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Original Research Article

Awareness and Practice of COVID -19 Preventive Measures among Pregnant Women Attending Antenatal Care Clinic in a Tertiary Health Centre in North-Western Nigeria

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Abstract

Covid-19 pandemic has resulted in death of millions of people across the world. The impact of the disease on human health and the economic hardship on the affected countries have been severe. The public must routinely practice precautionary measures to control the spread of the disease, as no antiviral treatments are currently available. However, the level of awareness and practice of these preventive measures against Covid-19 infection among pregnant women, which constitute vulnerable groups have not been evaluated in our environment. The aim of the study was to determine the awareness and knowledge of pregnant women on Covid-19, its preventive measures and the practice of those preventive measures. It was a cross-sectional study among pregnant women attending antenatal care clinic at Usmanu Danfodiyo University Teaching Hospital, Sokoto. An interviewer administered questionnaire was used to obtain relevant information on sociodemographic characteristics and also their knowledge and practice of Covid-19 preventive measures. All the respondents were aware of Covid-19 infection and the source of information was from Television. All the respondents were aware of the various preventive measures of Covid-19 and the knowledge was good among 98.7% of the respondents. However, only 19.1% had good practice of the preventive measures. Educational status of the respondents was found to have significant association with knowledge of preventive measures (χ^2= 9.5, p = 0.014).

Keywords: Covid-19, Preventive measures, Awareness, Practice.

INTRODUCTION

The impact of corona virus (Covid-19) infection on human health and economic hardship have been severe worldwide. The disease was first reported in December 2019 in Wuhan, China, as a pneumonia-like disease with an unknown cause. On January 30th 2020, it was declared a public health emergency of international concern by World Health Organization (WHO). On the 11th February 2020, WHO named the disease as "Covid-19". On the 11th of March 2020 the disease was declared pandemic by WHO. (Nnama-Okechukwu C *et al.* 2020) Nigeria reported its first confirmed, case of Corona virus on 27th of February 2020. (Nnama-Okechukwu C *et al.* 2020) The Nigerian National Centre for Disease Control (NCDC) revealed that the first case of Covid-19 in Nigeria involved an Italian citizen. Since then, many cases have been reported in many states across the country. (Rasinussen SA *et al.* 2020, NCDC, 2020) Covid-19 infection seems to have particular impact on special population which includes those older than 65 years of age. ((Rasinussen SA *et al.* 2020, RCOG, 2020) Pregnant women are also considered to be of special concern because of the unique immunosuppression caused by pregnancy. (Rasinussen SA *et al.* 2020, Qiao J, 2020) Information on Covid-19 infection during pregnancy appeared limited. (Rasinussen SA *et al.* 2020, Qiao J, 2020, Yu N

et al. 2020) However, pregnant woman affected by other Corona virus infections such as middle east respiratory syndrome (MERS-COV) and severe acute respiratory syndrome (SARS-COV) have higher case fatality rate compared to non-pregnant woman. (Rasinussen SA *et al.* 2020, Nie R *et al*. 2020).

World Health Organization (WHO) has recommended series of preventive measures in other to curtail the continual spread of the Coronal virus disease and its associated mortality. These preventive measures include regular hand washing with water and soap, social distancing, covering nose and mouth while coughing and avoiding touching eyes, nose and mouth. (Nnama-Okechukwu C *et al.* 2020, Rasinussen SA *et al.* 2020, WHO, 2020) Media campaigns to disseminate information on these preventive measures to the general public have been engaged by various countries including Nigeria. However, the level of awareness and practice of these preventive measures against Covid-19 infection among pregnant women, which constitute vulnerable groups, have not been evaluated in our environment. Therefore, this study aimed at determining the awareness and practice of preventive measures against Covid-19 among pregnant women attending ANC in a tertiary health centre in Sokoto, Northwestern Nigeria.

METHODOLOGY

This was a cross-sectional study among pregnant women attending antenatal care clinic at Usmanu Danfodiyo University Teaching Hospital, Sokoto, North-Western Nigeria. All pregnant women who gave informed consent were recruited using simple random sampling until the calculated sample size was achieved. An interviewer administered questionnaire was used to obtain relevant information on sociodemographic characteristics and also their knowledge and practice of Covid-19 preventive measures. Sample size was calculated using formula for descriptive cross-sectional study.

$$n = \frac{Z^2pq}{d^2}$$

Where:
n= minimum sample size
Z = Standard normal deviate at 95% confidence level = 1.96
p = Proportion of those with good knowledge of preventive measures from previous study= 60.9% = 0.609
q =1-p = 1-0.609 = 0.391
d = degree of accuracy needed (0.05, using 95% confidence interval)

$$\text{Therefore } n = \frac{1.96^2\ (0.609)\ (0.391)}{(0.05)^2}$$

$$= \frac{3.8416 \times 0.238}{0.0025} = 365$$

Adding for 10% attrition rate, the minimum sample size (n) is given as

10% of 365= 36.5

Hence sample size= 365 + 37= 402

Operational definitions

Awareness of Covid-19: Those that have ever heard of Covid-19 infection

Awareness of preventive measures: Those that have ever heard of any of the preventive measures of Covid-19 infection.

Good knowledge of preventive measures: Those that have scored 80% and above of the questions on preventive measures.

Poor knowledge of preventive measures: Those that have scored less than 80% of the questions on preventive measures.

Good practice of preventive measures: Those that have scored 80% and above of the questions on practice of preventive measures. This indicates consistent practice of the preventive measures of Covid-19 infection.

Fair practice of preventive measures: Those that have scored 50-79% of the questions on practice of preventive measures. This indicates occasional practice of the preventive measures of Covid-19 infection.

Poor practice of preventive measures: Those that have scored less than 50% of the questions on practice of preventive measures. This indicates that they don't and rarely practice the preventive measures of Covid-19 infection.

Data analysis was performed using SPSS version 22. Categorical variables were presented in number and percentages while continuous variables presented in mean and standard deviation. Chi square test was used to test for association between sociodemographic characteristics and their knowledge & practice. It was also used to test for association between their knowledge and practice. Level of significance was set at $p< 0.05$.

Ethical consideration

Ethical clearance was obtained from the ethical committee of Usmanu Danfodiyo University Teaching Hospital Sokoto.

RESULTS

Among the 402 participants recruited into the study, 394 (98%) had complete information and were included in the final analysis. The mean age of the

respondents was 28.4 ± 5.4. The age ranged from 17 to 45 years. Majority of the participants were within the age group of 25 to 34 years. Most were Hausa/Fulani and practiced Islam as their religion. Most of them had tertiary level of education. The median parity was para 2. Table 1 shows the socio-demographic characteristics of the respondents.

Table-1: Sociodemographic characteristics of the respondents

Characteristics	Number (n)	Percentage (%)
Age(years)		
Less than 20 years	5	1.3
20 to 24 years	84	21.3
25 to 29 years	148	37.6
30 to 34 years	101	25.6
35 and above	56	14.2
Ethnicity		
Hausa	257	65.2
Yoruba	56	14.2
Igbo	31	7.9
Others	50	12.7
Occupation		
Not gainfully employed	132	33.5
Civil servant	100	25.4
	98	24.9
Others	64	16.2
Educational status		
No formal education	39	9.9
Primary	27	6.9
Secondary	97	24.6
Tertiary	231	58.6
Religion		
Islam	318	80.7
Christianity	76	19.3
Parity		
Nullipara	52	13.2
Para 1-4	288	73.1
Para 5 & above	54	13.7

Awareness on Covid-19: All the respondents were aware of Covid-19 infection and the main source of information was from Television. Figure 1 shows the source of in information on Covid-19 among the respondents.

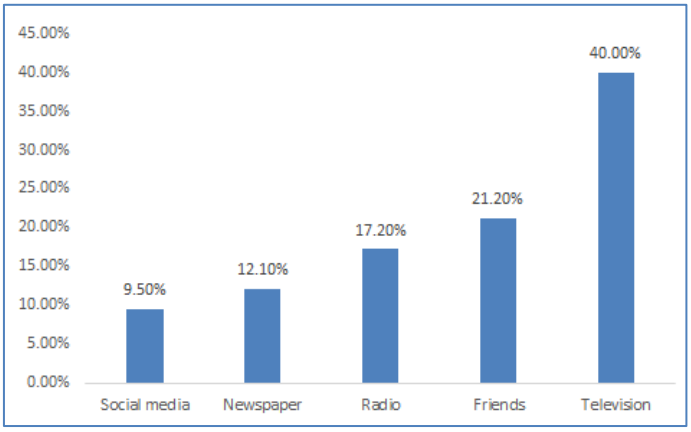

Fig-1: Source of information on Covid-19 by the respondents

Awareness of the preventive measures of Covid-19: All the respondents were aware of the various preventive measures of Covid-19 and the knowledge was good among 98.7% of the respondents. However, only 19.1% had good practice of the preventive measures. This is shown on figure 2.

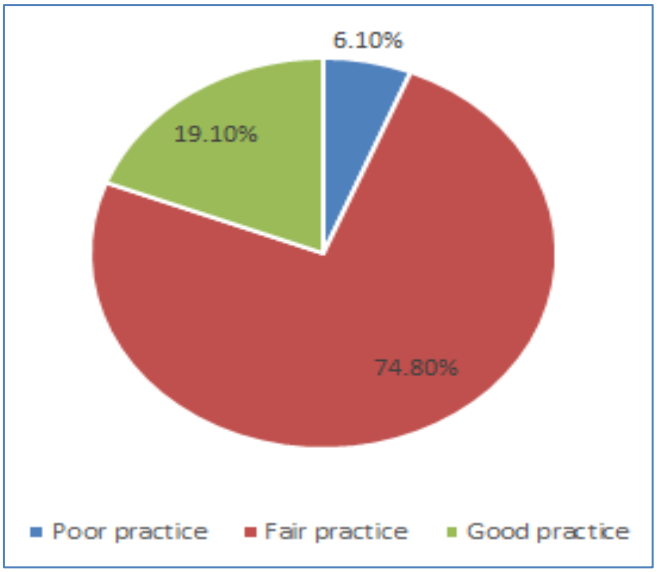

Fig-2: Practice of preventive measures by the respondents

The source of information on preventive measures was mainly from Television (40.1%). This is shown in figure 3.

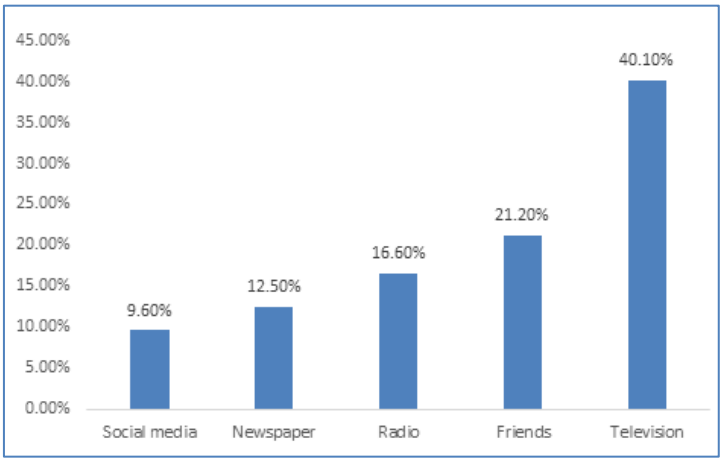

Fig-3: Source of information on preventive measures of Covid-19 among the respondents

Some of the reasons given by the respondents for not practicing preventive measures against Covid-19 infection were that they don't believe in the preventive measures, it's inconvenient and some said they don't have any reason. Some of the reasons are as shown on figure 4.

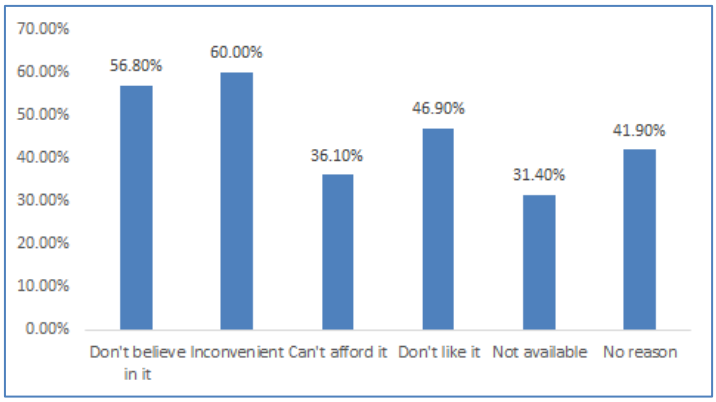

Fig-4: Some of the reasons for not practicing Covid-19 preventive measures by the respondents

Factors associated with knowledge of preventive measures among the respondents

The only factor that was found to have statistically significant association with the knowledge of preventive measures was the educational status of the respondents. Those with tertiary level of education had more knowledge compared to others (χ^2= 9.5, p = 0.014). This is shown in Table 2.

Table-2: Factors associated with knowledge of preventive measures among the respondents

Characteristics	Poor knowledge n (%)	Good knowledge n (%)	Fisher exact	*P* value
Age(years)				
Less than 20 years	0 (0)	5 (1.3)	4.45	0.29
20 to 24 years	0 (60)	78 (20.6)		
25 to 29 years	1 (20)	142 (37.6)		
30 to 34 years	1 (20)	99 (26.2)		
35 and above	0 (0)	54 (14.3)		
Occupation				
Not gainfully employed	2 (40)	126 (33.8)	3.2	0.31
Civil servant	0 (0)	99 (26.5)		
	1 (20)	92 (24.7)		
Others	2 (40)	56 (15.0)		
Educational status				
No formal education	3 (60)	29 (7.8)	9.56	0.014*
Primary	0 (0)	26 (7.0)		
Secondary	1 (20)	90 (24.2)		
Tertiary	1 (20)	227 (61.0)		
Parity				
Nullipara	0 (0)	5 (14.4)	1.4	0.49
Para 1-4	4 (80)	227 (76.5)		
Para 5 & above	1 (20)	33 (9.1)		

*: Significant p value

Factors associated with practice of preventive measures among the respondents

Among those with good practice, 45.8% were within the age group of 25-29 years followed by 20.8% among those 35 years and above. There was significant association between age group distribution and practice of Covid-19 preventive measures (χ^2 = 16.7, p = 0.023). Majority of the respondents with good practice (67.6%) had tertiary level of education and there was statistically significant association between educational status and practice of Covid-19 preventive measures (χ^2 = 15.86, p = 0.015). Majority of those with poor practice were unemployed and there was statistically significant association between occupation and practice of Covid-19 preventive measures (χ^2 = 15.3, p = 018). A high percentage of those with good practice were multipara and there was statistically significant association between parity and practice of Covid-19 preventive measures (χ^2 = 17.2, p = 003). Table 3 shows the factors associated with practice of preventive measures among the respondents.

Table-3: Factors associated with practice of preventive measures among the respondents

Characteristics	Poor practice n (%)	Fair practice n (%)	Good practice n (%)	Fisher exact	*P* value
Age(years)					
Less than 20 years	0 (0)	3 (1.1)	2 (2.8)	16.7	0.023*
20 to 24 years	3 (13)	65 (23.0)	12 (16.7)		
25 to 29 years	12 (52.2)	96 (34.0)	33 (45.8)		
30 to 34 years	4 (17.4)	84 (29.8)	10 (13.9)		
35 and above	4 (17.4)	34 (12.1)	15 (20.8)		
Occupation					
Not gainfully employed	12 (54.5)	83 (29.7)	30 (42.3)	15.3	0.018*
Civil servant	4 (18.2)	74 (26.5)	19 (26.8)		
	4 (18.2)	69 (24.7)	19 (26.8)		
Others	2 (9.1)	53 (19.0)	3 (4.2)		
Educational status					
No formal education	5 (21.7)	24 (8.7)	3 (4.2)	15.86	0.015*

Primary Secondary Tertiary	1 (4.3) 9 (39.1) 8 (34.8)	16 (5.8) 72 (26) 165 (59.6)	8 (11.3) 12 (16.9) 48 (67.6)		
Parity Nullipara Para 1-4 Para 5 & above	 5 (22.7) 12 (54.5) 5 (22.7)	 28 (10.3) 220 (81.2) 23 (8.5)	 17 (25.0 45 (66.2) 6 (8.8)	17.28	0.003*

*: Significant *p* value

Association between knowledge and practice of preventive measures of Coid-19 among the respondents

All the participants with good practice had good knowledge of Covid-19 preventive measures. However, there was no significant association between knowledge and practice of Covid-19 preventive measures ($\chi^2 = 2.92$, $p = 0.24$).

DISCUSSION

This study was aimed at assessing the level of awareness and practice of Covid-19 preventive measures among pregnant women attending antenatal care clinic in a tertiary health center in North-Western Nigeria. It provides highlight on the level of knowledge and practice of preventive measures against the transmission of coronavirus infection among the pregnant women. Covid-19 infectious disease has no optimal treatment yet among the infected individual (Chen W *et al*. 2020, Poon LC *et al*. 2020, Mullins E *et al*. 2020). Majority of the participants were within the age of 25-35 years, this falls within the active reproductive age group and this is in conformity with the subjects who were all pregnant. Most of the respondents were Hausa/Fulani and practiced Islam as their religion. This may not be unconnected with the environment where the study was carried out since majority of the people living there are of Hausa/ Fulani and practiced Islam as a religion.

In this study, all the respondents were aware of Covid-19 infection and the level of knowledge about the preventive measures against corona virus disease among them was very high. This may be as a result of intensive and aggressive media campaign by the Nigerian government to educate the populace on the preventive measures to curtail person to person transmission of the disease. Television, friends and radio were the leading source of information on the preventive measures for the majority of the respondents. This is similar to what was found in a study by Rasinussen SA *et al*. (Rasinussen SA *et al*. 2020). The reason for these leading sources of information may be related to the aggressive campaign by the Nigerian Government on the preventive measures against Covid-19 infection. Despite the high level of knowledge and awareness of preventive measures among the respondents, the level of practice of these preventives measures to halt the spread of the disease is poor. Some of the reason given by the respondents for not practicing preventive measures against Covid-19 infection were that they do not believe in the preventive measure, it is inconvenient and some said they do not have any reason. Additional reason may be due to the environmental factors such as the rural residence and their type of occupations requiring physical contact.

The study has found out that majority of the respondent with good practice of preventive measures, had tertiary level of education and there was statistically significant association between educational status and practice of Covid-19 preventive measures. Similarly, the study has found out that there was statistically significant association between occupation and practice of Covid-19 preventive measures since majority of those with poor practice were unemployed. It is not surprising that educational status has played a role in the practice of these preventive measures since the educated ones are more likely to listen to the television and radio news where they are likely to hear about these preventive measures. They are also more likely to be employed. The study had also shown that the compliance to these preventive measures is more among the employed ones. Therefore, economic factor is also likely to be playing a role here. Among the respondents, the study found out that a higher percentage of those with good practice of preventive measures to Covid-19 were multipara and there was statistically significant association between parity and practice of Covid-19 preventive measures. It is likely that the multipara who had been attending antenatal care clinic severally, and are used to health education talks and advice in the clinic may readily accept to practice these preventive measures against covid-19 infection compared to primigravidae.

Although, the effect of corona virus infection in pregnancy is not well described (Mullins E *et al*. 2020), poor practice of preventive measures against Covid-19 infection among pregnant women would put them at higher risk of infection which could worsen the existing maternal morbidity and mortality during this pandemic. However, case report from advanced countries on outcome of coronavirus disease in pregnancy appeared to be good (WHO, 2020).

CONCLUSION

This study showed that the entire participants had awareness and high level of knowledge of

preventive measures against Covid-19 infection. However, the practices of the preventive measures were poor among the respondents. Low level of educational attainment and low parity as well as unemployment was factors significantly associated with poor practice of the preventive measures against Covid-19 infection among the pregnant women.

RECOMMENDATION

In order to effectively curtail the spread of this virus among the pregnancy women, the current media campaign should be extended to the rural areas where access to electronic media is limited. In addition, improvement in economic and educational status among these women as well as provision of economic palliative support to families who depend on daily income for survival would likely encourage women to practice these preventive measures in order to halt the spread of this virus in Nigeria.

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