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KNOWLEDGE OF, AND BEHAVIOR IN RESPONSE TO, COVID-19 PANDEMIC BY PREGNANT NIGERIAN IGBO WOMEN

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ABSTRACT

BACKGROUND: The COVID-19 pandemic represents a foremost global contemporary public health challenge, with alarming death rate. Pregnant women by virtue of reduced immunity may be at increased risk of contracting the disease.
OBJECTIVE: To elicit the knowledge of, and behavior, in response to the COVID-19 pandemic among pregnant Nigerian Igbo women.
SUBJECTS AND METHODS: Cross-sectional questionnaire-based study of 370 pregnant women from health facilities in Anambra state Nigeria, to elicit information on their knowledge of causes, mode of transmission, availability of vaccines, treatment modalities, and behavioral changes consequent on COVID-19. Data obtained was analyzed using SPSS IBM windows version 26.
RESULT: The modal age, parity and gestational age of the respondents were 25-29 years (49.2%); Para 1-4(89.5%) and <28 weeks (44.1%) respectively. Majority of the participants had tertiary education (54.1%) and of modal social class 5 (29.2%). All (100%) of the participants knew about covid-19; 91.4% recognized it was of viral aetiology; and 75.1% agreed it is an infectious disease. Indicated modes of transmission include air, droplets, faces, urine, dust, ingested foods, and drinks. Most of the participants recognized the unavailability of drugs (88.6%) and vaccine (80%) for COVID-19 management. Stated treatment modalities include symptomatic therapy; inhalation of steam from hot water, herbs, and roots; consumption of spices; antimalarial, antibiotics, multivitamins therapy; physical exercises; rest; and prayer. Majority of the respondents (67%) believed that COVID-19 had affected their general behavior and most adhered to COVID-19 safety measures - wearing of face mask; hand washing; use of hand-sanitizers and social distancing. The most common source of information to participants on COVID-19 was electronic media.
CONCLUSION: The knowledge of COVID-19 among the respondents was high and their behavior, satisfactory. There is need to maintain the public enlightenment tempo to sustain the good behavior in response to COVID-19 amongst pregnant women.

KEYWORDS: *Knowledge, Behavior, COVID-19, Igbo, Pregnant women, Nigeria.*

What Is Already Known About The Topic?

It has been documented that pregnant women might be at increased risk for severe illness from COVID-19. There is no approved drug for the cure of the disease. Vaccines for prevention are not readily available at the moment, for everyone across the globe. Hence, efforts are majorly geared towards prevention. The behaviour in response to the pandemic, by individuals including pregnant women, are invariably dependent on the knowledge they possess.

What Does This Study Contribute To The Literature?

The knowledge of, and behavior in response to COVID-19 pandemic by pregnant women in Anambra state of Nigeria have not been assessed. There is need to obtain baseline data on these parameters, as a step towards preventing the transmission of this deadly disease. Information obtained from this survey may guide further enlightenment and counselling efforts among pregnant women in the state, towards excellent behavioral responses to COVID-19 pandemic.

INTRODUCTION

The last month of the year 2019 witnessed a paradigm shift in the world system, leading to a "new normal" in virtually every sphere of life. It ushered in a pandemic called Corona Virus disease (COVID) and because the discovery was made in December 2019, the name COVID-19 emerged. This disease is caused by a novel corona virus: the severe acute respiratory syndrome coronavirus 2 (SARS-COV-2). The name of this new virus was officially declared on February 11, 2020 [1]. The SARS-COV-2 is transmitted from human to human, mainly via respiratory droplets (droplet particle greater than 5µm but less than10µm in diameter) and contact routes [2,3]. There is also the possibility of airborne transmission in which the virus is spread as droplet nuclei(particle less than 5µm) and could stay in the air for long periods of time and move over distances greater than 1 meter [2]. There are categories of people who are at increased risk of contracting severe illness from COVID-19.These include older adults and individuals with underlying illnesses and conditions, irrespective of their ages. These illnesses include type 1 diabetes mellitus, severe heart diseases, chronic kidney disease, sickle cell disease, cancers and obesity.4 Others which might be at increased risk include patients with hypertension, asthma, liver disease, smoking, type 2 diabetes mellitus, cerebrovascular disease, immune compromised states from blood or bone marrow transplant and Human Immune deficiency Virus (HIV) infection [4]. Available evidence suggests that pregnant women might also be at increased risk for severe illness from COVID-19 [4,5]. However, more recent findings show that fewer pregnant and recently pregnant women present with COVID-19 symptoms such as fever, cough and breathelessness than the non-pregnant; but the pregnant women with COVID-19 are more likely to require intensive care treatment [6]. In addition, pre-existing comorbidities such as diabetes mellitus, chronic hypertension and advanced maternal age in pregnant women are also risk factors for severe COVID-19. The susceptibility of pregnant women to SARS-COV-2 could be due to the various changes in immunology and endocrinology during pregnancy as well as the changes in anatomy and physiology of the respiratory system in pregnancy [7].

The burden of COVID-19 pandemic is enormous and the death rate is very alarming. As at September 13 2020; there were 28,837,065 COVID-19 positive patients all over the world and 921,423 deaths [8]. In the United States of America, 6,504,139 confirmed cases and 193,867 deaths have also been recorded [9]. In Nigeria, a total of 56,256 people had tested positive to covid-19 as at September 13,2020; while 1,082 deaths had been recorded; In Anambra state ,South East of Nigeria, 231 confirmed cases were also documented as well as 19 deaths [10]. As at September 10, 2020; a total of 20,798 pregnant women had tested positive to COVID-19 in the United States of America; 44 deaths had occurred; 4,882 had been hospitalized, 205 had been admitted in the intensive care unit; while 77 had need for mechanical ventilation [11]. The burden of this deadly disease among pregnant women in Anambra state of Nigeria is not known. They are no available data to that effect. Considering the fact that there is no approved drug or vaccine, readily available for everyone across the globe for the cure and prevention of COVID-19 respectively; efforts are currently and majorly geared towards the prevention of its transmission [6,7,12]. The preventive measures practiced by individuals, or their behavior in response to the pandemic are invariably dependent on the knowledge they possess, especially the pregnant women who might be at increased risk for severe illness from COVID-19 [6,7,13]. Meanwhile; these knowledge of, and behavior in response to the pandemic by pregnant women in Anambra state of Nigeria have not been assessed. To the best of knowledge of the researchers, no documented study has evaluated these parameters among pregnant women in the state. Hence, there is need to obtain baseline data on these parameters, as a step towards preventing the transmission of the disease. Information obtained from this survey may guide further enlightenment and counselling efforts among pregnant women in the state, towards excellent behavioral responses to the COVID-19 pandemic. The aim of this study therefore is to evaluate the knowledge of, and behavior in response to COVID-19 pandemic by pregnant Igbo women in Anambra State of southeastern Nigeria.

METHODS
STUDY AREA

This study was carried out in Anambra state, one of the five states of the southeastern geopolitical zone of Nigeria. The state has a population of approximately 5 million people of Igbo-speaking ethnic group. The Igbos of southeast Nigeria, comprise one of the three (3) major ethnic groups in Nigeria, the others being the Hausas of the North and the Yorubas of

the south-west. These ethnic groups have major socio-cultural, economic and religious differences. The Igbos are mainly of Christian religious denomination with a few animists, and are predominantly traders by occupation. The pregnant women studied were selected from various types of health facilities – public- tertiary (teaching hospital), voluntary agency (mission) hospitals, and private health facilities, drawn from the three (3) senatorial districts of the state – North, South and Central senatorial districts.

STUDY DESIGN

This is a cross-sectional questionnaire-based study conducted on 370 pregnant women in Anambra state of southeastern Nigeria, during the one month period from 25th March - 22nd April 2020 (corresponding to the period of the lockdown measure in response to the containment of spread of the COVID-19 pandemic).

STUDY SETTING

The study facilities included Nnamdi Azikiwe University teaching Hospital, Nnewi (Anambra south senatorial district); Chukwuemeka Odumegwu Ojukwu University Teaching Hospital and Regina Caeli mission hospital (both in Awka) – Anambra Central senatorial district; and St. Patrick Hospital (private hospital) and Holy Rosary Maternity hospital (both in Onitsha), Anambra North senatorial district. Ethical clearance was duly obtained from the study facilities.

STUDY POPULATION

The questionnaire were administered to the pregnant women following due explanation of the study. Only those who voluntarily consented were administered the questionnaire for completion, and those who could neither read nor write were assisted to complete the questionnaires by trained aids employing face-face interview. The study was conducted applying the recommended safety precautionary measures under the COVID-19 protocol-face masking, appropriate hand washing or using hand sanitizers as well as recommended physical and social distancing measures. The questionnaire schedule contained information with respect to the biosocial characteristics of the patient: age, gestational age, parity, and social class. It also elicited information on the knowledge of the causes of COVID-19, its mode of transmission, availability of vaccines and drugs for cure, treatment modalities, together with perceived effects of COVID-19 on their general behavior changes as well as their sources of information on COVID-19. The social class of the women was obtained from Olusanya's classifications making use of the educational status of the pregnant woman and her husband's occupation [14].

DATA ANALYSIS

The completed questionnaires were screened, coded and subsequently entered into the system for analysis. Data obtained were analyzed in respect of the pregnant women and the variables related to their knowledge of, and behavior in response to covid-19 pandemic using SPSS IBM windows version 26. The results were displayed in a contingency table and in some cases as figures, expressed as frequency and percentages.

RESULTS

Table 1 shows the distribution by biosocial characteristics of the respondents. The modal age, parity and gestational age of the respondents were 25-29 years (49.2%); Para 1-4(89.5%) and <28 weeks (44.1%) respectively. Majority of the participants had tertiary education (54.1%) and were married (96.8%). The modal social class was social class 5 (29.2%). Most of the respondents were of Igbo tribe (98.9%) and accessed private health facilities (80%) for their antenatal care. The distribution by the place and type of health facilities visited by the pregnant women as shown in Table 2 indicates that majority of the respondents 296 (80.0%) attended private health facility while 74 (20.0%) attended public health facilities. Table 3 shows the distribution by knowledge of causes and mode of transmission of COVID-19, by the pregnant women. All (100%) of the participants knew about COVID-19. Similarly, as high as 338(91.4%) of them recognized it to be of viral aetiology. Fifty-six (15.1%) recognized COVID-19 to be of bacterial aetiology; 14(3.8%) of fungal aetiology; and 13.0% believed it to be a curse released from God to humanity. As high as 75.1% of the participants agreed that COVID-19 is an infectious disease, while eight (2.2%) participants could not identify any aetiological factor for the pandemic. Majority of the respondents (59.5%) believed it could be transmitted through air (59.5%); droplets (54.6%), faeces (56%), urine (11.9%); and spread through dust (22.2%). Twenty-six (7.0%) believed that COVID-19 is transmitted through ingested food; and drinks 22(5.9%). The distribution by the knowledge of availability of vaccines and drugs to cure COVID-19 amongst the women is shown in Table 4. Most of the participants recognized that there are neither vaccines (80%) nor drugs (88.6%) presently available for the cure of the disease. The distribution by the Knowledge of treatment modalities for COVID-19 amongst pregnant women as shown in Table 5 indicates 21.1% of the women believed that the treatment of COVID-19 is symptomatic; 19.5% indicated that it could be treated by inhalation of steam from hot water, while 13.0% believed in inhalation of steam from herbs and roots. Up to 38.4% believed it could be treated by consumption of spices such as garlic, ginger, etc; 20.5% with antimalarial therapy; 16.8% by the use of antibiotics; 30.8% by treatment with chloroquine; 36.2% by with multivitamin therapy; 14.6% by engaging in physical exercise; 12.4% rest; and 15.7% with prayer. Other treatment modalities indicated by the women include isolation for 21days (16.2%); 14 days (30.8%); and 7 days (3.2%). Up to 40 (10.8%) of the women believed that there is no need for treatment at all; while 36(9.7%) gave no answer to the question on knowledge of any treatment modalities.

Table 1: Distribution by the biosocial characteristics of the respondents (N=370).

Characteristics	Number	Percent
Age		
<20 years	2	0.5
20-24 years	46	12.4
25-29 years	182	49.2
30-34 years	96	25.9
35-39 years	32	8.6
40 and above	12	3.2
Parity		
0	27	7.3
1-4	331	89.5
5 and above	10	2.7
NR	2	0.5
Gestational age	8 47	
<28	163	44.1
28-36	130	35.1
37-42	65	17.6
>42	12	3.2
Educational level		
Primary/No-education	12	3.2
Secondary Education	158	42.7
Tertiary Education	200	54.1
Marital status		
Single	12	3.2
Married	358	96.8
Social class		
Social class 1	12	3.2
Social class 2	16	4.3
Social class 3	102	27.6
Social class 4	104	28.1
Social class 5	108	29.2
Unclassified	28	7.6
Ethnic group		
Igbo	366	98.9
Yoruba	4	1.1
Religion		
Christianity	370	100

Table 2: Distribution by the type of health facilities visited by the pregnant women.

Type of health facility		
Private	296	80.0
Public	74	20.0

Table 3: Distribution by knowledge, causes and mode of transmission of COVID-19.

Characteristics	Yes (%)	No (%)
Ever heard of covid-19	370 (100)	0(0)
Perceived causes		
Virus	338 (91.4)	32 (8.6)
Bacteria	56 (15.1)	314 (84.9)
Fungi	14 (3.8)	356 (96.2)
Food taken	26 (7.0)	344 (93.0)
Drinks consumed	22 (5.9)	348 (94.1)
Curse from God	48 (13.0)	322 (87.0)
It is an infectious disease	278 (75.1)	92 (24.9)
No answer as a cause/infection	8 (2.2)	0 (0)
Modes of transmission		
Air	220 (59.5)	150 (42.4)
Droplets	202 (54.6)	168 (47.5)
Faeces	58 (15.7)	312 (88.1)
Urine	44 (11.9)	326 (92.1)
Spread through dust	82 (22.2)	288 (81.4)
Don’t know	86 (23.2)	0(0)

Table 4: Distribution by knowledge of availability of vaccines and drugs to cure covid-19 amongst the women.

Characteristics	**Number**	**Percent**
Availability of vaccines		
No	296	80.0
Yes	74	20.0
Availability of drugs		
No	328	88.6
Yes	42	11.4

Table 5: Distribution by the Knowledge of treatment modalities for COVID-19 amongst pregnant women (N=370)

Characteristics	Yes (%)	No (%)
Treatment of symptoms	78 (21.1)	292 (78.9)
Inhalation of steam from hot water	72 (19.5)	298 (80.5)
Inhalation of steams from herbs and root	48 (13.0)	322 (87.0)
Consumption of spices (garlic, ginger)	142 (38.4)	228 (61.6)
treatment of malaria	76 (20.5)	294 (79.5)
Treatment with antibiotics	62 (16.8)	308 (83.2)
Treatment with chloroquine	114 (30.8)	256 (69.2)
Treatment with vitamins	134 (36.2)	236 (63.8)
Exercise	54 (14.6)	316 (85.4)
Rest	46 (12.4)	324 (87.6)
Isolation for 21 days	60 (16.2)	310 (83.8)
Isolation for 14 days	114 (30.8)	256 (69.2)
Isolation for 7 days	12 (3.2)	358 (96.8)
Prayer	58 (15.7)	312 (84.3)
No treatment at all	40 (10.8)	330 (89.2)
No answer	36 (9.7)	0(0)

Table 6 shows the distribution by the effect of COVID-19 on the behavior of the pregnant women. Majority of the pregnant women 248 (67%) believed that COVID-19 had affected their general behavior; 21.1% did not; while 11.9% did not know whether it affected their behavior or not. Among the 248 women who believed that covid-19 affected their general behavior, 55.6% reasoned that the disease was real, 60.5% opined that they were compelled by the government to change their behavior; 35.5% disclosed that they were compelled by other people to change their behavior; while 12.1% gave no response. Other reasons for agreeing that COVID-19 affected their general behavior included: trying to take safety precautions (26.2%) - wearing facemasks, hand washing, social distancing, staying off work; lock down restrictions (11.3%); learning how to do things are anew (1.2%) and fear (1.6%). Among the 78 women who did not believe that COVID-19 affected their general behavior: 41% did not believe that COVID-19 was real, 28.2% argued the disease was unduly exaggerated while 53.8% believed it had not killed as much as malaria, typhoid and insurgency. The distribution by behavioral changes as a result of COVID-19 pandemic amongst women is shown in Table 7. Almost all the pregnant women (99.46%) admitted they wear face mask in public areas; 94.59% attested to hand washing with running water for 20 seconds; 94.3% and 90.2% practiced social and physical distancing respectively. Majority of the respondents (95.68%) used hand sanitizer; 29.2% do not participate in social gathering while 28.9% abstained from social visits. Majority of the pregnant women (92.43%) still attended the antenatal clinics .Three hundred and twenty eight of the participants (88.6%) were conscious of people around them and their observance of COVID-19 protective measures. Table 8 shows the distribution by the sources of information on COVID-19 amongst the pregnant women. The sources of information on COVID-19 amongst the pregnant women included electronic media (82.7%) - radio, television; Public talks (51.9%); print media (47.6%) and social media (62.7%); twenty six women (7%) gave no answer.

Table 6: Distribution by COVID-19 effect on general behavior changes amongst pregnant women

Characteristics	Number	Percentage
Has covid-19 affected general behavior		
No	78	21.1
Yes	248	67.0
Don't know	44	11.9
Total	370	100.0
Reasons for answering yes (N=248)		
Covid-19 is real	138	55.6%
Compelled by government to change behavior	150	60.5%
Compelled by Other people to change behavior	88	35.5%
NR	30	12.1%
Other reasons (N =248)		
trying to take safety precautions -wearing facemask, handwashing, social distancing, staying off work)	65	26.2%
Lockdown restrictions - no freedom for movement, market, education, business and other activities)	28	11.3%
Learning how to do things anew	3	1.2%
Fear	4	1.6%
Reasons for answering No (N =78)		
I don't belief Covid-19 is real	32	41.0%
It is unduly exaggerated	22	28.2%
Covid-19 has not killed as much as have malaria, typhoid and insurgency	42	53.8%
No Reason	6	7.7%
Other reasons for No		
No evidence	2	2.6%
Changing behaviour won't cure covid-19	2	2.6%
Previous diseases that were dangerous are now no more	2	2.6%

Table 7: Distribution by behavioral changes as a result of Covid-19 pandemic amongst pregnant women (N =370)

Behaviours	**Yes (%)**	**Never (%)**	**No response**
Wearing of face mask in public places	369(99.46)	2 (0.5)	0 (0)
Handwashing with running water for 20 seconds	35(94.59)	20 (5.4)	0 (0)
Social distancing	349 (94.32)	21 (5.7)	0 (0)
Physical distancing	334 (90.27)	36 (9.7)	0 (0)
Use of hand sanitizer	354 (95.68)	16 (4.3)	0 (0)
Participation in social gathering	262 (70.81)	108 (29.2)	0 (0)
Engaging in social visits	263 (71.08)	107 (28.9)	0 (0)
Visits to Antenatal clinics	342 (92.43)	26 (7.0)	2 (0.5)
Presently conscious of people around you and their observance of Covid-19 Protective measures	328 (88.6)	42 (11.4)	0 (0)

Table 8: Distribution by the sources of information on Covid-19 amongst the pregnant women (N =370)

Characteristics	**Yes (%)**	**No (%)**
Peers	0(0)	0(0)
Public talks (church, town hall meetings)	192(51.9)	178(48.1)
Print media (newspaper, bulletin)	176(47.6)	194(52.4)
Electronic media (radio, television)	306(82.7)	64(17.3)
Social Media (facebook, whatsapp, internet, instagram)	232(62.7)	138(37.3)
NR	26(7.0)	0(0)

DISCUSSION

This study has been undertaken amongst pregnant women, most of whom are aged below 30 years (62.1%), married (96.8%); multiparous; and of low social class 4 and 5 (28.1% and 29.2% respectively). This group represents the majority of the Nigerian society where up to 40.1% of the population are poor [15]. Their responses in this study may therefore indicate a mirror of the entire Nigerian populace.

All the respondents had knowledge of the COVID-19 pandemic. This is in spite of the low social class of the majority of the women studied – suggesting the enormity of public health enlightenment that has been carried out in Nigeria by both the national and the state taskforces on COVID-19 since the breakout of the pandemic. This salutary observation agrees with the report of an earlier study conducted in the same area of Nigeria [12,13]. Information is key to the understanding of the events which inform behaviors and practices of people during pandemics and war situations. It serves to keep people on the alert and catalyze their observance of safety measures and behaviors necessary to keep them alive and well. The most common source of information on the COVID-19 amongst the pregnant women in this study was the electronic media, particularly radio and television which account for 82.7% of the sources of information amongst the respondents in this study. In particular, radio information is literally available and accessible to most individuals either as radio set or built into their mobile telephones. In precarious situations such as during this COVID-19 pandemic, most people glue to their media gadgets for first-hand information about the global onslaught consequent upon this disease which are readily aired on radios and television, and furthermore avail themselves of the necessary enlightenments, directives and guidelines which inform their day to day safety living. It is heartwarming to note that the respondents in this study took advantage of most of the information dissemination platforms generally available ranging from the print media (47.6%) through public talks (51.9%) to social and electronic media, 62.7% and 82.7% respectively. Interestingly, peer group played no role whatsoever as the information source to these pregnant women. This observation is in contradistinction to reports from reproductive health studies previously conducted from the same area which had identified peer group (friends, generally regarded as an unreliable source of information), to be the most stated source of information amongst the respondents [16-18]. It is possible that the lock-down measure instituted during the pandemic may by restricting people to their homes avail them of ample opportunity to listen to the COVID-19 enlightenment programs on both radio and television and this has largely informed the positively encouraging observations on the knowledge and behavior of pregnant woman concerning the COVID-19 pandemic, in this study.

Most of the pregnant women (80%), in this study patronized private health facilities for their antenatal care. Only 20% attended the public health facilities. This low patronage of public health facilities may not be unconnected with the scare of public and government hospitals among patients inclusive of pregnant women, at the initial period of the pandemic due to their observation that those facilities which harbor the COVID-19 testing and isolation centers may expose them to screening and possible isolation, if tested positive, COVID-19 being a highly stigmatized disease. This situation in fact may be responsible for the reluctance of most sick patients to present themselves for COVID-19 testing for fear of being quarantined, if tested positive. With respect to the aetiology and mode of transmission, 91.4% of the respondents knew COVID-19 is viral and could be transmitted via air (59.5%) and droplets (54.6%) [2,3]. Most of the respondents (75%) understood that it is an infectious disease and could be transmitted from one human to another, including contact routes. It is important however to recognize the few respondent (13.0%) that believed that covid-19 is a curse from God and also those that wrongly believe that it could be contracted through urine, faeces, foods and drinks taken which suggest a gap in universal knowledge of the correct information on the causes and modes of transmission of COVID-19. Majority of the respondents stated their knowledge of the unavailability of vaccines (80%) and drugs (88.6%) for the cure of COVID-19. This may account for the wide range of treatment modalities stated by the respondents for the covidCOVID-19. Apart from the conventional drugs, non-conventional treatment modalities such as steam inhalation from hot water or from roots and herbs were highlighted. This may constitute native medication that have not been scientifically verified but may need to be investigated.Concerning the knowledge of possible treatment modalities for COVID-19; some of the pregnant women identified with the use of: chloroquine (30.8%), antibiotics (16.8%) and vitamins (36.2%). The role of chloroquine, and its derivative hydroxychloroquine, in the management of COVID-19 has been controversial [19-22]. Currently, there is no large-scale randomized controlled trial in support of hydroxychloroquine for cure of COVID-19; though clinical trials are still ongoing [19,22]. The major concerns about these drugs are efficacy and safety profile. Comparatively, hydroxychloroquine is more potent and safer [20,23]. The use of chloroquine is not new in Obstetrics; it was safely used in the past for chemoprophylaxis against malaria in pregnant women residing in malaria endemic regions.

The currently popular antibiotics employed for COVID-19 treatment is azithromycin. It is a potent antibiotic of the family of marcrolides with a bacteriostatic action and is very useful in the treatment of chest and pelvic infections. It has been shown that azithromycin has a synergistic antiviral effect against the novel coronavirus when combined with hydroxychloroquine, both in vitro and in clinical setting [24,25]. Concerns have also arisen about the safety profile of azithromycin in pregnancy especially in the first trimester; these included teratogenicity, malformations and spontaneous miscarriages. Available evidence revealed that azithromycin is not associated with an increase in the rate of major malformations [26,27].

In general, the knowledge level of the pregnant women on COVID-19, in this study, is impressive. This is perhaps on account of their level of education, most of them having attained tertiary educational status (54.1%), together with their

use of important media platforms as source of information on COVID-19. In this study, as high as 248 (67.0%) respondents admitted that covid-19 had affected their general behavior. Amongst them, 55% stated that the disease is real, and this may represent a group that genuinely understood the gravity of the COVID-19 and its sensitivities. Incidentally, a considerable percentage of these respondents apparently manifested behavioral change by compulsion – 60.5% because Government had compelled them to do so; and 35.5% because other people had caused them to do so. This may represent a group that are apparently sitting on the fence with respect to their appreciation of the gravity of COVID-19. More worrisome is the 78 respondents that have not changed behavior in respect of COVID-19 on account of their stated belief that the disease is not real (41%) and/or that its gravity is unduly exaggerated (28.2%). This is a dangerous group on whom more enlightenment and counselling effort should be expended, to avoid the negative influence they may have on other people. Interestingly, almost all the respondents (99.46%) attested to wearing of face masks in public places; 94.59% practiced handwashing under running water for at least 20 seconds; 94.32% practiced social distancing; 95.68% used hand sanitizer and 29.2% avoided social gathering. These behavioral changes in the pregnant women studied is good, and is unlike the observation reported in the previous study conducted in a different state of the same region of the country.12 The safety precautions are important towards the prevention of the transmission of COVID-19 to this vulnerable group of young women who have become more at risk of severe illness from COVID-19, due to the physiological changes in pregnancy. Supposing there was no reasonable difference between the respondents' stated behaviors in response to COVID-19 pandemic, in this study, and their actual behavior during the pandemic; and assuming that their face masks were worn correctly and regularly in public places and that they really washed their hands for at least 20 seconds under running tap water as often as possible, as well as used hand sanitizers and observed physical and social distancing; then it can be inferred with reasonable certainty that their knowledge of and behavior in response to the pandemic are in tandem. There is therefore, every likelihood of their remaining safe throughout the index pregnancy and puerperium. The pregnant women studied demonstrated good knowledge of, and satisfactory behavior in response to COVID-19 pandemic. Their behavioral response appeared to be in tandem with their knowledge of COVID-19. There is naturally a tendency to slack on best-practice safety measures overtime because of attendant costs, and inconveniences associated with such behaviors which are in fact novel to the people. It is necessary to make periodic surveys overtime to elicit the sustenance of these positive behaviors in response to COVID-19.

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