ASSESSMENT OF KNOWLEDGE AND PRACTICE OF CHILD IMMUNIZATION AMONG NURSING MOTHERS IN MAKURDI LOCAL GOVERNMENT AREA OF BENUE STATE

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Abstract
This study assessed the knowledge and practice of child immunisation among nursing mothers in Makurdi Local Government area of Benue State, based on level of education. A descriptive survey research design was used in this study. From a population of 806

nursing mothers registered in the 62 maternity healthcare centres in Makurdi, simple random sampling technique of deep and pick was used to select 18 maternity healthcare centres out of the available 62 maternity healthcare centres in Makurdi, from which Simple random sampling technique was used to select a sample size of 198 respondents for this study. The instrument was a self-structured questionnaire titled "Knowledge and Practice of Child Immunization Among Nursing Mothers Questionnaire (KPCIANMQ)" and was validated by experts in health education. The Cronbach's Alpha reliability coefficient score was 0.81. Data collected were analysed using frequencies and percentages to analyse the bio-data, descriptive statistics of mean to answer the research questions and Analysis of variance was used to test the hypothesis at 0.05 level of significance. The result revealed that, on the knowledge of child immunisation among nursing mothers, respondents with tertiary education and secondary education had higher overall mean scores of 4.00 each, primary education with 3.33, while no formal education had 2.41. On the practice of child immunisation among nursing mothers, respondents with tertiary education had higher overall mean scores of 3.99, secondary education = 3.16, primary education = 2.55, while no formal education had the least overall mean score of 1.48. *The Analyses of variance also revealed that there is a significant difference in knowledge [F3,194 = 85.79 P<0.05]; and practice [F3,194 = 46.70, P<0.05] of immunization among mothers based on level of education. Based on the findings, the researchers concluded that; there is a significant difference in the level of knowledge and practice of child immunisation among nursing mothers with respect to their educational levels. The researchers recommended based on the conclusion that, the government through the primary healthcare should implement targeted health education on vaccination programmes specifically designed for antenatal patients with low level of education. This will educate the expectant mothers to be equipped with the knowledge and practice of child health care and immunisation after birth.*

Keywords: *knowledge, practice, child immunisation and nursing mothers*

Introduction

Immunization is unquestionably one of the most indispensable public health interventions to reduce morbidity and mortality among children. It is a process by which a person becomes protected against a disease. This term is often used interchangeably with vaccination or inoculation (Centre of Disease and Control (CDC), 2023). Immunization is also defined as the process whereby a person is made resistant to a disease, typically by the administration of a vaccine (Etinenne, 2021). The extermination, elimination, and considerable minimization of childhood Vaccine-Preventable Diseases (VPDs), as well as the extending of life expectancy in many countries, are an important output of immunization achievement (Mahalingam, et al. 2016). In order to have the greatest protection against diseases, children should receive all the vaccinations within recommended intervals and at the appropriate age. Vaccinating a child with appropriate vaccines would significantly reduce the costs of disease treatment and rates of disease and, therefore, improve the quality of the child's life (Blakemore & Jennett 2022).

Globally, it is estimated that around 22.6 million infants were partially protected with immunisation (World Health Organization (WHO), 2021). In 2016, routine immunization services such as the Diphleria, Pertusis and Fetanus DPF vaccine did not reach about 19.5 million children under one year of age worldwide (Casey et al. 2016). About 70% of these children are in 10 countries, and more than 50% of them are living in Africa including Nigeria (Yenit, et al. 2023). Statistics worldwide showed that the death of children is more common in underdeveloped countries. Among 9 million deaths of children worldwide as a result of VPDs occurs due to lack of immunization. A higher proportion happens in Nigeria, and rural areas in Makurdi Local Government Area of Benue State, which was 58,000; and from this number, 23, 200 children pass away every year before their fifth birthday (WHO, 2019).

The feeding of the children with breastfeeding and caring for them by their mothers is a natural biological phenomenon that has been present since the origins of humanity (González & Hernández, 2016). Every nursing mother is expected to possess adequate maternal and child health knowledge to make informed decisions about child immunization practices. This knowledge ensures timely and complete immunization of children, thereby reducing the incidence of vaccine-preventable diseases, improving child survival rates, and promoting public health. A well-informed mother is supposed to understand the importance of adhering to immunization schedules, recognize the benefits of vaccines, and actively participate in health education programs aimed at promoting child health (Tagbo et al. 2020).

However, many nursing mothers, appear to lack adequate child immunization knowledge, leading to poor immunization practices. Studies indicate that a lack of knowledge about the benefits of immunization contribute to delayed or incomplete vaccination among children. Furthermore, barriers such as low educational levels about vaccine safety exacerbate the problem. For instance, research by Solagbade et al. (2023) revealed that insufficient maternal health knowledge significantly contributes to the low immunization coverage in sub-Saharan Africa, leaving many children vulnerable to preventable diseases.

Despite the fact that childhood immunization serves as a preventive measure against diseases including diphtheria, pertussis, tetanus, measles, and tuberculosis, thereby preventing the deaths of between 2-3 million children yearly (WHO 2019). Likewise, immunization has been widely accepted as one of the most cost-effective public health measures with huge direct and social benefits (Zhou, et al. 2020). Remarkably, the global trend in childhood vaccination coverage has shown notable improvement. For instance, the coverage for diphtheria-tetanus pertussis (DPT) and measles has increased from 72% to 86% for DPT and 72% to 85% for measles between the years 2000 and 2016 (UNICEF 2021.)

Despite the gains and cost-effectiveness of vaccination in preventing childhood morbidity and mortality, childhood vaccination coverage (putting into consideration infants that have received all the recommended doses by the time they are age 12 months

and above) in Nigeria remains abysmally low. In the year 2018, Nigeria alone accounts for more than one-quarter of the global unvaccinated children (WHO 2020). Similarly, as of 2018, less than one-quarter of children 0-11 months were fully immunized (NPC and ICF International 2022). Recent statistics revealed the national coverage for full vaccination (all first-year antigens) among children 12-23 months in Nigeria is 35.6%, with sharp regional variation. The highest coverage in the northern region was reported in the north-central at 32.4%, while the highest coverage in the south was reported in the southeast at 57.3% (NBS and UNICEF 2022). All these coverages are far below the Global Vaccine Action Plan (GVAP) target of at least 90% (Brown 2021). It is therefore against this background that the researcher seeks to examine the knowledge and practice of child immunization among nursing mothers in Makurdi Local Government Area of Benue State based on their levels of education.

Purpose of the Study

The study examined the knowledge and practice of child immunisation among nursing mothers in Makurdi Local Government area based on educational level.

Research question

What is the knowledge and practice of child immunisation among nursing mothers in Makurdi Local Government Area based on educational level?

Research Hypotheses

There is no significant difference in knowledge and practice of child immunisation among nursing mothers in Makurdi Local Government Area based on educational level.

Methodology

The researchers employed a descriptive survey research design. The population of this research comprises all the 62 maternity centres in Makurdi Local Government Area of Benue State, this comprises of public and private centres (Primary Healthcare Board, 2024).

The sample for this study was 198 nursing mothers. Eighteen (18) maternity healthcare centres were selected out of the 62 centres through simple random sampling technique. The researchers made use of a lucky dip box by writing down the names of maternity healthcare centres and assign numbers to each maternity on separate pieces of papers; folded them and put in a bag. The researchers mixed up the folded pieces of papers thoroughly. Then by using hands without looking inside the bag picked up one piece of paper at a time, record the number on the maternity healthcare centres and the paper was kept inside. This exercise continued in this manner until eighteen (18) maternity healthcare centres was selected. From Eighteen (18) maternity healthcare centres selected, random sampling technique was also used to select 198 nursing mothers who served as respondents for this study.

Instrumentation

The instrument for the study was a questionnaire (Appendix A). A 20item structured questionnaire was developed and administered to the 198 respondents. The questionnaire was be divided into 2 sections. Section "A" seek the Bio-data of respondents, section "B" sought information on knowledge and practice of child immunization among nursing mothers in Makurdi Local Government Area of Benue State. The questionnaire was structured on 4 point modified-likert type scale with points assigned to Strongly Agreed (SA) = 4, Agreed (A) = 3, Disagreed (D) = 2 and Strongly Disagreed (SD) = 1.

The instrument was validated by three experts in the Department of Human Kinetics and Health Education, Benue State University Makurdi. The experts subjected the instrument to rigorous scrutiny in order to ascertain the clarity, relevance, adequacy and other attributes which a good research instrument should possess. The researchers effected the corrections on the instrument based on the suggestions of the experts. The reliability of the instrument was established using Cronbach's Alpha with a coefficient core of 0.81.

Method of Data Collection

The researchers sought consent from respondents to administer the questionnaires to them. the researcher briefed the participants about the purpose of the study, assurance of confidentiality was also highlighted, having received the permission, the researchers then administered the questionnaire to the each of the respondent. The respondents were encouraged to work independently while choosing alternatives with honesty and sincerity. Enough time was given to them to complete and return to the researcher on the spot.

Method of Data Analysis

Responses from the questionnaire was collected, coded and analysed in order to arrive at reliable result and conclusions. Frequencies and percentages was used to analyse the bio-data, descriptive statistics of mean was used to analyse to answer the research questions. Analysis of variance was used to test the hypotheses at 0.05 level of significance.

Results

A total of 198 copies of the questionnaire were taken to the field and administered to the respondents and were returned answered. The analysis and interpretation of data were organised around the one research question and one research hypothesis posited for the study. The results of the study are presented below.

Analysis of Bio-Data

Table 1: Socio-Demographic Characteristics of Education

Education	Frequency	Percentage (%)
No formal	17	8.6
Primary	99	50.0
Secondary	53	26.8
Tertiary	29	14.6
Total	**198**	**100.0**

Table 1 show the socio-demographic characteristics of the respondents, revealed. that, 8.6% of the respondents had no formal education, 50.0% of the respondents had primary school education, 26.8% of the respondents had secondary school education while 14.6% of the respondents had tertiary education. This indicated that the respondents who had primary school education participated more in this study.

Research Question: What is the knowledge and practice of child immunisation among nursing mothers in Makurdi Local Government Area based on educational level?

Table 2: Mean ratings of the knowledge and practice of child immunisation among nursing mothers in Makurdi Local Government Area based on educational level.

S/no	Knowledge of child immunisation	No Formal Education (n= 17) $\bar{\chi}$	Primary Education (n= 99) $\bar{\chi}$	Secondary Education (n = 53) $\bar{\chi}$	Tertiary Education (n =29) $\bar{\chi}$
1	Immunization protects children from life-threatening diseases.	2.72	3.10	4.00	4.00
2	Child immunization should begin immediately after birth.	2.50	3.57	4.00	4.00
3	Government's routine immunization programs are good for children.	2.29	3.34	4.00	4.00
4	I know where to access immunization services in my community.	2.38	3.23	4.00	4.00
5	Children denied immunisation stand the potential risks of infection of communicable diseases.	2.17	3.39	4.00	4.00
	Overall mean	**2.41**	**3.33**	**4.00**	**4.00**
	Practice of child immunization				
6	I ensure that my child receives immunisation according to the	1.53	2.88	3.13	4.00

	recommended schedule.				
7	I regularly take my child to immunisation sessions as scheduled by healthcare providers.	1.53	2.31	3.21	4.00
8	I ensured that my child completes all the doses of recommended immunisation schedule.	1.48	2.54	3.30	4.00
9	I actively seek healthcare services for my child to receive vaccines.	1.53	2.52	3.17	4.00
10	I keep records of my child's vaccination history.	1.34	2.52	3.00	3.97
	Overall mean	**1.48**	**2.55**	**3.16**	**3.99**

Table 2 presents data on the knowledge and practice of child immunisation among nursing mothers in Makurdi Local Government Area based on educational level. Data available revealed that on the knowledge of child immunisation among nursing mothers revealed that respondents with tertiary education and secondary education had higher overall mean scores of 4.00 each, followed by those with primary education with overall mean score of 3.33, while respondents with no formal education had the least overall mean score of 2.41 Further result on the practice of child immunisation among nursing mothers revealed that respondents with tertiary education had higher overall mean scores of 3.99 followed by those with secondary education with an overall mean score of 3.16 then primary Education with overall mean score of 2.55, while respondents with no formal education had the least overall mean score of 1.48. This indicates a significant difference in the knowledge and practice of child immunisation among nursing mothers in Makurdi Local Government Area based on educational level.

Hypothesis: There is no significant difference in knowledge and practice of child immunisation among nursing mothers in Makurdi Local Government Area based on level of educational.

Table 3: Summary of ANOVA on Differences in Knowledge and Practice of Immunisation Based on Level of Education

		Sum Squares	**of df**	**Mean Square**	**F**	**P**
Knowledge	Between Groups	27.74	3	9.246	85.79	.000
	Within Groups	20.91	194	.108		
	Total	48.65	197			
Practice	Between Groups	14.81	3	4.94	46.70	.000
	Within Groups	20.51	194	.11		
	Total	35.31	197			

Table 3 presents the results of ANOVA on differences in knowledge, attitude, and practice of immunization based on level of education. Results available indicate that there is a significant difference in knowledge [$F_{3,194}$ = 85.79 P<0.05]; and practice [$F_{3,194}$ = 46.70, P<0.05] of immunization among mothers based on education. Since the p<0.05, this means that the null hypothesis which states that there is no significant difference in knowledge and practice of child immunisation among nursing mothers in Makurdi Local Government Area based on educational level has been rejected.

Discussion of Findings:

Findings from the present study revealed that there is a significant (0.05) difference in the knowledge and practice of child immunisation among nursing mothers in Makurdi Local Government Area based on educational level. Other Studies have consistently shown that mothers from higher level of educational backgrounds are more likely to adhere to immunization schedules and seek healthcare services for their children (Fatiregun & Jegede, 2022; Bbaale, 2023). This is not a surprise as nursing mothers with higher levels of education generally possess better knowledge about child immunization, including the benefits, schedules, and importance of the vaccines.

A study by Sadoh et al. (2019) found that mothers with higher education levels exhibited better knowledge of immunization compared to those with lower education levels in Nigeria. Additionally, access to accurate information from healthcare providers and community outreach programs positively impacts maternal knowledge regarding immunization (Fatiregun & Jegede, 2015). This is likely due to greater exposure to health education and resources. This finding is in agreement with the study of Emeahara (2023), who found that mothers with tertiary education exhibited higher knowledge and practices of child immunization compared to those with secondary and no formal education in Southeastern Nigeria. The results of their findings revealed a statistically significant differences across educational levels using ANOVA, suggesting that education enhances maternal awareness, child health literacy, and compliance with immunization schedules.

Similarly, Adepoju, and Nwachukwu (2022) reported that nursing mothers with higher educational attainment had a greater likelihood of completing the full immunization schedule and demonstrated better understanding of vaccine timing and purpose. This finding agrees with the current result from Makurdi, where a significant difference in knowledge and practice of immunisation was observed based on educational attainment suggesting that more educated nursing mothers demonstrated higher knowledge and practice of child immunisation (p<0.005). The contradiction may arise from contextual variations in health education access, cultural beliefs, or localized policy implementation efforts.

However, the present finding is at variance with the results of Babalola, (2019) on determinants of the uptake of the full dose of DPT3 vaccination in Northern Nigeria: A multilevel analysis, in his study, Babalola found that educational level of mothers did not significantly predict the uptake or practice of child immunisation in several northern

Nigerian communities. Instead, the study identified community-level factors, such as proximity to health facilities, household decision-making dynamics, and the presence of outreach immunisation programs, as more influential.

Conclusions

The following conclusions were made based on the findings of the study:

There is a significant difference in the knowledge and practice of child immunisation among nursing mothers in Makurdi Local Government Area based on educational level.

Recommendations

Based on the conclusion, the researchers recommend that, the government through the primary healthcare should implement targeted health education and vaccination programmes specifically designed for antenatal patients with low level of education. This will educate the expectant mothers to be equipped with the knowledge and practice of child health care and immunisation after birth.

Healthcare administrators should also develop and implement comprehensive educational programmes that target mothers with lower educational levels. Use simple, clear language and visual aids to improve understanding of immunization benefits and practices.

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APPENDIX 'A'
RESEARCH QUESTIONNAIRE

INFLUENCE OF MATERNAL HEALTH KNOWLEDGE ON CHILD IMMUNISATION PRACTICES AMONG NURSING MOTHERS IN MAKURDI LOCAL GOVERNMENT AREA QUESTIONNAIRE (IMHKCIPANMQ)

SECTION A (SOCIO-DEMOGRAPHIC OF EDUCATION)

1. Educational Level: No Formal ( ) Primary ( ) Secondary ( ) Tertiary ( )

SECTION B (RESEARCH QUESTIONS)

Instruction: Below is a key you can use in answering the questions. Please, kindly tick at your right side in the boxes provided.

S/N	Knowledge of child immunisation	SA	A	D	SD
1	Immunization protects children from life-threatening diseases.				
2	Child immunization should begin immediately after birth.				
3	Government's routine immunization programs are good for children.				
4	I know where to access immunization services in my community.				
5	Children denied immunisation stand the potential risks of infection of communicable diseases.				
	Practice of child immunization				
6	I ensure that my child receives immunisation according to the recommended schedule.				
7	I regularly take my child to immunisation sessions as scheduled by healthcare providers.				
8	I ensured that my child completes all the doses of recommended immunisation schedule.				
9	I actively seek healthcare services for my child to receive vaccines.				
10	I keep records of my child's vaccination history.				