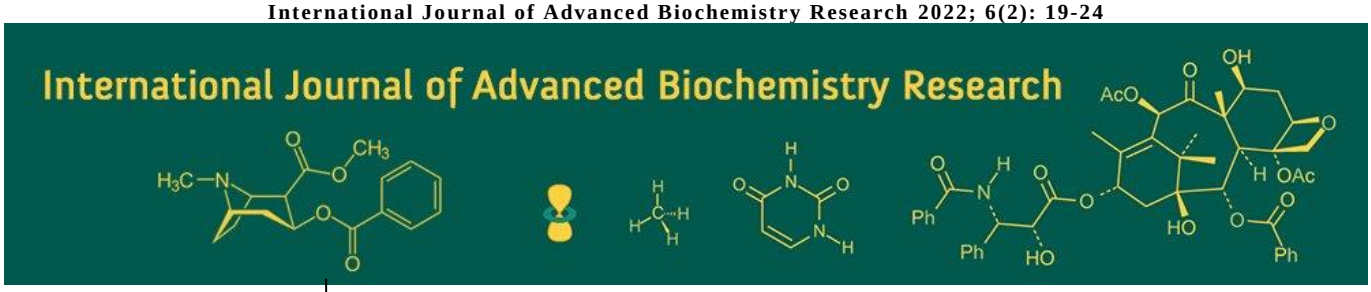

ISSN Print: 2617-4693
ISSN Online: 2617-4707
IJABR 2022; 6(2): 19-24
www.biochemjournal.com
Received: 07-04-2022
Accepted: 07-05-2022

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Perception, misconception, myths and fears about the corona virus vaccine amongst women attending antenatal care services in Jos, Plateau State; Nigeria: A quantitative analytic study

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DOI: https://doi.org/10.33545/26174693.2022.v6.i2a.129

Abstract
The aim of this study was to quantitatively evaluate the perception, misconception, myths and fears about the COVID-19 vaccination amongst women receiving antenatal care services at PHCs in Jos, Plateau state, Nigeria. This was done utilizing a cross-sectional study that utilized a validated data tool with over 250 participants. The highest percentage (36.4%) of respondents strongly agreed that the vaccine will protect them from getting infected, 27.2% agreed to this, 17.6% were indifferent, the least percentages 12.4% and 6.4% were amongst those who strongly disagreed and disagreed respectively. 38.4% agreed that they can lead a normal life after vaccination, 30.4% were indifferent about this, 16.8% strongly agreed to this, 9.6% strongly disagreed and the lowest percentage of respondents 4.8% disagreed. About 34.8% agreed to receive the vaccine if it is proven safe and effective. 32.4% strongly agreed to this, 19.6% were indifferent about this while 8% and 5.2% strongly disagreed and disagreed respectively.

Keywords: Perception, misconception, myths, fears, COVID-19, vaccine, Nigeria

Introduction
Vaccine hesitancy is viewed by the World Health Organization as the world's top threat to public health, particularly in low- and middle-income countries. This can be due to a lack of knowledge, false religious beliefs, or anti-vaccine misinformation [1].
A study was carried out in University of New South Wales, Kensington, Australia aimed to examine COVID-19 vaccine rumors and conspiracy theories circulating on online platforms. Of the 637 COVID-19 vaccine-related items identified, 91% were rumors and 9% were conspiracy theories from 52 countries. Some of the rumors and conspiracy theories related to COVID-19 vaccine circulating online include, “COVID-19 vaccine will cause infertility”, “COVID-19 vaccine may not be effective and has serious side effect”, “The COVID-19 vaccine "contains DNA modifiers and multipliers, With the introduction of the COVID-19 vaccine, microchips (Nano-chips) will also be introduced into the human body, then 5G networks will enter the business, through which the world elite will send various signals to the chips, thereby controlling humanity” The study also showed that of the 91% rumors and 9% conspiracy theories, 5% were true, 83% were false, 10% were misleading, and 2% were exaggerated [2].
An online survey was conducted through the National Opinion Research Center (NORC), A non-partisan research institution at the University of Chicago on The Relationship between US Adults’ Misconceptions about COVID-19 Vaccines and Vaccination Preferences. Of 1027 respondents, a significant minority (40%) believed that vaccine side effects are often or somewhat severe; clinical trials were significantly underestimated by 85% and a substantial number believed either that the vaccines contain live coronavirus (10%) or were unsure (38%), for fears that vaccination itself may cause infection. The misconceptions were especially prevalent among Republicans, Blacks, individuals with lower levels of education, and individuals who have not been vaccinated [3].
False information about infertility was also observed in Durban, South Africa in a study titled Misrepresentation about vaccines that are scaring women.

It reported that false information on the vaccine side effects are spreading via social media, creating fear of vaccination. The side effects include Infertility among women of reproductive age and miscarriages during pregnancy [4].

A household survey on the perception of Nigerians towards a COVID-19 vaccine, about 56% of the respondents had no major fears about the vaccine. Less than ten percent of the respondents expressed fear of infertility. Religious belief was a strong reason why respondents were unwilling to take the vaccine. Some respondents reject the possibility of taking the vaccine because they don't believe the COVID-19 virus exists [5].

In a study on misinformation about COVID-19 among internet users in Nigeria. Approximately half (173) of the respondents suspected that there were underlying negative intentions regarding the clinical trial of drugs and vaccines for COVID-19 on the African continent [6].

The aim of this study is to quantitatively evaluate the perception, misconception, myths and fears about the COVID-19 vaccination amongst women receiving antenatal care services at PHCs in Jos, Plateau state; Nigeria.

Methodology

Study Area

Plateau is the twelfth -largest state in Nigeria. Approximately at the center of the country. It is geographically unique in Nigeria due to its boundaries of elevated hills surrounding the Jos plateau its capital, and the entire plateau itself. Plateau state is celebrated as "The Home of Peace and Tourism". With natural formations of rocks, hills and waterfalls, it drives its name from the Jos plateau and Jos a population of around 4.2 million people.

Bukuru is a city located on the Jos Plateau in Nigeria. It was previously considered separate city from the city of Jos close by, but like every other form of urbanization, the city of Jos merged with the town of Bukuru to form the Jos-Bukuru metropolis. It is the headquarters of Jos South LGA.

The major forms of transportation connecting in and out of Bukuru is by road and rail. The rail ways connect Bukuru with Bauchi, Zaria, Lago and Port Harcourt. Mainly used for business, import and export of natural minerals [7]. Although it has a mix of Christians and Muslims, there is a Christian majority. There is also a central mosque in Bukuru [8].

Study Site

The study sites are three (3) Primary HealthCare Centers (PHCs) in Bukuru. According to data obtained from the Ministry of Health and utilization of scientific tools of remote sensing GPS and GIS for a better update, there are about twenty-one (21) health facilities in Bukuru. Of these, one (1) is a tertiary facility, four (4) are PHCs and the others are health center levels [9].

These 4 Primary healthcare centers, we conducted our study amongst three (3). They are, Bukuru Express Primary Healthcare Centre, Bukuru Central Primary Healthcare Centre and ECWA Comprehensive Healthcare Centre. Both Bukuru Express and Bukuru central are Government owned primary healthcare facilities that are equipped with about 8 and 6 bed spaces, respectively. Their healthcare team comprises of a public health nurse, a Midwife and a Community Health Worker (CHEW). However, the ECWA comprehensive Healthcare Centre has 14 bed spaces and a larger facility. They have doctors (consultants) who come to run clinics on some days. It is a privately owned facility, charges more, better kept environment and has less patients visiting. They are all located within a 3-5 minutes Motorcycle or Tricycle ride away from each other, and costs about N50. Bukuru Express is located about 5 minutes from the tertiary facility, Bukuru Specialist Hospital. While Bukuru central and ECWA comprehensive Healthcare Centre is located about 15 minutes from the specialist hospital. Hence, have a longer time to patient transfer in emergency referrals.

Study Population

The study population are the pregnant women currently attending Antenatal. These facilities are PHC Bukuru Central (BC), PHC Bukuru Express (BE), ECWA Comprehensive Health Centre (ECHC).

Table 1: A table showing the total number of women registered and attending the ANC at the PHCs in Bukuru being used for this study

	BC	BE	ECHC	Total
No currently registered for ANC	56	58	46	160
No of Registered women in ANC this year	376	397	116	889

Inclusion Criteria

1. A Pregnant woman who is registered at a Primary Healthcare facility in Bukuru for her Antenatal care.

Exclusion Criteria

1. Any man.
2. Any woman who does not fall within the inclusion criteria.
3. Any woman who did not consent to participating in the study.

Sample Size Determination

Total number of women currently attending ANC in these facilities = 160.

Total Number of women who have registered and attended this year = 889.

Sample size determination

Calculation of sample size [10]

: $n = Z^2 pq / d^2$

Where n = Minimum sample size

Z = Standard normal deviation set at 1.96 (Confidence interval 95%).

P = Proportion of women currently attending ANC clinic amongst those registered this year (18.14%).

Q = Complementary probability (1-p).

D = Degree of precision (0.05).

Sample Size = N + (10% of n)

Where; $n = 1.96^2 (0.18)(1-0.18) / (0.05)^2$

N= 227 (Minimum Sample size)

Sample Size; 227 + (10% of 227) = 250

Sampling Technique

Sampling technique was done using a multistage sampling technique.

Stage 1: Using simple random technique, we balloted for 1 Local Government Area, amongst 17 in Plateau state and got Bukuru Jos South Local Government Area. (Speak about how many towns are in Jos south and how you got Bukuru).

Stage 2: Using simple random technique, we balloted for 3 primary health care centers amongst 4 that were in the Bukuru Local Government Area. From this we got, ECWA Comprehensive Health Care, Bukuru Express and Bukuru Central Primary Healthcare Centers.

Stage 3: Using stratified technique we calculated for the respondents under the ANCs in each of the facilities.

S/N	PHC Facility	ANC
1	Bukuru express PHC	100
2	Bukuru central PHC	100
3	ECWA CHC	50

Stage 4: Using simple random sampling we distributed the questionnaires amongst the women attending the ANCs at the PHCs.

Study Design
It is a cross-sectional randomized study design.

Preparation for Data Collection
Prior to data collection, permission was sought and obtained from the ethical committee Bingham University Teaching Hospital. Further consent was verbally sought from heads of each of the Primary Health Care Centers. Informed verbal consent was sought and obtained from each of the respondents after the purpose of the study was clearly explained to them. They were also informed that participation in the study was voluntary and that they could decide to withdraw their participation at any point in the interview. In order to ensure confidentiality, serial numbers instead of names were used to identify respondents.

Data Collection
A pre-tested structured self-administered questionnaire and a focused group discussion was used to obtain the relevant information. Questionnaires were administered to pregnant women at the PHCs until the required sample size was obtained.

Data Analysis
Data will be entered Microsoft Excel package and cleaned. Analysis will be carried out using SPSS (Statistical Package for the Social Sciences) version 20. Socio-demographic variables will be presented on tables using frequencies and proportions. Knowledge, attitude and perception will be scored and graded appropriately. Bivariate analysis will be used to test association between Socio-demographic factors, knowledge and attitude, and perception. Multivariate logistic regression analysis will be done to determine predictors of good knowledge, attitude, perception, as well as acceptance of the COVID-19 vaccine. The level of significance will be set at a p-value ≤ 0.05.

Ethical Consideration
Ethical clearance was obtained from the Bingham University ethical committee before the commencement of the study. In addition, informed consent was taken from each study participant after purpose of the study has been clearly explained. Data collected from the study was also kept confidential.

Limitations to study and how they were overcame
1. Language Barriers
We utilized the aid of the public health Nurses, Community Health Workers (CHEWs) and Community Health Officers (CHOs) who were present to help us interpret the questions were asked them. They also helped us with interpretation of the responses the respondents gave. However, some of the women understood some level of English, though mostly vernacular.

2. Financial Constraints
To cut down on transportation costs, we travelled together to the study site. To overcome cost or questionnaire printing, we printed the questions on both pages of an A4 sheet. Data organization and analysis were self-done, to cut down on cost of a statistician. However, these and other cost demanding activities were catered for by in-pocket funding.

Result
Section 1: Socio demographics

Table 1: Table showing sociodemographic, N = 250

Variable	Frequency	Percent (%)
Age Group		
15-19	29	11.6
20-24	94	37.6
25-29	56	22.4
30-34	37	14.8
35-39	19	7.6
40-44	5	2.0
Religion		
Christian	141	56.4
Islam	109	43.6
Wife's Occupation		
None	124	49.6
Self Employed	85	34.0
Civil Servant	29	11.6
Private Sector	12	4.8
Wife's Education		
None	33	13.2
Primary	16	6.4
Secondary	144	57.6
Post-secondary	57	22.8
Husband's Occupation		
None	63	25.2
Self Employed	117	46.8
Civil Servant	36	14.4
Private Sector	34	13.6
Husband's Education		
None	77	30.8
Primary	10	4.0
Secondary	102	40.8
Post-secondary	61	24.4
Total	250	100

Two hundred and fifty questionnaires were administered. The highest number of respondents were from the age group 20-24 (37.6%). Most of the respondents were Christians (56.4%) while the rest were Muslim (43.6%).
The majority of the population were unemployed (49.6%), followed by self-employed (34.0%) and the least was the

private sector employee (4.8%). Most of the respondents had attained secondary school (57.6%) level of education while about 22.8% of the respondents had post-secondary level of education, 13.2% of the respondents had no level of education.

Section 2: Perception about COVID-19 Vaccine and vaccination.

Table 2: Table showing perception about the vaccine, N = 250

Perception of the COVID-19 vaccine	Frequency	Percentage (%)
I am not sure whether or not i have to get a vaccine		
Strongly agree	58	23.2
Agree	94	37.6
Indifferent	24	9.6
Disagree	50	20.0
Strongly disagree	24	9.6
Total	250	100.0
The COVID-19 vaccine may cause the infection?		
Strongly agree	24	9.6
Agree	36	14.4
Indifferent	64	25.6
Disagree	51	20.4
Strongly disagree	75	30.0
Total	250	100.0
The vaccine will protect me from getting infected?		
Strongly agree	91	36.4
Agree	68	27.2
Indifferent	44	17.6
Disagree	16	6.4
Strongly disagree	31	12.4
Total	250	100.0
After vaccination i can lead a normal life?		
Strongly agree	42	16.8
Agree	96	38.4
Indifferent	76	30.4
Disagree	12	4.8
Strongly disagree	24	9.6
Total	250	100.0
I will receive a COVID-19 vaccine if it is proven safe and effective?		
Strongly agree	81	32.4
Agree	87	34.8
Indifferent	49	19.6
Disagree	13	5.2
Strongly disagree	20	8.0
Total	250	100.0

On the question of whether or not they are sure they have to get the vaccine, the highest percentage (37%) agreed to this, 23.2% strongly agreed 20% disagreed while 9.6% were both indifferent and disagreed strongly. 30% strongly disagreed that the vaccine may cause the infection 25.6% were indifferent about this 20.4% disagreed 14.4% agreed while the lowest percentage 9.6 was among those who strongly agreed to the vaccine causing the infection. The highest percentage (36.4%) of respondents strongly agreed that the vaccine will protect them from getting infected 27.2% agreed to this 17.6% were indifferent, the least percentages 12.4% and 6.4% were amongst those who strongly disagreed and disagreed respectively. 38.4% agreed that they can lead a normal life after vaccination 30.4% were indifferent about this 16.8% strongly agreed to this 9.6% strongly disagreed and the lowest percentage of respondents 4.8% disagreed. About 34.8% agreed to receive the vaccine if it is proven safe and effective. 32.4% strongly agreed to this 19.6% were indifferent about this while 8% and 5.2% strongly disagreed and disagreed respectively.

Table 3: Table showing general grading of perception of the COVID-19 vaccine

Perception of COVID-19 vaccine	Frequency	Percent
Good	75	30.0
Fair	130	52.0
Poor	45	18.0
Total	250	100.0

52.0% have fair perception about the COVID-19 vaccine 30% good perception, while the least of the respondents have a poor perception.

Section 3: Misconceptions, Myths and fears about the COVID-19 vaccine.

Table 4: Showing the assessments of common misconceptions about the corona vaccines, N = 250

Variables	Prevalence	SA	A	I	D	SD
The vaccine is unsafe	Frequency	26	48	19	36	121
	Percentage (%)	10.4	19.2	7.6	14.4	48.8
The vaccine is unsafe because it was developed outside Nigeria	Frequency	35	51	33	47	84
	Percentage (%)	14.0	20.4	13.2	18.8	33.6
The vaccine leads to more deaths	Frequency	32	60	28	45	85
	Percentage (%)	12.8	24.0	11.2	18.0	34
The vaccine is unsafe because it was rushed and developed in a short time	Frequency	29	47	44	44	86
	Percentage (%)	11.6	18.8	17.6	17.6	34.4
The vaccine contains microchips to control people	Frequency	26	46	43	37	98
	Percentage (%)	10.4	18.4	17.2	14.8	39.2
The vaccine is a trick that can infect you with the virus	Frequency	24	44	33	39	110
	Percentage (%)	9.6	17.6	13.2	15.6	44
The vaccine is a trick to wipe out half of the world's population	Frequency	26	40	32	44	108
	Percentage (%)	10.4	16.0	12.8	17.6	43.2
The vaccine can cause infertility	Frequency	19	45	50	29	107
	Percentage (%)	7.6	18.0	20.0	11.6	42.8

SA = Strongly Agree, A = Agree, I = Indifferent, D = Disagree, SD = Strongly Disagree

This shows that majority (approximately 50%) of the all the participants at all-time disagreed with the misconceptions, myths and false fears about the corona vaccines and vaccination. However, a significant amount also agreed with or were indifferent about it.

Discussion

The study sought to quantitatively evaluate the perception, misconception, myths and fears about the COVID-19 vaccination amongst women receiving antenatal care services at PHCs in Jos, Plateau state; Nigeria. To do this, we worked with three different primary healthcare centers that were located at Bukuru, Jos-south LGA in Plateau state; Nigeria.

Socio demographics of the sample population

From the study we found that almost half of the women attending antenatal care clinics in this region were 24 years and younger, with the youngest being 15 years of age and the oldest being 44 years of age. The religion practiced amongst the respondents was Christianity and Islam, approximately 6 in 10 of the respondents were Christians. As regards the occupation of the women, although majority of them were unemployed, most of those who were gainfully working were self-employed. With attainment of varying educational levels, 6 in 10 of them had secondary school education, while approximately 1 in 10 had attained no form of formal education.

Perception about COVID-19 vaccine and vaccination

On the question of whether or not they are sure they have to get the vaccine, the highest percentage (four in ten) agreed to this, about two in ten strongly agreed, same number disagreed while one in ten were both indifferent and disagreed strongly. About three in ten strongly disagreed that the vaccine may cause the infection, three in ten were indifferent about this, two in ten disagreed, a bit more than one in ten agreed while the lowest percentage of one in ten were among those who strongly agreed to the vaccine causing the infection. The highest percentage (four in ten) of respondents strongly agreed that the vaccine will protect them from getting infected, three in ten agreed to this, two in ten were indifferent, the least percentages one in ten and about 6.4% were amongst those who strongly disagreed and disagreed respectively. 38.4% agreed that they can lead a normal life after vaccination, three in ten were indifferent about this, two in ten strongly agreed to this, one in ten strongly disagreed and the lowest percentage of respondents 4.8% disagreed. About three in ten agreed to receive the vaccine if it is proven safe and effective. Three in ten strongly agreed to this, two in ten were indifferent about this while 8% and 5.2% strongly disagreed and disagreed respectively.

Misconception, Myths and fears about COVID-19 vaccine and vaccination

Although majority (six in ten) of the participants believed that the vaccine was safe, four in ten of them believed that it was not safe. Some of the reasons identified for misconceptions on its safety were issues such as the vaccine not being developed in Nigeria, the rapid time it took to develop it, the vaccine being a lethal, it containing a microchip to control people, the vaccine has infective potentials, it being a trick to wipe out half of the world's population and it being a cause of infertility. About two in ten amongst these respondents believed that the vaccine was going to cause infertility. This was not in keeping with a study carried out in Durban which noticed that one of the major false information on the side effect of the vaccine was infertility and miscarriages amongst women of reproductive age [4].

Our findings on the misconception on infertility and the Microchip were antagonistic to a study carried out in New South Wales, Australia, stated that most respondents believed that the COVID-19 vaccine will cause infertility amongst women of reproductive age who receive it. This study also found respondents who plainly believed that the vaccine was a microchip that was going to be inserted in to one's body thereby controlling humanity [2].

However, of these misconceptions, majority of misinformation was significantly noted in the knowledge of the vaccine being lethal, and causing death in those who took it.

In correlation between misconception and social demographics respondents within the age range of 20-24 years believed that the vaccine contained a microchip to control humans, the vaccine was a trick that could cause the infection and the vaccine could cause infertility. While the elderly population 40-44 years of age were more indifferent to the misconceptions. Although the Muslims were more

accepting to the misconceptions, the Christian participants were more indifferent about them. This is in keeping with a study done in Nigeria on a house hold survey on the perception of Nigerians to the vaccine where less than ten percent of the respondents expressed fear of infertility and religious believe being a very strong reason why they were unwilling to take the vaccine [5].

Conclusion

Though most (60.8%) of the participants were not sure whether or not they had to take the vaccine, majority (50.4%) did not believe it was going to cause the corona virus if they received it. They (63.6%) believed that it was going to protect them instead. Although most (55.2%) agreed they could still live a normal life after taking the vaccine, they (67.2%) needed to be sure that it was safe an effective first.

The most (36.8%) perceived misconception was that the vaccine caused more deaths than even the virus itself. Furthermore, there was a common fear amongst most (30.4%) of the participants concerning the short time frame it took to develop the vaccine. While the most (28.8%) common myth shared was that of the microchip implanted in the vaccines.

Conflict of interest: The authors declare no conflict of interests.

Authors Contribution

Conceptualization, Data collection and Writing = OTOBO Daniel David.

Data analysis and Final editing = Okoro Ngozi Ijeoma.

Funding

The authors have received not external funding in cash or in kind for any part of this work.

Acknowledgement

To our colleagues for their most invaluable contribution to the completion of this work, Dr. Okafor Kingsley, Dr. Mengele Cincinsoko and Dr. Osoba Blessing, without who this work would not have been thus refined. To our families, The OTOBOs, OTELEs and the OKOROs, who have been our back bone through the length and breadth of this research work? To our friends, who are always there in many precious ways, and to God who gives all? To Us.

And a special one to Mrs. Vivian Otele Aladegbami for everything and more, thank you (from DD Otobo, MD).

References

1. Ullah I, Khan KS, Tahir MJ, Ahmed A, Harapan H. Myths and conspiracy theories on vaccines and COVID-19: Potential effect on global vaccine refusals. Vacunas. 2021;22(2):93. (English Ed [Internet], [Cited 2021 Aug 26], Available from: PMC/articles/PMC8220986/
2. Islam MS, Kamal A-HM, Kabir A, Southern DL, Khan SH, Hasan SMM, *et al.* COVID-19 vaccine rumors and conspiracy theories: The need for cognitive inoculation against misinformation to improve vaccine adherence. PLOS One. 2021;16(5):e0251605. [Internet], [Cited 2021 Aug 26], Available from: https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0251605
3. Kreps SE, Goldfarb JL, Brownstein JS, Kriner DL. The relationship between US adults Misconception about COVID-19 vaccines and vaccination preferences. Vaccines. 2021;9:8. [Internet], [Cited 2022 Jan 14], Available from: PMC/articles/PMC8402532/
4. Moodley J, Khaliq OP, Mkhize PZ. Misrepresentation about vaccines that are scaring women. African Journal of Primary Health Care & Family Medicine. 2021;13(1):1-2. [Internet], [Cited 2021 Aug 26], Available from: PMC/articles/PMC8252153/
5. Watch NH. Will you take the COVID-19 Vaccine? A Household Survey on the Perception of Nigerians towards a COVID-19 vaccine - Nigeria Health Watch, 2021. [Internet], [Cited 2021 Aug 26], Available from: https://nigeriahealthwatch.com/will-you-take-the-covid-19-vaccine-a-household-survey-on-the-perception-of-nigerians-towards-a-covid-19-vaccine/
6. Adeyemi K. Misinformation about COVID-19 among internet users in Nigeria: Tools to effective public awareness, prevention and control. International Journal of Modern Anthropology. 2021;2(15):469-82. [Internet], [Cited 2021 Aug 26], Available from: https://www.ajol.info/index.php/ijma/article/view/207737
7. Adejumo AA. Still on Nigeria's railway history - Narrow gauge in Nigeria. Nigerians in America, Published. c2008. Google Maps [Internet], [Cited 2022 Jan 15], Available from: https://www.google.com/maps/contrib/117110303450661788409/reviews/@9.8802085,10.0008013,9z/data=!3m1!4b1!4m3!8m2!3m1!1e1
8. Ayuba I, Wash PM. An Assessment of the Provision and distribution of health facilities in Bukuru Town, Plateau State, Nigeria. Journal of Health, Medicine and Nursing. 2016;24;99-110.
9. Bolarinwa OA. Sample size estimation for health and social science researchers: The principles and considerations for different study designs. Nigerian Postgraduate Medical Journal. 2020;27(2):67-75. [Internet], [Cited 2022 Jan 15], Available from: https://pubmed.ncbi.nlm.nih.gov/32295935/