied women by sociodemographic characteristics in relation to their attendance to ANC visits

Sociodemographic Characteristics	Attendance				P-Value
	Inadequate ANC (1-3 times)		Adequate ANC (4 times or more)		
	N=298	%	N=52	%	
Age (years)					
< 20	43	14.4%	10	19.2%	**. 303**
20-< 30	123	41.2%	20	38.5%	
30 -< 35	74	24.9%	12	23.1%	
>35	57	19.5%	10	19.2%	
Residence					
Rural	160	53.6%	15	28.8٪	**.005***
Urban	138	٪46.4	37	71.2٪	
Educational level:					
Illiterate	8	2.7%	6	11.6%	**.054***
Primary	52	17.4%	10	19.2%	
Secondary	157	52.7%	18	34.6%	
University	81	27.2%	18	34.6%	
Working status:					
Worker	100	33.6%	14	26.9%	**. 287**
House wife	198	65.4%	38	73.1%	

(*) statistically significant difference

Table (5): Distribution of the studied women according their barriers to irregular attendance of antenatal care visits

Barriers	Rural	%	Urban	%	P- value
Hospital were closed					
A problem	25	24.3%	16	9.2%	. **087**
Not a problem	150	85.7%	159	90.8%	
Lack of family support to access ANC					
A problem	66	37.7%	52	29.5%	.176
Not a problem	109	62.3%	123	70.5%	
Distance and transportation problems					
A problem	136	77.7%	50	28.5%	.001*
Not a problem	39	22.3%	125	71.5%	
lack of income					
A problem	89	50.8%	53	30%	.005*
Not a problem	86	49.2%	122	70%	
Lack of awareness about importance of ANC					
A problem	78	44.5%	36	20.6%	.005*
Not a problem	97	55.5%	139	79.4%	
Attitude of care giver					
A problem	60	34.3%	58	33.3%	.303
Not a problem	115	65.7%	117	66.7%	
Fear of getting infected with Covid 19					
A problem	148	84.5%	170	97.1%	.005*
Not a problem	27	15.5%	5	2.9%	

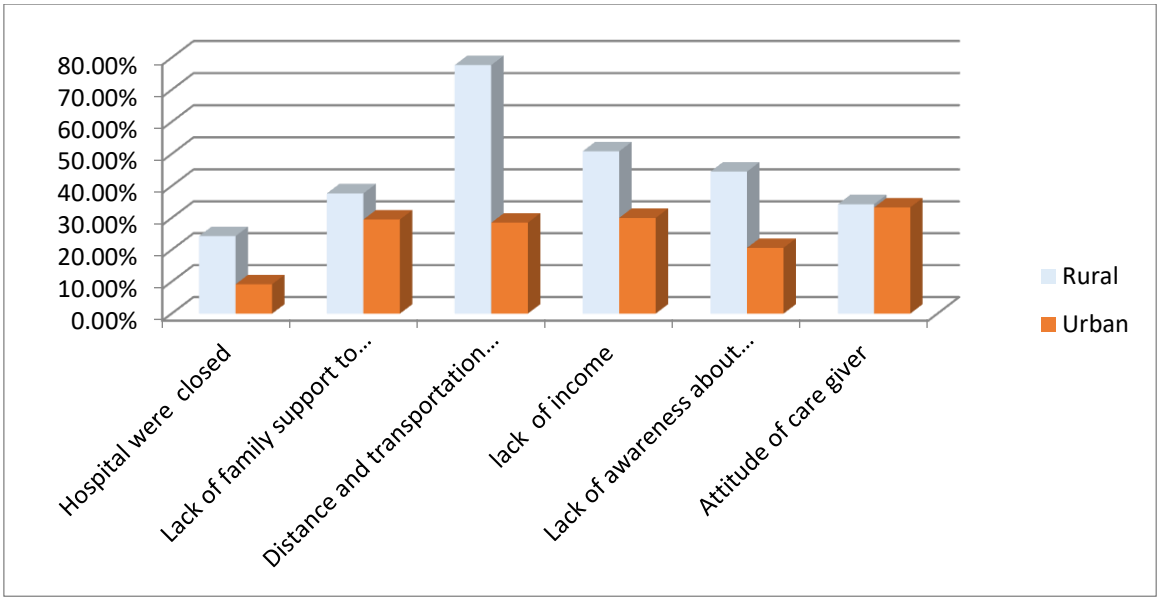

Figure (1): Barriers to regular antenatal follow up in rural and urban areas

Table (1): Illustrates that 40.8% of the women were from 20-<30years old. 50% of the women graduated from secondary school and 67.7% of them were housewives.

Table (2): Shows that 58.9% of the women were gravida less than three and 57.1% of the women were para less than three.

Table (3): Shows that 85.2% of the studied women had 1-3 antenatal visits while 53.7% started antenatal visits in their second trimester and regarding place of ANC (48%) attended ANC at Maternal and child health center.

Table (4): Illustrates that there were statistically significant differences between Residence &educational level and attendance to antenatal care visit With p-value of .005,.054 respectively While there were no statistically significant differences between their attendance to antenatal care visit and their age& working status.

Table (5): Illustrates that Fear of getting Covid-19 infection, distance and transportation problems and lack of income were the most common barriers to irregular attendance of ANC visits and there is statistically significant difference between urban

and rural in relation to distance and transportation problems, lack of income ,lack of awareness about ANC& fear of getting Covid-19 infection with p-value 001,.005,005 respectively .

Figure (1): Illustrates that distance and transportation problems, lack of income &lack of awareness about ANC were more common barriers to irregular attendance of ANC visits in rural than in urban with satistical significant difference with p-value 001,.005,005 respectively.

Discussion

Pregnancy and childbirth are crucial times in woman's life since they carry major risks for both the mother and the newborn. Complication during pregnancy and labour are the main reason for death and disability in developing countries (**Abdisa et al, 2020)** so this study aimed to assess barriers to regular antenatal follow up among pregnant women during corona virus pandemic.

The present study aimed to assess barriers to regular antenatal follow up among pregnant women during corona virus pandemic

The present study illustrated that the age of majority of sample ranged from 20-<30years, these results agree with **Landrian et al**, **(2022),** who conducted study about effects of the COVID-19 pandemic on antenatal care utilization in Kenya: a cross-sectional study, who found that age of studied sample range from 20 - 30 years. Regarding the Educational level, the present study revealed that the half of the studied sample graduated from secondary school, this result agree with **Abdisa et al, 2022** who revealed that the half of the studied samples had secondary educational level.

The present study found that less than one fifth of studied women had four or more antenatal care visits. The result of current study disagrees with Naqvi **et al, 2022** who studied health care in pregnancy during the COVID-19 pandemic and pregnancy outcomes in six low- and-middle-income countries and they found that around two thirds of studied sample had four or more antenatal care visits. This may be attributed to a Covid-19 pandemic that prevent women to attend ANC regularly during this period.

While regarding to time of first antenatal visit and place of antenatal care, the current study illustrated that nearly half of the studied women started ANC in second trimester and their antenatal follow-up was in MCH. This finding was in contrast with **Rabbani et al, 2021** in Saudi Arabia who found that although three-quarters of studied women reported receiving six or more ANC visits during their third trimester of pregnancy and the majority of them their antenatal care follow-up was in MCH. This is because most pregnant women in our study go to health units near their residence instead of going to distant hospitals to avoid infection with the Corona virus.

The current study revealed that there are statistically significant differences between residence & educational level and attendance to antenatal care visit with p-value of .005, .054 respectively. This finding was similar to **Tadesse, 2020** who found that women who have secondary education and above were more likely to utilize antenatal care visits. Also, in accordance with **Landrian, 2022** in Kenya who reported a significant difference among frequency of Antenatal care visit and the level of education. This might be explained as women with high educational status are aware of recognizing danger signs and understand the bad consequence of not attending antenatal care services.

While the current study revealed that there is no significant difference between the age and work status of studied sample and attendance to Antenatal care visits. This finding disagrees with **Tadesse, 2020** who conducted A study to assess Antenatal Care Service Utilization of Pregnant Women Attending Antenatal Care in Public Hospitals During the COVID-19 Pandemic Period & found there was a significant difference between age and attendance to Antenatal care visits.Also, disagrees with **Ayalew & Nigatu, 2018** Who carried a study about focused antenatal care utilization and associated factors in Debra Tabor Town, northwest Ethiopia and found that there was a significant difference between age and attendance to Antenatal care visits. This may be attributed to a difference in study place.

The current study revealed that, more than three quarters in rural area reported the distance and transportation problems as barrier to attendance of Antenatal care while only less than one third of studied sample in urban area reported the distance and transportation problems as barrier to attendance of Antenatal care. This finding disagrees with **Ariani, 2022** who found that slightly more than one fifth of women revealed that distance and transportation problems as barrier to attendance of Antenatal care visits. This may be due to difference in culture and the available abilities.

The present study revealed that majority of the studied women mentioned fear of getting Covid-19 infection in rural and urban area as most common barrier to attendance of Antenatal care visits. This finding is in the same line with **Tadesse, 2020** who found that the majority of women mentioned fear of getting infected with Covid- 19 in rural area as most common barrier to attendance of Antenatal care visits. Also, with **Ariani, 2022** who found that half of the studied sample mentioned fear of getting infected with Covid- 19 as most common barrier to attendance of Antenatal care visits. This is due to the availability of different information sources about the Covid virus through mass media, which led to an increase in people's awareness of

the risks of infection with the disease and this may have played a role in increasing apprehensions and fears. But this finding disagrees with **Zacharias, et al, 2021** that found slightly more than one third of women mentioned the fear of getting infected with Covid-19 in rural area as a barrier to attendance of Antenatal care visits.this difference may be back to difference in study place.

The current study's findings shedding the light on the most barriers facing the pregnant women to get antenatal care services to overcome future pandemic disease like covid 19 to protect mother and child especially high risk pregnancy .

Limitations

1. The main limitations that we faced it in this study is difficulty of home visits in terms of Consuming a lot of time and energy,Personal safety concerns and Non-Acceptance by some women.
2. Also distraction during data collection in interview was difficult to control.

Conclusion

Fear of getting Covid-19 infection, distance and transportation problems and lack of income were the most common barriers to irregular attendance of ANC visits during the Covid-9 Pandemic.

Recommendation

- Community awareness campaigns for women regarding importance of antenatal care through various mass media
- Wide range use of mobile clinics with integrated services of ANC to reach extreme areas.
- Health educational program via tele-health nursing and whatsapp for pregnant women to increase awareness and other vulnerable groups regarding COVID-19 infection prevention.

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