ACCEPTABILITY OF IMMUNIZATION SERVICE AMONG WOMEN OF CHILDBEARING AGE IN TARABA STATE, NIGERIA

BY

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ABSTRACT

This study was conducted to assess acceptability of immunization among women of childbearing age in Taraba State, Nigeria. To achieve this purpose, ex-post facto research design was used. A total sample of 400 women of child bearing age in Taraba state, Nigeria were selected from a population of 736,040 through multi-stage sampling procedures comprising of stratified sampling, simple random sampling, systematic sampling, and proportionate sampling techniques. The instrument used for the study was researcher developed close ended questionnaire. Out of the 400 copies of questionnaire distributed, 381 or 95.2% were retrieved and considered valid for analyses. Inferential statistics of one sample t-test was used to analyse the formulated hypothesis at 0.05 probability level. The result revealed that acceptability of immunization by women of childbearing age in Taraba state is significant ($p = 0.000$). Based on the results, it was recommended that health educators should continue with outreaches programmes targeted at the communities so as to sustain the acceptance of immunization among women of childbearing age in Taraba state. This would also help to improve the acceptability of the vaccines as some do not complete the dosage as required.

Key Words: Acceptability, Immunization, Women of Child Bearing Age.

Introduction

For generations, vaccines have served as a powerful shield against devastating infectious diseases, safeguarding entire communities and enabling children to thrive. Yet in recent years, questions surrounding the acceptability of routine immunization have emerged, creating a complex landscape where misinformation, cultural beliefs, and individual anxieties intersect with the collective good. Vaccination is one of the most cost-effective ways of avoiding disease; it currently prevents 2-3 million deaths a year, and a further 1.5 million could be avoided if global coverage of vaccination is improved (WHO, 2019b). The vaccine contains the same antigens or parts of antigens that cause the disease, but the antigens in vaccines are either killed or greatly weakened. Vaccines work because they trick the body into thinking it is being attacked by the actual disease (WHO, 2019a). Immunity through immunization happens without the consequence of being ill and

without the risk of potential life-threatening complications from the disease. Once a person is immunized, specific immune cells called memory cells prevent re-infection when they encounter that disease again in the future. However, not all vaccines provide lifelong immunity. Vaccines such as the tetanus vaccine require booster doses every ten years for adults to maintain immunity (WHO, 2019a).

The safety and effectiveness of vaccines are under constant study. Because vaccines are designed to be given routinely during well-child care visits, they must be extraordinarily safe. Safety testing begins as soon as a new vaccine is contemplated, continues until it is licensed, and is monitored indefinitely after licensure (American Academy of Paediatrics, AAP, 2019). Vaccines are safe and effective in the prevention of the spread of diseases from of our society. Therefore, it is necessary that parents ensure their infants are fully vaccinated before their first birthday (Azuka, 2018). Azuka (2018) also stressed that immunization helps fortify the immune system against infectious disease by the process of administration of a vaccine.

Vaccination plays a crucial role in prevention of infants, children and teens from harmful diseases. Vaccine-preventable diseases can be very deadly if ignored and left untreated. The diseases that children are prone to if not vaccinated includes polio, hepatitis B, hepatitis A, HIB (Haemophilus influenzae B), chicken pox, pneumococcal disease, rotavirus, rubella, measles, whooping cough (pertussis), mumps, diphtheria, tetanus and flu (influenza). According to Harvey (2018), Effectiveness is a measure of the match between stated goals and their achievement. Staat, Payne, Donauer, Weinberg, Edwards, Szilagyi, and Salisbury, (2011) reported that RV5 was highly effective in preventing severe rotavirus disease. Cortese, Immergluck, Held, Jain, Chan, Grizas, and Vázquez, (2013) also reported that, RV1 and RV5 were both highly effective against severe rotavirus disease therefore emphasizing the effectiveness of vaccine in the prevention of illnesses.

The World Health Organization, in 1974, initiated the Expanded Programme of Immunization (EPI) as a recommendation from the World Health Assembly (WHA). This was to help member states develop an immunization and surveillance programme against Measles, Poliomyelitis, Tuberculosis, Diphtheria, Pertussis and Tetanus. EPI has led to high vaccination coverage of about 80% for the six major vaccine preventable diseases: pertussis, childhood tuberculosis, tetanus, polio, measles and diphtheria (WHO, 2015). The reluctance or refusal to vaccinate despite the availability of vaccines has been a major impediment that threatens to reverse progress made in tackling vaccine-preventable diseases today. This has led to the stagnation in the global vaccine coverage.

Njeru, Kabue, and Gachau, (2019) in their study on utilization of immunization services among children aged under five reported that, utilization of immunization services was not in compliance with the expanded programme on immunization schedule.

The major factors deterring utilization were reported to be myths, misconception, side effects, parity and lack of information. For immunization to be totally successful in Nigeria, agencies and organizations must work in synergy with community leaders and clerics in various communities. The nation must start by identifying those areas where positive response to immunization has been very low, and educate people on the benefits of immunization and the dire consequences of not getting their subjects vaccinated. Immunization should be every Nigerian child's basic right and Nigeria should make enough effort to keep her citizens protected from these deadly contagious diseases. Iqbal, Barile, Thompson, and DeStefano (2013) reported in their study that, there were no adverse associations between antigens received through vaccines during the first two years of life and neuropsychological outcomes tested at age 7-10 years.

Osadebe, MacNeil, Elmousaad, Davis, Idris, Haladu. and Vertefeuille, (2017) in their study that assessed inactivated polio vaccine introduction and utilization in Kano State, Nigeria reported that the introduction of IPV was largely successful in Kano and the RI module was effective in monitoring progress. Never the less gaps still exist in vaccine acceptance across the nation. The Expanded Programme on Immunization (EPI), introduced in 1978 with the aim of providing routine immunization to children less than the age of two years, recorded initial but intermittent successes. The optimum level was recorded by the early 1990s with the country achieving universal childhood immunization coverage of 81.5%. But since that period of success, Nigeria has witnessed gradual but consistent reduction in immunization coverage. By 1996, the national data showed less than 30% coverage for all antigens, and this decreased to 12.9% 2003 (Babalola & Olabisi, 2004). This figure which is consistent with the 2003 national immunization coverage survey figures is among the lowest in the world and explains the poor health status of children in the country.

It is the worst in the west African sub-region, only better than Sierra Leone. For instance, the polio epidemic in Nigeria is the worst in the African region and constitutes threat to other nations (Green, 2004).

According to the Cambridge Dictionary (2017) acceptability can be defined as the quality of being satisfactory and able to be agreed to or approved of. Acceptability is the characteristic of a thing being subject to acceptance for some purpose. A thing is acceptable if it is sufficient to serve the purpose for which it is provided, even if it is far less usable for this purpose than the ideal example. According to this study acceptability refers to the willingness of women of child bearing age in Taraba state to allow their children to be immunized against diseases.

Despite the great strides in immunization coverage and the established fact that immunization helps in preventing 2-3 million deaths every year (WHO, 2018) there still exists an alarming case of under-utilization of these vaccines (Njeru, *et, al.* 2019). During 2016, an estimated 116.5 million (about 86%) children under the age of one year

worldwide received three doses of diphtheria-tetanus-pertussis vaccine (WHO, 2018). The World Health Organization, (2018) reported that an estimated 19.5 million children under the age of one year did not receive Diphtheria Pertussis and Tetanus (DPT3) vaccine. More so, around 60% of these children live in ten countries around the world including Nigeria (WHO, 2018). Taraba state is also reported to have recorded the lowest Oral Polio Vaccine (OPV3) coverage by states with 18.75% (UNICEF, 2006). This might as well mean that despite the availability of vaccine in the state, there might be possible underutilization or some individuals refusing to accept the vaccines.

Despite the availability of vaccines there have been a major impediment that threatens to reverse progress made in tackling vaccine-preventable diseases today (World Health Organization, 2019). These impediments might include the refusal of mothers of infants to accept vaccination among others.

This act can lead to the stagnation in the global vaccine coverage. According to the WHO (2018), globally vaccine coverage has remained stagnant at 85%, with no significant changes during the past few years. WHO, (2018) reported that, the proportion of the world's children who receive recommended vaccines has remained the same over the past few years. In 2017, about 85% of infants worldwide (116.2 million infants) received 3 doses of diphtheria-tetanus-pertussis (DPT3) vaccine, protecting them against infectious diseases that can cause serious illness and disability or death. In 2017, an estimated 19.9 million infants worldwide were not reached with routine immunization services such as 3 doses of DPT vaccine. Around 60% of these children live in 10 countries: Afghanistan, Angola, the Democratic Republic of the Congo, Ethiopia, India, Indonesia, Iraq, Nigeria, Pakistan and South Africa (WHO, 2019). These is alarming as the main purpose of the Global Vaccine Action Plan (GVAP) which is to prevent millions of deaths through more equitable access to vaccines by 2020 is not been met as at date.

Nigeria is one among the ten (10) largest countries in the world with 27 million children less than 5 years of age (UNICEF, 2011). Despite this great population immunization coverage is still poor as only 25% of Nigerian children were vaccinated in 2013; this was the lowest number in all of Africa as reported by the National Population Commission (NPC) (2014). Vaccine-preventable diseases such as pertussis, tetanus, and measles have caused 42,000 deaths in 2009 in Nigeria (Wonodi, et al., 2012). According to the NPC (2009), immunization coverage in Nigeria as of 2008 was only 23%, (children ages 12 to 23 months who were fully immunized). Nigeria has made considerable improvements afterwards in vaccination coverage; however, vaccination rate still remains among the lowest in the world (WHO, 2010b). According to a study conducted by Wonodi et al. (2012) in eight of Nigeria's states (Bayelsa, Ebonyi, Gombe, Kano, Zamfara, Osun, Taraba, and the Federal Territory, Abuja) to determine their immunization status.

Wonodi et al. (2012) found out that, poor accountability and poor access to hard-to-reach areas were major issues impeding immunization coverage. The NPC (2009, 2014)

established that, vaccination coverage differs between urban and rural areas in Nigeria. Only but 40% of children in urban areas were fully vaccinated compared to only 16% of children in rural areas. It is on this premise that the researcher was driven to assess the perception, acceptability of immunization among women of child bearing age in Taraba state Nigeria.

Purpose of the study

The primary purpose of this study was to assess the acceptability of immunization among women of childbearing age in Taraba State, Nigeria.

1. Acceptability of immunization among women of child bearing age in Taraba State, Nigeria.

Research question

This study was designed to answer the specific research question:

1. Do women of childbearing age in Taraba State, Nigeria accept immunization services?

Hypothesis

On the basis of the research question one hypothesis was formulated for the purpose of the study:

H_o: Acceptability of immunization among women of childbearing age in Taraba State, Nigeria is not significant.

METHODOLOGY

For the purpose of this study, an Ex-post facto research design was adopted. The population of this study comprised of 736,040 women of child bearing age in Taraba State, Nigeria (National Bureau of Statistics, 2018). The target population of this study consists of 16,730 women of child bearing age.

The sample size for this study was 400 women of child bearing age in Taraba state, Nigeria. To obtain the sample size from the target population, the researchers employed the sample size procedure proposed by Yamane (1967). A multi-staged sampling procedure was employed for selection of the study sample which comprised of stratified, simple random, systematic and proportionate sampling techniques. Taraba State was stratified into the three already existing senatorial zone Simple random sampling technique was used to select two (2) local government areas (LGA) from each senatorial zone using the dip-hand method. Simple random sampling technique was used to select two (2) wards from each local government area selected for the study. Systematic sampling technic was used to select houses to get the respondents, starting from the ward head's house every fourth (4^{th}) house was selected and used to get the respondents for the study. To get the number of respondents from each ward selected the proportionate sampling technique was used.

The instrument the researcher used was a researcher-developed questionnaire titled "Questionnaire on assessment of perceived effectiveness and acceptability of immunization among women of childbearing age in Taraba state, Nigeria". The 4-point modified Likert scale rating was used to score the responses of the women of child bearing age. In order to establish the face and content validity of the research instrument, the questionnaire was vetted by the supervisors and five (5) experts in the Department of Human Kinetics and Health Education. Thus, the comments, observations, correction and suggestions raised by the experts were incorporated on the final draft of the questionnaire which was produced and used for collection of data. Descriptive statistics of frequency and percentages was used to describe the demographic characteristics of the respondents. Mean score and standard deviation (SD) were used to answer the stated research question. Hence, any mean score of any response was considered positive, if it is 2.50 and above and any mean score less than 2.5 was regarded as negative. Inferential statistics of one sample t-test was used to test the hypothesis at the fixed probability level of 0.05.

Presentation of Results

Table 1: Classification of the respondent's demographic characteristics

Variables	Variable options	Frequency	Percent
Age in Range	<25years	56	14.0
	25-34years	217	54.4
	35-44years	105	26.3
	>44years	21	5.3
	Total	399	100.0
Level of education	No formal	26	6.5
	Primary	53	13.3
	Secondary	184	46.1
	Tertiary	136	34.1
	Total	399	100.0
Number of Children per family	One child	47	11.8
	Two children	135	33.8
	Three children	127	31.8
	Above 3children	90	22.6
	Total	399	100.0

Table 1 revealed that 14.0% of the women were below 25years. Most (54.4%) were between 25 and 34years. Those who were between 35 and 44years were 26.3% of the total respondents. Only 5.3% of the respondents were above 44years. The classification showed that all the respondents were with child-bearing age and should therefore be conversant with the subject of this investigation. In terms of educational qualification, 6.5% of the women had no formal education. Those with primary education were 13.3% of the total respondents and 46.1% had secondary education while 34.1% had tertiary education.

This classification revealed that most of the respondents could be said to have the requisite education to provide the required information on perception, acceptability and utilization of immunization among women of childbearing age in the state. For number of children by the respondents, 11.8% had only one child each, 33.8% had two children each while 31.8% had three children each. Only 22.6% of the total respondents had more than 3 children per child-bearing-age among the respondents. The classification showed that the study could be said to have a fair representation of women of child-bearing age in Taraba state.

Research question: Do women of childbearing age in Taraba State, Nigeria accept immunization services?

Table 2: Mean scores on acceptability of immunization by the women of childbearing age

Sn	Acceptability of immunization	Mean	Std dev
1	I do consider it important that my child is fully immunized.	3.54	0.632
2	I do not accept immunization because I worry about the possible side effects.	3.58	0.583
3	I ensure that my child is vaccinated with BCG (Bacilli Calmette Guerin) at birth or as soon as possible after birth.	3.54	0.616
4	I ensure that my child is vaccinated with OPV (Oral Polio Vaccine)—at birth and at 6, 10, and 14 weeks of age.	3.63	0.508
5	I ensure that my child is vaccinated with Pentavalent (DPT, Hep B and Hib)—at 6, 10, and 14 weeks of age.	3.55	0.586
6	I ensure that my child is vaccinated against Hepatitis B—at birth.	3.55	0.564
7	I ensure that my child is vaccinated against measles—at 9 months of age.	3.60	0.549
8	I ensure that my child is vaccinated against Yellow Fever—at 9 months of age.	3.55	0.594
9	I ensure that my child is vaccinated with Pentavalent at 6, 10, and 14 weeks of age.	3.54	0.625
10	I ensure my child is issued Vitamin A at 9 months (first dose) and 15 months (second dose)	3.49	0.668
	Aggregate mean	3.56	0.520

(Decision mean = 2.50)

The expressed level of acceptability of immunization by women of child-bearing age as indicated in the Table 1 could be said to be highly adequate. The respondents agreed with the stages of immunization of new babies. They accepted that it was important that children were fully immunized, in spite of their worry about possible side effects.

They ensured that their children were vaccinated with BCG (Bacilli Calmette Guerin) at birth or as soon as possible after birth and vaccinated with OPV (Oral Polio Vaccine)—at birth and at 6, 10, and 14 weeks of age along with Pentavalent (DPT, Hep B and Hib)—at

6, 10, and 14 weeks of age. The respondents agreed that they accepted vaccination against Hepatitis B—at birth, measles—at 9 months of age and Yellow Fever—at 9 months of age. They ensured that Pentavalent at 6, 10, and 14 weeks along with Vitamin A at 9 months (first dose) and 15 months (second dose) respectively. From the expressed opinions and the aggregate mean score of 3.56 and a standard deviation of 0.520 for the table, it could be concluded that the respondents (women of child-bearing age) have a high level of acceptability of immunization in the state.

H_0 1: Acceptability of immunization among women of childbearing age in Taraba State, Nigeria is not significant.

Table 2: One sample t-test on acceptability of immunization by Women of childbearing age in Taraba state

Variables	N	Mean	Std. Dev,	t-value	df	p-value
Acceptability of immunization	399	3.56	0.520	40.684	398	0.000

(t-critical = 1.96, $p < 0.05$)

Indications from Table 2 revealed that the acceptability of immunization by the respondents was significant. The observed mean (3.56) is higher than the decision mean of 2.50, used for the comparison. The observed t-value (40.684) obtained at 398 degree of freedom (DF) is higher than the critical value (1.96) indicated at the bottom of the table. The p-value for the test was 0.000 ($p < 0.05$). With these observations, the null hypothesis that acceptability of immunization among women of childbearing age in Taraba State, Nigeria is not significant is therefore rejected.

Discussion of findings

This study assessed the acceptability of immunization services by women of childbearing age in Taraba state. This study found that the acceptability of immunization by the respondents was generally high. Respondents generally accepted that it was important that children were fully immunized, in spite of their worry about possible side effects. They were of the view that they ensured that their children were vaccinated with BCG (Bacilli Calmette Guerin) at birth or as soon as possible after birth and vaccinated with OPV (Oral Polio Vaccine)—at birth and at 6, 10, and 14 weeks of age along with Pentavalent (DPT, Hep B and Hib)—at 6, 10, and 14 weeks of age. The respondents agreed that they accepted vaccination against Hepatitis B—at birth, measles—at 9 months of age and Yellow Fever—at 9 months of age. It was found that respondents ensured that Pentavalent at 6, 10, and 14 weeks along with Vitamin A at 9 months (first dose) and 15 months (second dose) respectively.

In the test of the null hypothesis, the result revealed that acceptability of immunization was significant. The null hypothesis was therefore rejected. The findings of this study is in consonance with the report from the study conducted by Osadebe, MacNeil, Elmousaad, Davis, Idris, Haladu. and Vertefeuille, (2017) in Kano State which assessed inactivated polio vaccine introduction and its utilization. It was reported that it was a success in the state. The findings of this study is not in agreement with the findings of the study carried out by Njeru, *et al*, (2019) who reported that immunization services was not in compliance with the expanded programme on immunization schedule. They highlighted that the major factors deterring utilization were reported to be myths, misconception, side effects, parity and lack of information.

Conclusion

Women of childbearing age in Taraba state accept immunization services.

Recommendation

1. Health educators should continue with outreaches programmes targeted at the communities so as to sustain the acceptance of immunization among women of childbearing age in Taraba state. This would also help to improve the acceptability of the vaccines as some do not complete the dosage as required.
2. The Federal and State Ministry of Health should ensure prompt distribution of vaccines to various health care facilities in the state so that the utilization of this vaccines would be sustained and not affected by shortage or non-availability in the health care centres.

References

Azuka, I. (2018). *Overcoming the Challenges of Immunization in Nigeria*. Retrieved online at https://nigeria.ureport.in on 13th July 2019.

Babalola, S., & Aina, O. (2004). *Community and systematic factors affecting the uptake of immunization in Nigeria*: A qualitative study in five states. Abuja, Nigeria: Partnerships for Transforming Health Systems. Retrieved online at https://www.researchgate.net/ on 21st November 2018.

Cambridge Dictionary (2017). Acceptability definition. Retrieved online at https://dictionary.cambridge.org. on 15th March, 2021.

Cortese, M. M., Immergluck, L. C., Held, M., Jain, S., Chan, T., Grizas, A. P., Vázquez, M. (2013). Effectiveness of monovalent and pentavalent rotavirus vaccine. *Pediatrics*, *132*(1): e25–e33.

Green, C. (2004). *Demand for Immunization and IMCI in Nigeria: An issues paper*. Background paper prepared for the PATHS Immunization and IMCI roundtable. Final Version. Abuja: Partnership for Transforming Health Systems (PATHS).

Iqbal, S., Barile, J.P., Thompson, W.W., & DeStefano, F. (2013). *Pharmacoepidemiology and Drug Safety*. 22(12):1263-70.

National Bureau of Statistics, (2018). Demographic Statistics Bulletin. Retrieved online on 1st May 2019.

National Population Commission (NPC) Nigeria and ICF Macro (2009). Nigeria *Demographic and Health Survey 2008*. Abuja: National Population Commission and ICF Macro

National Population Commission. (2014). *Nigeria demographic and health survey (2013).* Abuja, Nigeria: National Population Commission and ICF, Macro.

Njeru, M. W., Kabue, P. N., & Gachau, A. G. (2019). Utilization of immunization services among children aged under five in Kirinyaga County, Kenya. *International Journal Of Community Medicine And Public Health*, *6*(4), 1397-1401.

Osadebe, L. U., MacNeil, A., Elmousaad, H., Davis, L., Idris, J. M., Haladu, S. A., ... & Vertefeuille, J. (2017). Assessing inactivated polio vaccine introduction and utilization in Kano State, Nigeria, April–November 2015. *The Journal of infectious diseases*, *216*(suppl_1), S137-S145.

UNICEF, (2006). Fact sheet: Situation of polio in Nigeria. June, 2006

United Nations Children's Fund. (2011). *At a glance: Nigeria.* Retrieved from http://www.unicef.org/infobycountry/nigeria.html

Wonodi, C., Prindle, C., Aina, M., Oni, G., Olukowi, T., Pate, M., … Levine, O. (2012). *Landscape analysis of routine immunization in Nigeria: Identifying barriers and prioritizing interventions.* Baltimore, MD: John Hopkins Bloomberg School of Public Health, International Vaccine Access Center. www.jhsph.edu/research/centers-and-institutes/ivac/projects

World Health Organization (2015). World Health Statistics. 2015. Retrieved on 3rd May 2019 at https://www.who.int/

World Health Organization, (2018). Immunization coverage. Retrieved online on 1st May 2019 at https://www.who.int/news-room/fact-sheets/detail/immunization-coverage

World Health Organization, (2019). Immunization coverage. Retrieved online on 1st May 2019 at https://www.who.int/news-room/fact-sheets/detail/immunization-coverage

World Health Organization, (2019a). Immunization. Retrieved on 3rd May 2019 at https://www.who.int/

World Health Organization, (2019b). Ten threats to global health. Retrieved on 3rd May 2019 at https://www.who.int/

Yamane, T. (1967). Statistics: An Introductory Analysis. Harper & Row, New York, Evanston & London.2nd Edition.