
MYTHS AND MISCONCEPTIONS AS BARRIERS TO UPTAKE OF IMMUNIZATION SERVICES IN CALABAR, CROSS RIVER STATE OF NIGERIA

Aniekan Jumbo Etokidem*, Wilfred Ndifon*, Daprim Ogaji**,
Bassey Ebenso***, Emmanuel Nsan*, Bassey Ikpeme*

*Department of Community Medicine, University of Calabar, Calabar, Cross River State, Nigeria.

**Department of Preventive and Social Medicine, University of Port Harcourt, Port Harcourt, Rivers State, Nigeria.

***Leeds Institute of Health Sciences, University of Leeds, United Kingdom.

ABSTRACT

Context: Nigeria is presently one of only three countries in the world that are polio endemic. The immunization program in Nigeria has been marred by several factors including myths and misconceptions.

Objective: The objective of this study was to identify myths and misconceptions that affect utilization of childhood immunization services in Calabar, Nigeria.

Materials and Methods: Focus group discussion sessions were held among caregivers in Calabar, Nigeria. Each group consisted of 12 women of reproductive age. Data obtained from each session were transcribed and analyzed using the content analysis approach.

Results: Participants had poor knowledge of vaccine preventable diseases (VPDs). Some mentioned non-VPDs as if they were VPDs. Some believed that "so called" VPDs are caused by mermaid spirits, witches and wizards. The solution to VPDs proffered by participants was sacrificing in the river by midnight. Some caregivers felt that multiple doses of vaccines could harm the children. With regard to polio, one caregiver said that "Polio is due to mammy water (water mermaid). The solution is not immunization. The solution is to sacrifice to the mermaid by 12 midnight in any river close to where the child was born, on the night of the child's birth. Once this is done, the child can never have polio."

Conclusion: Myths and misconceptions regarding immunization are rife in most Nigerian communities. There is need to debunk them through health education in order to ensure success of the country's immunization program.

Key words: Immunization, Vaccines, Polio, poliomyelitis, myths, misconceptions.

INTRODUCTION

Vaccination is one of the best known, affordable and easy to use methods of controlling communicable diseases.¹ It is a method that has been used to eradicate an infectious disease, smallpox. It has also shown a lot of promise in efforts towards eradicating other infectious diseases like poliomyelitis which has already been eliminated in most parts of the world.

With a population of about 160 million, Nigeria is the most populous country in Africa.² Vaccine Preventable Diseases account for about 22% of child mortality in the country, amounting to about 220,000 deaths per year.³ The country's Expanded Program on Immunization achieved DPT₃ coverage in infants of up to 56% in the 1990s. For some years thereafter, immunization coverage experienced a steady decline. Preliminary results of a 2006 national coverage survey reported DPT₃ coverage of 36% and only 18% of children aged 12-23 months were found to be fully immunized, using card and caregiver recall. The report also showed significant differences across zones ranging from 0 % in some parts of the North-West, North East and North Central to 40% fully immunized children in some parts of the South West, South East and South-South geo-political zones.³

Northern Nigeria has one of the lowest immunization coverage in the world. In many parts of the north, barely 10 percent of children receive all of their routine vaccines.⁴ Gains in immunization coverage made in Nigeria in the 1990's were reversed when immunization programs were halted

Corresponding Author: Dr. Aniekan J. Etokidem,
Department of Community Medicine, University of Calabar
Calabar, Cross River State, Nigeria.
E-mail: etokidem@etokidem.com

by some Northern states in 2003 due to belief that vaccines contained HIV and contraceptive substances that would reduce population growth in this part of the country. This led to Nigeria becoming a net exporter of the Wild Polio Virus to other counties of the world. In the same year, Nigeria recorded the highest number of polio cases in the world and accounted for 45% of all confirmed cases globally.⁵ Presently, Nigeria is one of only three countries in the world that is polio endemic, alongside Afghanistan and Pakistan.⁶

Caregivers play a vital role in the uptake of immunization by children under their care. It is often necessary to take children to the health facility for vaccination since they cannot do so by themselves. Their perception of immunization is therefore an important determinant of whether or not they will avail their children of immunization services.

Religious belief is a key determinant of utilization of immunization services. It has been documented that religious fundamentalism has been a major cause of failure of immunization program in Nigeria, Afghanistan and Pakistan.⁷

Differences between orthodox and unorthodox (traditional) explanations of disease causation often affect utilization of health care services. Misconceptions regarding the aetiology of disease apply to most Nigerian cultures and societies. Belief in the efficacy of native medicine and patronage of traditional health care providers is common among Nigerians.⁸

Ojukitu observed that what the Yorubas of Western Nigeria perceive about the aetiology of most childhood diseases constitute a great hindrance to public health programs and intervention by the government of Nigeria.⁹

The Yorubas also believe that measles is due to the anger of Igbona or Sopona or Olode who is the god of small pox.¹⁰ Because this god is intolerant of any form of injection, including immunization, a child with

measles is advised not to either visit a health care facility or take any injection. Similarly, they believe that tuberculosis results from eating food in the dream or due to poisoning by someone's enemies who had access to the saliva of the victim. To prevent this from occurring, people are usually warned against spitting their saliva on sand or exposing their toothbrushes or chewing sticks to enemies.¹⁰ In some communities in Northern Nigeria, it is believed that polio is due to an evil spirit that drinks the blood of its victims, leading to paralysis or death.¹¹

In Cross River State of Nigeria, there is the belief that diseases are caused by witches and wizards¹² and other spiritual forces to which the formal health sector has no solution. Traditional solutions are often proffered, including appeasement of the gods using sacrifices.^{12,13,14} Such beliefs and practices discourage people from utilizing health care services or putting in place orthodox preventive measures against diseases.

Objectives of the study.

1. To identify cultural beliefs, myths and misconceptions that act as barriers to uptake of immunization services.
2. To document perceptions that influence caregivers' utilization of immunization services.

MATERIALS AND METHODS

Study setting

This study was conducted in Calabar, the capital of Cross River State of Nigeria. Located in Nigeria's South-South geopolitical zone within the rainforest belt, Calabar is a city with rich cultural heritage. Although people of diverse ethnic groupings reside in the city, the major ethnic groups are the Efiks, Efuts and the Ejaghams. Other ethnic groups are the Ibibios, Annangs, Igbos, Yorubas and Hausas. Myths and misconceptions regarding virtually all aspects of life abound, including belief in witches and wizards as the cause of diseases.

Study instruments

A focus group discussion guide was used to conduct the study. The guide addressed issues such as care-givers' knowledge of vaccines and vaccination, existing myths and misconceptions, effect of these on uptake of immunization services and suggestions on how to debunk these myths and misconceptions.

Methodology

Four focus group discussion sessions were held among care givers in Calabar, Nigeria. Each group consisted of 12 women, all of whom were of reproductive age. Clients from two facilities were selected from Calabar Municipality and two from Calabar South LGA. Twelve caregivers were selected from each centre, using systematic random sampling, to participate in the FGD sessions. Using the average client flow for each centre and the sample size of 12 (for each FGD), the sampling interval was calculated. Using the sampling interval, 12 clients visiting the centre for their children's immunisation were selected systematically for the FGD. The first client to be selected (the starting point), was selected through balloting. Small pieces of paper were cut. The number of pieces of paper equaled the sampling interval. The pieces of paper were numbered from one to the number equal to the sampling interval. The pieces of paper were folded and put inside a basket. After shaking the contents of the basket, the researcher picked one of the pieces of paper. The number written on the piece of paper was taken as the starting point. The twelve women so selected constituted one discussion group.

Each session lasted for between 60 to 90 minutes. Each session was facilitated by a moderator with an assistant who wrote down the discussions. The discussions were tape recorded except in one session where some of the participants objected to tape-recording. Open-ended questions were used to elicit participants' perception of immunization and capture their beliefs and misconceptions regarding it. Additionally,

participants were given the opportunity and the encouragement to explore other issues regarding immunization which they deemed necessary but which were not captured in the FGD guide.

Data analysis

Data obtained from each session were transcribed and analyzed using the content analysis approach.

Ethical consideration: Each participant gave an informed consent before participating in the study.

RESULTS

Knowledge of Vaccine Preventable Childhood Diseases (VPDs)

The correctly mentioned VPDs were measles, polio, tuberculosis, hepatitis and tetanus. The most commonly mentioned VPD was measles while the most frequently mentioned non-VPDs were malaria, asthma and typhoid. Some felt that asthma and tuberculosis are synonymous while others felt diphtheria and pertussis were the same thing.

Knowledge of vaccines used in preventing the VPDs

The respondents mentioned the various vaccines e.g OPV was mentioned as the vaccine for polio, tetanus toxoid for tetanus and BCG for tuberculosis. Some mentioned ATS as the vaccine for tetanus while some said that the vaccine for tuberculosis is "Tb". Majority of them did not know that the "T" in DPT is for tetanus. They said it was for tuberculosis. Yellow fever vaccine was mentioned as a vaccine for malaria which was also wrongly mentioned as a VPD.

Knowledge of age for vaccine administration

The respondents gave various ages for vaccine administration. For BCG some mentioned Birth, 2 weeks, 6 weeks, 1 month; for OPV₀: Birth, 2 weeks, 1 month; for OPV1: 4, 6 and 10 weeks; for OPV2: 6, 10 and 14 weeks and for OPV3: 10 and 14 weeks and 9 months.

For DPT1: 10 and 14 weeks; for DPT2: 10, 14 and 12 weeks and for DPT3: 10, 14 and 16 weeks were mentioned as the period for vaccination.

For first dose of Hepatitis B Vaccine: Birth, 2, 4, 6 and 14 weeks; for second dose of Hepatitis B Vaccine: 4, 10 and 14 weeks and for third dose of Hepatitis B Vaccine: 10, 6 and 14 weeks.

For measles vaccine, participants mentioned: 9 and 6 months, while for yellow fever they mentioned 9 and 12 months.

Symptoms of VPDs: The following were mentioned as symptoms of VPDs

For tuberculosis: The respondents mentioned chest pain, stomach pain, vomiting, yellowness of the eyes, catarrh, redness of the eyes and cough as symptoms.

For tetanus: Wound in the navel, pus from the navel, shaking of the hands, inability to eat, fever, cough, body pains, vomiting and inability to suck breast were mentioned as symptoms.

For poliomyelitis: Weak muscles, paralysis, stroke, fracture, dead muscles and weak nerves were mentioned as symptoms.

For diphtheria: Fever, headache and cough were mentioned as symptoms.

For Pertussis: Asthma, cough, fever, breathlessness and noise in the throat were mentioned as symptoms.

Hepatitis: Yellowness of the eyes, diarrhea, typhoid, yellowness of the palm and vomiting were mentioned as symptoms.

Measles: Fever, rashes, red eyes, cough were mentioned as symptoms.

Yellow fever: Yellow tongue, hotness of the body, yellow palms were mentioned as symptoms of yellow fever.

Opinion regarding the child receiving several doses of the same vaccine

Majority of the respondents felt it was not necessary for the child to receive more than one dose of the same vaccine. Some of them felt that doing so could be injurious to the health of the child. One discussant said that "I don't think it is good for the body of the child. I think it may damage the protective

system" while another discussant in the same group said that:

"It will weaken the child's system and if it is a boy, it can even destroy his fertility"

Others said that:

"More than one (Vaccine) will cause the child to fall sick. I also feel it is waste of time giving the same injection more than once. Unless you tell me it is different."

Local beliefs and misconceptions

One discussant said that *"I hear that polio is caused by Mermaid (water spirit) and that only sacrifice performed by 12 midnight in the river the day the child is born can stop it."* Some other discussants were of similar opinion.

Another participant said that:

"Children become sick after taking immunization." Some others held similar opinion.

While another opined that:

"I have read in some books that the vaccines can cause the disease they are supposed to prevent."

One discussant said that:

"Polio is due to mammy water (water mermaid). The solution is not immunization. The solution is to sacrifice to the mermaid by 12 midnight in any river close to where the child was born, on the night of the child's birth. Once this is done, the child can never have polio."

Concerning the cause of polio paralysis, a discussant felt that:

"Polio paralysis can only happen if the child was owing someone in the spirit world and did not pay. Then they break his leg in this world because he is owing."

A participant said that :

"immunization or no immunization, any child that wants to die will die". Similar opinion was held by others while another added that *"so-called vaccine-preventable diseases are due to witches and wizards, do not waste your time."* This was also the view of some other discussants.

Another participant introduced an interesting dimension to the cause of polio:

"Any child that comes here leaving his brothers and sisters on the other side, they

will be annoyed and break his leg, which is what you call polio."

Some participants felt vaccines do not just work. One of them said that:

"The Thing no de work"

With regard to tetanus, one participant said that:

"Shaking is even a solution. A child that was born with some bad spirit will expel the spirit in the process of shaking. You call this tetanus? I disagree. The solution is to consult a powerful herbalist, he will know what to do to remove the spirits quickly; not injections."

Too much noise about polio to the neglect of other diseases.

Three of the discussants opined that

"Polio cannot be contacted so easily. It does not deserve all the noise you people are making. Ok, what about malaria that we see our children have every day, how about typhoid, AIDS?"

Another discussant opined that:

"Children will only have measles if they are carried by a woman with craw craw (rashes) on the first day of birth." This belief was shared by some other discussants too.

Despite the negative opinion of majority of the discussants, some others believed that vaccines are good. For instance, one discussant said that: *"Without vaccines, our children would be dying like chicken"*. This opinion was shared by some others.

DISCUSSION

Some of the beliefs expressed by the participants are not surprising because belief in the power of witches and wizards is rife in this part of the country. There are many riverine communities in the study area, thus the belief in water spirits like mermaid is not surprising. These spirits are believed to torment human beings and make them sick.¹⁵

The fear that administration of multiple doses of vaccine could lead to disease has been one of the commonest misconception regarding immunizations since its inception.¹⁶

This is one of six common misconceptions the WHO /CDC has documented, others being that:

"Diseases had already begun to disappear before vaccines were introduced, because of better hygiene and sanitation".

"The majority of people who get disease have been vaccinated".

"There are "hot lots" of vaccine that have been associated with more adverse events and deaths than others. Parents should find the numbers of these lots and not allow their children to receive vaccines from them".

"Vaccines cause many harmful side effects, illnesses, and even death - not to mention possible long-term effects we don't even know about".

"Vaccine-preventable diseases have been virtually eliminated from my country, so there is no need for my child to be vaccinated".

The findings of this FGD study are similar to that of a study in New Zealand, where a survey of healthcare providers showed that 53% of them believed that parental fear was the greatest barrier to children's immunization.¹⁷ In a related study, UNICEF and other partners identified barriers to polio immunization in Nigeria to include residual suspicion about immunization; caregivers' misconception that polio was a low risk infection and confusion among caregivers about the need for multiple injections.¹⁸

In a study in the United Kingdom, Evans et al found that most parents felt the risks from immunization outweighed the benefits and as such refused to avail their children of immunization services.¹⁹ These findings were corroborated by a study in Australia and New Zealand by Bond et al which documented parental fears about multiple doses of vaccine placing a stress on the immune system.²⁰ Similarly, Abdulraheem et al had also found that the major reason for incomplete immunization among Nigerian

rural children was parental belief.²¹ Opposition to vaccination has marred the program since its inception, even in developed countries like America and Britain. For instance, in response to the mandatory laws, the Anti- Vaccination League and the Anti-Compulsory Vaccination League were formed, and numerous anti-vaccination journals sprang up in England following the Vaccination Act of 1853 which ordered mandatory vaccination for infants up to 3 months old.²² In Pakistan, the Taliban has been at the forefront of opposition to immunization, alleging that it is a ploy to sterilize Muslim children and reduce the population of Muslims.²³ Nigeria and Afghanistan have also witnessed opposition to immunization service provision for similar reasons.^{7,24,25}

CONCLUSION

Nigeria's hope of meeting the fourth Millennium Development Goal by reducing child mortality may not be realized by the terminal date of 2015 because of myths, misconception and cultural beliefs that mar the country's immunization program. There is need to put in place measures to address and debunk these myths and misconceptions. There should be continuous capacity building of immunization service providers in health education and communication skills so that they can tell the populace the truth about immunization, thereby debunking these myths and misconceptions. Education of mothers, promotion of girl-child education and partnership with religious, community leaders and gate-keepers could also ensure that the right messages regarding immunization get to the people. Community Vaccine Advocacy Groups should be formed, using community members that have positive opinion about vaccines. Such groups would be useful in passing on the right messages to other community members.

Competing interests

The authors declare that they have no competing interests.

REFERENCES

1. WHO. Media center. <http://www.who.int/mediacentre/factsheets/fs100/en/>. World Health Organization, Geneva, 2014.
2. National Population Census 2006. National Population Commission, Abuja, Nigeria.
3. USAID. Immunization basics. Washington: United States Agency for International Development. <http://www.immunizationbasics.jsi.com/CountryActivities.htm>. Accessed 12th November, 2014.
4. PATH. Making immunization routine again. Seattle: Program for Appropriate Technology in Health. <http://www.path.org/projects/immunization-nigeria.php>. Accessed 10th November, 2014.
5. UNICEF. Polio Eradication – Global Status and Progress. http://www.unicef.org/media/media_18981.html. Accessed 11th September, 2014.
6. GPEI. Polio this week - As of 03 Oct 2012. Global Polio Eradication Initiative. <http://www.polioeradication.org/Dataandmonitoring/Poliothisweek.aspx>. Accessed 20th October, 2014.
7. Warraich HJ. Religious opposition to polio vaccine. *Emerging Infectious Diseases*. 2009;15:978.
8. Yahya M. Polio vaccines - no thank you! Barriers to polio eradication in Northern Nigeria. *African Affairs*. 2007; 106(423): 185–204. 185.(423).
9. Ojikutu R.K. Beliefs, Knowledge and Perception of Parents to Paediatric Vaccination in Lagos State, Nigeria. *Journal of Management and Sustainability*; Vol. 2, No. 2; 2012.
10. Odebiyi A. I & Ekong S. C. Mothers' concept of measles and attitude towards the measles vaccine in Ile-Ife, Nigeria. *Journal*

- of Epidemiology and Community Health, 36, 209-213 <http://dx.doi.org/10.1136/jech.36.3.209>.
11. Renne E. Perspectives on polio and immunization in Northern Nigeria. *Soc Sci Med.* 2006;63(7):1857-69.
 12. Udiminue S & Adindu A. HIV prevalence in a rural community in Nigeria. *Continental J. Biomedical Sciences* 6(1): 31-40,2012.
 13. Ekeke E. C. Oral Expression of African Christianity in Songs and Choruses (A Case Study of African Independent Churches In Calabar-Nigeria) *Research on Humanities and Social Sciences* Vol.2, No.6, 2012. www.iiste.org.
 14. Ojua T.A .African Sacrificial Ceremonies and Issues in Socio-Cultural Development. *British Journal of Arts and Social Sciences* ISSN: 2046-9578, Vol.4 No.1 (2012)
 15. Otutubikey I. C, Etukudoh I. W, Brown A. S. Igbo women seeking Ibibio cures: Transethnic itineraries for ethnomedical therapies in Nigeria; *Health & Place* 11 (2005) 1-14.
 16. Misconceptions about vaccines <http://www.historyofvaccines.org/content/articles/misconceptions-about-vaccines>. Accessed 1st June, 2014.
 17. Petousis-Harris H, Goodyear-Smith F, Turner N, Soe B. Family physician perspectives on barriers to childhood immunization. *Vaccine.* 2004; 22(17-18): 2340-2344.
 18. UNICEF/WHO. Engaging Communities Nigeria's Campaign to Increase Acceptance of Routine and Polio Immunization Services. http://www.unicef.org/nigeria/ng_publications_IPDstrategy.pdf. Accessed 2nd November, 2014.
 19. Evans M, Stoddart H, Condon L, Freeman E, Grizzell M, Mullen R. Parents' perspectives on the MMR immunization: a focus group study. *British Journal of General Practice,* 2001, 51, 904-910.
 20. Bond L, Nolan T, Pattison P, Carlin J. Vaccine preventable diseases and immunizations: a qualitative study of mothers' perceptions of severity, susceptibility, benefits and barriers. *Aust NZ J Public Health* 1998; 22: 441-446.
 21. Abdulraheem I.S.I, Onajole A.T, Jimoh A.A, Oladipo A.R. Reasons for incomplete vaccination and factors for missed opportunities among rural Nigerian children. *Journal of Public Health and Epidemiology* Vol. 3(4), pp. 194-203, April 2011.
 22. Wolfe R. M, Sharpe L. K. Anti-vaccinationists past and present. *BMJ.* 2002d;325:430-432.
 23. Ahmad K . Pakistan struggles to eradicate polio. *Lancet Infect Dis* 2007;7:247. doi: 10.1016/S1473-3099(07)70066-X
 24. Kapp C . Surge in polio spreads alarm in Northern Nigeria. Rumours about vaccine safety in Muslim-run states threaten WHO's eradication programme. *Lancet* 2003; 362: 1631-2. doi: 10.1016/S0140-6736(03)14826-X.
 25. Centers for Disease Control and Prevention. Resurgence of wild poliovirus type 1 transmission and consequences of importation—21 countries, 2002–2005. *MMWR Morb Mortal Wkly Rep* 2006;55:145–50.