Open Journal of Medical Research (OJMR)
ISSN: 2734-2093
Article Details:
DOI: 10.52417/ojmr.v2i2.295
Article Ref. No.: OJMR0202006-259
Volume: 2; Issue: 2, Pages: 136 - 148 (2021)
Accepted Date: 18th October, 2021

Open Journals Nigeria (OJN)
Open Access | Bi-annual | Peer-reviewed
www.openjournalsnigeria.org.ng
editorial@openjournalsnigeria.org.ng

RESEARCH ARTICLE **OJMR0202006-259**

KNOWLEDGE AND ATTITUDE OF MOTHERS TOWARDS MEASLES AND MEASLES, MUMPS AND RUBELLA (MMR) VACCINE IN IDI- ABA COMMUNITY ABEOKUTA, NIGERIA

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ABSTRACT

Measles has remained endemic in some part of the world where the vaccine is not easily accessible. Although vaccine is available in some parts of the world, with routine immunization services and campaigns, many children are yet to be vaccinated. Hence, this study assessed the knowledge and attitude towards measles and Measles, Mumps and Rubella vaccine (MMR) among mothers in Idi-aba community. This was a descriptive research design using multistage sampling technique to select participants for the study. A self-constructed questionnaire was used to collect information from participants. After the distribution and collection of the questionnaires, data was analyzed using descriptive statistics. Results showed that 93.2% (386) and 65.9% (273) participants indicated that they knew what measles and MMR vaccines are respectively. However, overall analysis revealed that only 165 (39%) participants had high knowledge of measles and MMR vaccine while 303 (74%) had good attitude towards measles and MMR vaccine. This study showed that there are some knowledge gaps. Factors significantly associated with high percentage of mothers having good attitude are occupation (χ2=20, P=0.000), income (χ2=5.9, P=0.009) and parity (χ2=23, P=0.000). In conclusion, this result implies that in order to sustain the good attitude displayed by the mothers, there is need for strategic intensive health educational programs for the mothers of the community.

Keywords: *Attitude, Immunization, Knowledge, Measles, MMR Vaccine, Mothers*

INTRODUCTION

Infectious diseases are responsible for most morbidity and mortality among children. These diseases can be prevented through effective vaccination. Vaccination is cheap and safe than treating diseases and disabilities that may result from the infectious diseases (Ramadan *et al.,* 2016). Measles is one of the infectious and contagious viral diseases that are responsible for high mortality rate among young children globally despite availability of effective and safe vaccine (Geier, 2014). Vaccination has drastically reduced global measles death, but measles is still common in many developing countries particularly in Africa and Asia (World Health Organization, 2019).

Measles majorly affects the respiratory tract and is transmitted by direct contact with respiratory droplets from the nose, mouth or throat of an infected person or airborne spread between person to person (Geier *et al.,* 2019). Measles often presents with high fever, cough, runny nose, and watery eyes and this last for about 7 – 14 days (Centre for Diseases Control (CDC), 2021). If this disease is not treated on time it could result into serious complications such as pneumonia and encephalitis (Higuera, 2019). Measles, mumps, and rubella (MMR) vaccine is a combined live attenuated vaccine used in preventing three deadly diseases of which measles is among (Taiwo, *et al.,*2018).

MMR vaccine was created in 1971 by Maurice Hillemanat at the Merck Institute of Therapeutic Research, a pharmaceutical company in West Point, Pennsylvania (Ross, 2017). MMR vaccine can be administered both to children and adults. MMR vaccine has tremendously helped in reduction of disability and death among children less than five in developed countries however this is still on the high side in developing countries. Low vaccination coverage is one among the major factor responsible for high morbidity and mortality rate among children in developing countries (Abebe, 2019). The vaccine is part of WHO expanded program on immunisation which Nigeria is among nations that has adopted the program (Adedokun *et al.,* 2017). Highest number of reported cases worldwide on measles in 23 years was recorded in 2019. Global measles death reached nearly 50% since 2016, claiming an estimated 207,500 lives in 2019 alone (World health organization, 2020). This was reported to occur due to failure to vaccinate children on time with two doses of measles vaccine.

In Nigeria, the National Program on Immunisation recommended two doses of MMR vaccine for every child. In order to ensure effective delivery of this vaccine, care givers and mothers were offered immunisation card for keeping record of vaccines administered. Despite all these efforts, report revealed that the prevalence of measles in Nigeria is still on the increase (Taiwo, *et al.* 2018). Nigeria is among the African countries that accounts for 94% of global deaths as a result of measles (Ibrahim *et al.,* 2017). Most Nigerian children do not get immunised neither complete their immunisation schedule for so many reasons. A survey carried out in "Abeokuta, Ogun State in 2015 revealed that the surviving infant protection level due to measles vaccination was well over 100% however there was backlog of unimmunised children across 20 local governments areas" (Taiwo, *et al.* 2018). Many mothers still lack knowledge on measles and this has significantly affected their attitude towards its vaccine (Verulava, *et al.* 2019). Increasing mothers' knowledge will help in correcting their attitude thus improving their use of immunization services (Verulava, *et al.* 2019). The poor utilization of immunization services by mothers has been linked with some individual factors. The most significant factors among individual factors are knowledge, maternal education, source of information, certain beliefs, attitude to the use of health facility, among many others (Adedokun *et al.,* 2017; Zahraei *et al.,*2017). It is against this background the researchers assessed the knowledge and attitude towards measles and MMR vaccine among mothers in Idi- Aba community Abeokuta.

AIM AND OBJECTIVES

The aim and objectives of the study was to assess the knowledge and attitude towards measles and MMR vaccine among mothers in Idi- Aba community Abeokuta.

JUSTIFICATION

Findings of this study will provide stakeholders with clues that can help to reduce preventable child mortality and morbidity associated with measles by identifying knowledge gaps in this area.

MATERIALS AND METHODS

The study adopted descriptive research design and involved mothers who are resident in Idi-aba community, Abeokuta, Ogun state, Nigeria. Idi-Aba is the largest ward in Abeokuta South Local Government Area and also housed the major health care settings in Abeokuta. The community total population was estimated from the available data of total population of Abeokuta South Local Government Area which is 16,525 (Brinkchoff, 2020). Sample size for this study was 414 and this was obtained using Cochran's formula due to large population (Isreal, 2003).

Multi stage sampling technique was used in selecting mothers at community level. A self well-constructed questionnaire was used in collecting information from respondents. The validity of the research questionnaire was done by employing content validity technique. The questionnaire was given to expert for critiquing and suggestions. The corrections that were made were considered and carefully followed. A pilot study was carried out and the reliability of research questionnaire was established through test re test reliability method which measures internal consistency. After analysis, the level of reliability of the test was 0.736.

Researchers together with trained assistants collected information from each participant in their house using aself-well-constructed questionnaire. After the distribution and collection of the questionnaires (414), data were sorted manually and analysed using statistical package for social sciences. Responses to questions were analysed using descriptive statistics frequency, percentages, charts and Mean ± SD. Maximum obtainable score on knowledge is 14 while minimum obtainable score is 0. Mean ± SD was used in categorizing the results into high knowledge and low knowledge. Respondents that scored above the mean ± SD score were categorized under high knowledge while those with score below the mean ± SD were categorized under low knowledge. Total number of test items on attitude is 18. The questions were both negatively and positively worded. Positive questions were scored as follow Agreed -2, Uncertain - 0 Disagreed -1, Negative questions in this section were reversed coded. Mean± SD score was also used to categorize into good and bad attitude. Respondents that scored above the mean ± SD score were categorized as good attitude while those with score below the mean ± SD were categorized as bad attitude.

Ethical Review

Ethical approval was collected from the Ethical Review Board Committee at Federal medical Centre and the Ethical Review number is NHREC/08/10-2015. The purpose of the study was explained to each respondent and verbal informed consent was also obtained from all respondents prior to administration of questionnaire.

RESULTS

Table 1 showed the socio demographic distribution of the mothers that participated in the study, the mean age of respondents is 31.7 years. Most of the women were Christians 265 (64%) and Yoruba 364 (87.9%).

Table 1: Socio-demographic of Mothers

Variables	Frequency N=414	Percentages
Age		
< 30 years	225	54.3
31-40 years	139	33.5
41-50 years	39	9.4
>50 years	11	2.2
Educational status		
No education	10	2.4
Primary	26	6.3
Secondary	160	38.6
Tertiary	218	52.7
Occupation		
Trader	132	31.9
Artisans	93	22.5
Professionals	102	24.6
Self employed	20	4.8
Students	37	8.9
Housewives	30	7.2
Income status		
Low income	270	65.2
High income	144	34.8
Parity		
1-2	266	64.3
3-4	125	30.9
5-6	23	5.6

KNOWLEDGE ON MEASLES AND MMR VACCINE

Table 2 and table 3 shows result of mothers' knowledge on Measles and MMR vaccine. The common signs of measles identified by mothers were fever 320(77.3%), rashes 314 (75.8%), loss of appetite 240(58.0%), runny nose 157(37.9%) however, only few had adequate knowledge of its complications. It was only conjunctivitis that had highest responses of 285 (68.8%), others were 201(48.6%) otitis media, 145 (35.0%) dehydration and 98 (23.7%) pneumonia. Furthermore, 272(66.5%) of mothers indicated they knew what MMR vaccine is. Meanwhile only 138(33.7%) agreed that MMR vaccine can also prevent mumps and rubella and 146(35.7%) mothers indicated that two doses of MMR vaccines is recommended for children, one to be taken at 9months 234(57.2%) and the other at 15months 179(43.8). In summary, only 39% mothers had high knowledge of measles and MMR vaccine figure 3. Other information on knowledge of mothers on measles and MMR vaccine are in table 2, table 3, figure 1, 2 and 3.

Table 2: Knowledge of Mothers on Measles

Variables	Yes N=414 F (%)	No F (%)	I don't Know F (%)
Do you know what measles is	386(93.2)	28(6.8)	0(0.0)
Measles is a viral infection	302(72.9)	65(15.7)	47(11.4)
Measles is a highly contagious infection	330(79.7)	19(4.6)	65(15.7)
Both adult and children can contact measles	315(76.1)	27(6.5)	72(17.4)
Can vaccinated individual contact measles	124(30)	205(49.5)	85(20.5)
Measles can be contacted through respiratory droplets	160(38.6)	155(37.4)	99(23.9)
Measles can be contacted through food	86(20.8)	260(62.8)	68(16.1)
Measles can be contacted through non-practicing good hand hygiene	243(58.7)	86(20.8)	85(20.5)
Measles can be prevented through avoiding children from coming in contact with children who are sick	320(77.3)	59(11.8)	35(8.5)
Measles can be prevented through covering the nose and mouth when coughing or sneezing	197(47.6)	116(28)	101(24.4)
Measles can be prevented through vaccination	320(77.3)	40(9.7)	54(13)

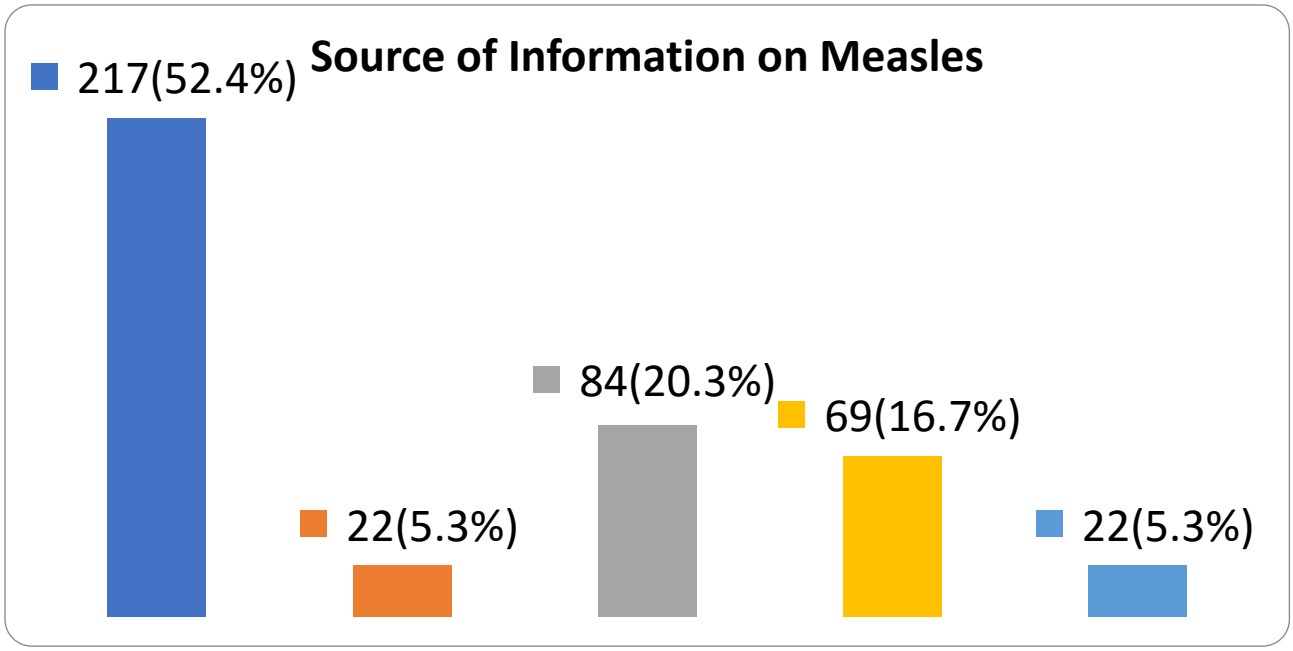

Figure 1: Source of information on measles

KEYS;

Family/friends

self experience

health workers

media/internet

I don't know/no information

Table 3: knowledge of Mothers on MMR vaccine

Variables	Yes N=414 F (%)	No F (%)	I don't Know F (%)
Do you know MMR vaccine	273(65.9)	37(8.9)	102(24.6)
Apart from measles, MMR can also prevent mumps and rubella	140(33.8)	42(10.1)	232(56)
Two doses of MMR vaccines is recommended for children	149(35.9)	9(2.2)	256(61.8)
MMR vaccine should be taken at 9 months	236(57)	13(3.1)	165(39.9)
MMR vaccine should be taken at 15 months	181(43.7)	37(8.9)	196(47.3)
MMR vaccine is safe	268(64.7)	22(5.3)	124(30)
MMR vaccine has side effects	35(8.5)	175(42.3)	204(49.3)
Every individual can take MMR vaccine	189(45.7)	23(5.6)	202(48.8)

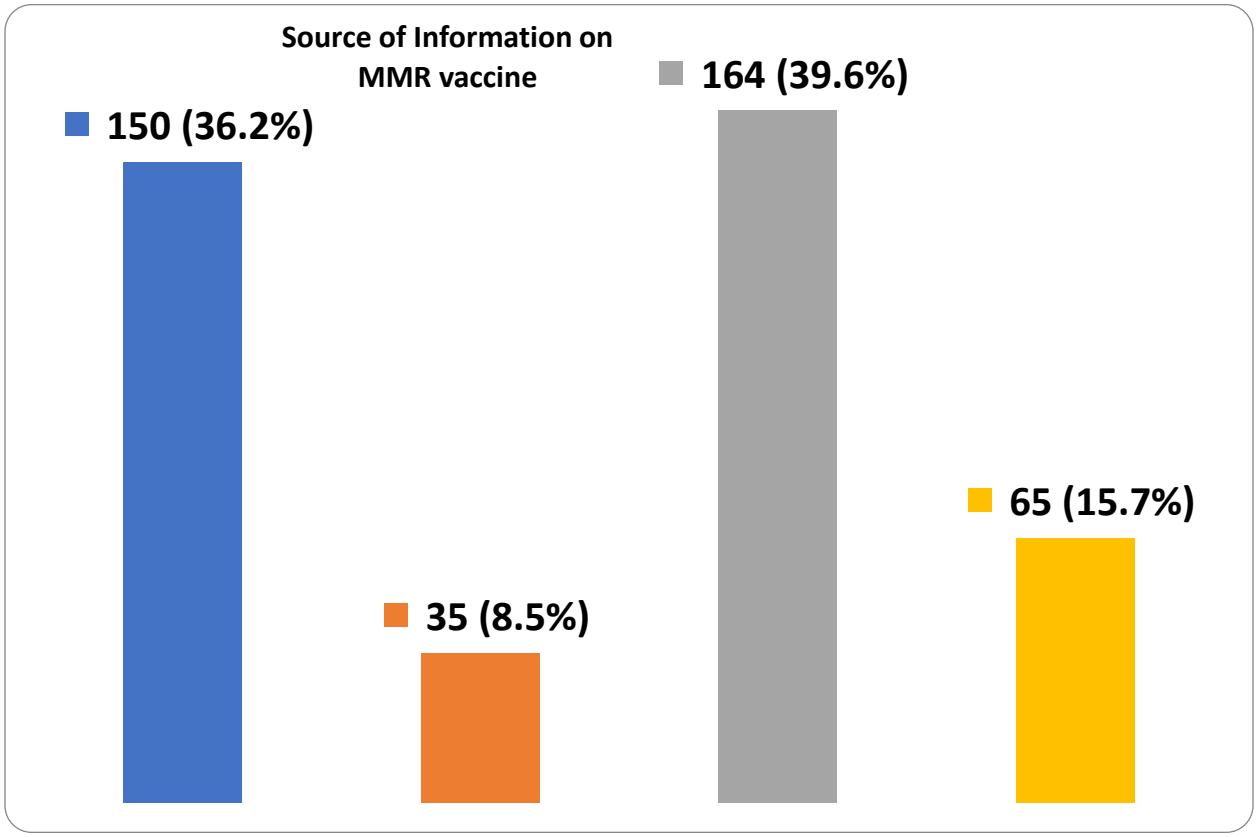

Figure 2: Source of Information on MMR vaccine

KEY;

health worker/ hospital

family/friends

internet/media/TV

No information

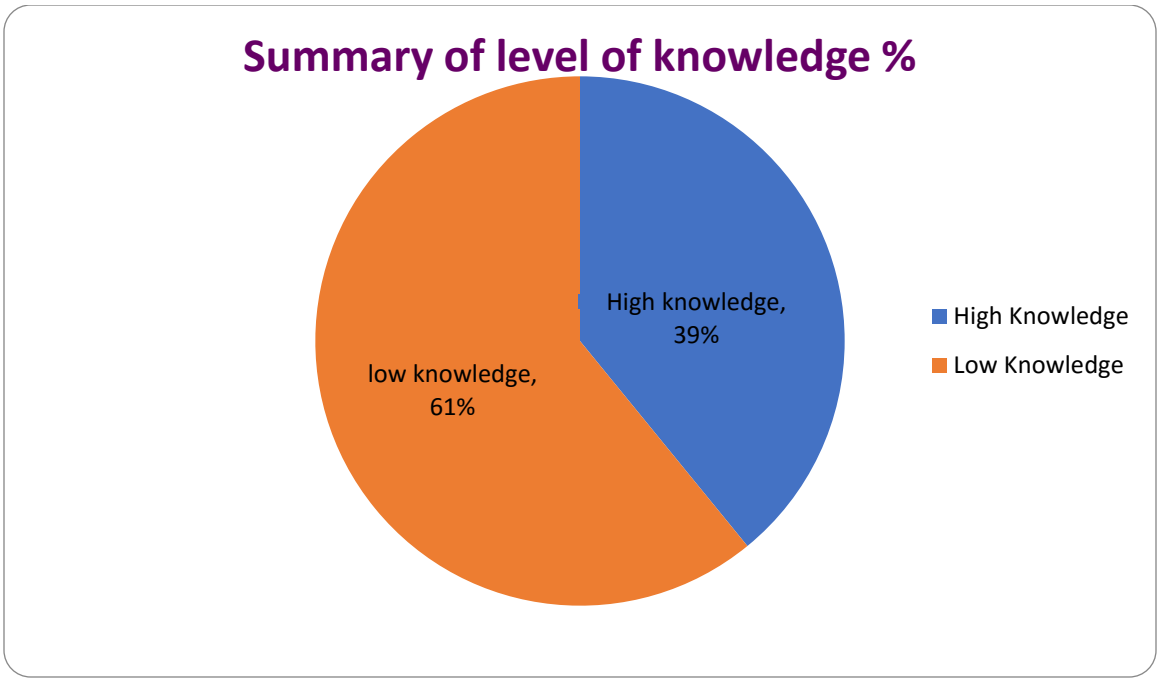

Figure 3: Summary on Level of Knowledge on Measles and MMR vaccine

ATTITUDE OF MOTHERS TOWARDS MEASLES AND MMR VACCINE

Table 5 reveals that majority of the mothers disagreed with negative worded statements, only 123(30.1%) and 111(27.1%) disagreed with the following statements respectively; every child hasmeasles during growing stage and whether a child receives MMR vaccine or not, if such will have measles, he will surely have it. In addition, majority agreed with almost all the positive statements, it is only the statement "Every child should be given 2 doses of MMR vaccine" that only 191(46.7%) agreed with. In summary 74.1% of the mothers had good attitude towards Measles and MMR vaccine figure 4.

Table 4: Attitude of Mothers towards Measles and MMR vaccine

Variables	Agreed N=414 F (%)	Uncertain F (%)	Disagreed F (%)
Measles is not deadly	192(46.4)	47(11.4)	175(42.3)
Measles cannot be prevented	48(11.6)	62(15)	304(73.4)
MMR vaccine can cause death	66(15.9)	92(22.2)	256(61.8)
MMR vaccine is harmful	50(12.1)	75(18.1)	289(69.8)
There is no need to prevent measles	61(14.7)	50(12.1)	299(72.2)
Every child have measles during growing stage	127(30.7)	161(38.9)	126(30.4)
It is normal for children to have measles	155(37.4)	82(19.8)	177(42.7)
Whether a child receives MMR vaccine or not, if such will have measles, he will surely have it	118(28.5)	181(43.7)	115(27.8)
Measles is a communicable disease	347(83.8)	52(12.6)	15(3.6)
Measles is a vaccine-preventable disease	313(75.6)	89(21.5)	12(2.9)
MMR vaccine is safe	349(84.3)	53(12.8)	13(3.1)
MMR vaccine is the best to prevent measles in every child	267(64.5)	125(30.2)	20(4.8)
It is good to recommend others to vaccinate their children against measles	347(83.8)	48(11.6)	19(4.6)
MMR vaccine can prevent outbreak of measles in the community	314(75.8)	66(15.9)	34(8.2)
MMR vaccine reduces mortality rate from measles	331(80)	76(18.4)	7(1.7)
Every child should be immunised against measles	334(80.7)	80(19.3)	0(0.0)
Every child should be given 2 doses of MMR vaccine	195(47.1)	175(42.3)	44(10.6)

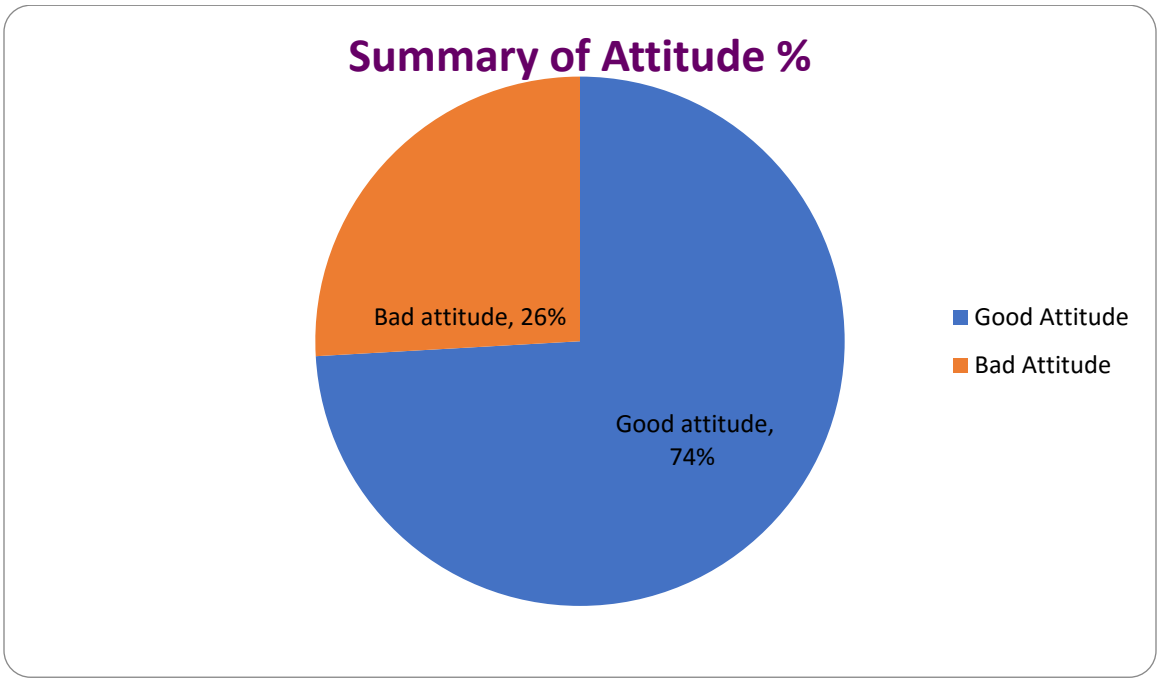

Figure 4: Summary on level of Attitude towards Measles and MMR vaccine

Table 5: Association of Socio Demographic variables with Attitude of Mothers

Variables	Bad Attitude (N= 414)	Good Attitude (N= 414)	$\chi 2$	p-value
Age				
<30 years	63	162	1.895	0.59
31-40 years	33	106		
41-50 years	10	29		
>50 years	3	8		
Educational Status				
No education	2	8	6.19	0.102
Primary	11	15		
Secondary	38	122		
Tertiary	55	163		
Occupation				
Prof	22	82	20.0	0.000
Non—Prof	100	145		
Unemployed	40	27		
Income				
High income/mth (100,000 & above)	80	189	5.9	0.009
Low income (Below 100,000)	31	114		
Parity				
Low	100	291	23.0	0.000

Table above showed that occupation ($\chi 2$=20, P=0.000), Income ($\chi 2$=5.9, P=0.009) and parity ($\chi 2$=23, P=0.000) are significantly with parity. Professionals' mothers, mothers with high income, and mothers with low number of deliveries had good attitude towards measles and MMR vaccine than their counterparts.

DISCUSSION

Measles is an acute and highly contagious viral disease of public health concern especially in developing countries. Several studies have been carried out on knowledge and attitude of women towards measles and vaccination in general. However, there is dearth information on knowledge and attitude of women towards measles in Nigeria out of which only few studies looked into the concepts of measles and MMR together.

Knowledge is a strong factor towards utilization of any health care services. Report revealed that in Ogun state, as at 2018 many children were not immunized against measles and it has been observed at community level that many mothers do not take their under-five children for vaccination against measles because of certain beliefs, superstitions and lack of adequate knowledge. Present study revealed that most of the mothers indicated that they knew what measles is. Majority of the participants recognized fever and rash as the signs of measles; which is in consistent with a study carried out in Australia and New Zealand by Brieger *et al.* (2017) which reported fever and rash as common signs and symptoms of measles. Many identified it as a viral infection that can be contacted from other children and also can be prevented via vaccination however, only few had adequate knowledge of its complications and mode of transmission. In addition, mothers indicated they knew what MMR vaccine is but only few knew that MMR vaccine can also prevent mumps and rubella this is in agreement with a study carried out in

Brazilian city by Logullo *et al.* (2008) where 25 people said "There is no mumps vaccine". Furthermore, only few percentages of the participants knew two doses of MMR vaccine is required to prevent measles. These identified gaps affected their overall knowledge score on measles and MMR vaccine. This implies the need for Health Care providers to go beyond giving health education in health care setting. Efforts should be directed towards reaching out to mothers in their homes with adequate health information so that health knowledge will improve beyond what they acquired from friends and families.

Among the sources of information identified by mothers in current study, family and friends had the highest percentage while mass media and social media had the highest percentages for knowledge on MMR vaccine. Family and friends are strong significant orders in shaping individual view and improving individual understanding of certain concepts (Guo, 2019). Thus, public enlightenment on health issues remains a major tool in promoting and improving healthy preventive behaviours in the community at large (Ophori, *et al.* 2014; Cockcroft *et al.,* 2015).

It is worth noting that majority of the respondents in the present study have a good attitude towards measles and MMR vaccine which is in consistent with a study carried out by Adefolalu *et al*. (2019) and a study by Oladepo *et al.* (2019) among mothers. Many of these mothers agreed that every child should be immunised against measles. This finding is in congruent with Weiss *et al.* (2016) study where many of the mothers agreed that it is good to vaccinate a child. However, some studies carried out in Bauchi and Cross rivers States Nigeria revealed negative attitudes among the mothers (Cockcroft *et al.,* 2015). One of the key factors responsible for good attitude displayed by the present study participants was due to high percentage of mothers with lesser child bearing experience. Such mothers are most likely to show more positive attitude on issues relating to their newborn irrespective of their level of knowledge than the experienced mothers. These mothers tend to ask questions and seek for information about their child's health. Other significant factors associated with attitude are occupation and income. Professionals and mothers earning high income had good attitude towards measles and MMR vaccine than their counterparts. This seems to agree with Singh (2019) study among post-natal women in Malaysia where mothers' occupation is one of the significant factors associated with attitudes towards childhood vaccination.

CONCLUSION

In conclusion, mothers' knowledge on measles and MMR vaccine is quite inadequate. It is quite interesting to discover that majority of the mothers do not know MMR vaccine is given at 15 months and they do not know other diseases the vaccine prevents. This implies the need for nurses working with mothers to improve on their health educational program package based on the gaps identified. Nurses can make use of this health educational package in educating mothers be it in clinic or during community outreach programs. This health education can also be carried out via mass media and social media. This will help the more in broadening the understanding of mothers on measles and MMR vaccine which will help more in influencing their attitude towards the vaccine. This will consequently lead to increase in the number of children vaccinated against measles thus reducing the cases of measles with its complications and under five mortality rates in the nation.

CONFLICT-OF-INTEREST

Authors declare that there is no competing or conflict of interest of any kind.

ACKNOWLEDGEMENT

Authors are grateful to colleagues that assisted in data collection and would also like to appreciate all participants.

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