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Determination of the Knowledge of Vaccine Preventable Diseases and Routine Immunization Among Nursing Mothers In Katagum Local Government Area Bauchi State

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Abstract:*The purpose of the study was to determine the knowledge of vaccine preventable diseases and routine immunization among nursing mothers in katagum local government Area, Bauchi state. Descriptive survey design was used for the study. Two research questions and two hypotheses guided the study. A sample of 1,437 mothers of childbearing age was drawn by the use of cluster sampling technique. The instrument for data collection was a structured questionnaire. Its face and content validity were confirmed by three experts while the reliability co-efficient of the instrument was 0.92 using test retest method. The instrument was administered to the respondents personally by the researcher and research assistants and 1,232 copies were returned and used for data analysis. Means were used in answering the research questions while one way analysis of variance (ANOVA) was used to test the hypotheses at 0.05 level of significance. The findings among others showed that mothers of different age groups, occupation and educational levels differed significantly in their knowledge of vaccine preventable diseases and routine immunization. The researcher therefore concluded that since there is generally a fairly good knowledge of routine immunization, health education and health promotion are necessary. Implications of the study were highlighted and several suggestions for further studies were made. Based on the findings, several recommendations were made including that the Ministry of Health should strengthen planned information, education and communication activities to focus on counseling and communicating essential information.*

I. Introduction

Communicable diseases are significant causes of morbidity and it is generally accepted that immunization against common specific infections represent a significant breakthrough in the control and eventual eradication of these infections world-wide (Ogunmekan, 2007). Experience has shown that routine immunization remains the cheapest, most cost effective, efficient and sustainable community based way to reduce child morbidity and mortality. Active immunization of infants and children against vaccine preventable diseases has therefore been regarded as an effective means of disease prevention and health maintenance.

According to Singh and Yadav (2001), around the world, thirteen million people die from infectious diseases every year and over half of these people are children under the age of five. Most of these deaths could be prevented with routine immunization, an essential and basic strategy on which all Expanded Programme on Immunization (EPI) - targeted disease elimination programmes are built. Immunization programme against several communicable diseases of children have been implemented in many countries of the world (NPI, 2002). In the industrialized countries these programmes have produced very good results in the past twenty years. It is significant to note that diphtheria, poliomyelitis, measles, pertursis, tetanus, tuberculosis, hepatitis B, yellow fever and cerebrospinal meningitis which constitute the "Vaccine preventable diseases" are amongst the many causes of high infant mortality rate (Ogunmekan, 2007). Obionu (2001) opined that they are indicators of the socio-economic and health status of a country and are responsible for the heavy toll of infant deaths in most of the developing countries of the world. The desire to provide immunization against the above vaccine preventable diseases led to the launching of Expanded Programme on Immunization (EPI) in Nigeria in 1978 and the implementation process in 1979 (Federal Ministry of Health FMOH, 2004; National Programme on Immunization NPI, 2001; &Sofoluwe, 2006). EPI was formally launched in 1979 as a follow-up of the smallpox eradication programmes.

According to FMOH (2004) the first five years of implementation in Nigeria resulted in low coverage hence the programme was revised and relaunched in 1984. Between 1984 and 1990 the Universal Childhood Immunization (U.C.I) target of 80% coverage was achieved in Nigeria and the incidence of target diseases particularly measles became insignificant. The success is attributable to the support the programme received from all levels of government in Nigeria, the partnership with foreign Non-Governmental Organizations (NGOs), social mobilization and the motivated health work force. Immunization coverage like most other

Primary Health Care (PHC) programmes suffered a sharp decline to an all-time low level of less than 30% for all the antigens. The consequence of this trend led to the renaming of the Expanded Programme on Immunization (EPI) as National Programme on Immunization (NPI) in 1996 to reflect Nigeria ownership and commitment to the Programme. The NPI was created through decree N0.12 of August 1997 with the mandate of rebuilding immunization programme in Nigeria. It aims at providing immunization services to all children under the age of five against the childhood killer diseases. The NPI in its effort has continued to implement sustainable strategies and interventions in collaboration with the states, local government areas and international agencies for example World Health Organization (WHO), United Nations Children's Fund (UNICEF) among others with the vision of making immunization a community owned, community driven and community operated service. UNICEF (2001), noted that the health of children should occupy a prime place in the health strategy of a nation.

Although worldwide according to UNICEF immunization campaigns have gone a long way in helping to save the lives of millions of children and women of child bearing age. One would therefore expect more effort is needed to persuade families to bring their children to be immunized at the right time and complete the full course of immunization services. Sequel to the development of National Programme on Immunization and the establishment of NPI office, several rounds of National immunization Days campaign have been conducted from 1997 to date (FMOH, 2000).

Despite the concerted effort made by the Federal and State governments to ensure a successful immunization, it is very painful and disheartening to note that WHO (2007) reported that only thirteen percent of Nigerian children were immunized. George (2002) indicated that one of the factors accounting for the low coverage of immunization is the lack of knowledge about the benefits derived from complete immunization. The low priority given by the people to preventive health combined with lack of awareness of possible vaccination may prevent poor illiterate people in the rural areas from accepting it. The researcher in this study is concerned with the mothers in Azare being acquainted with facts and truths about vaccine preventable diseases and routine immunization and the mothers' adoption of this knowledge to maintain a practice of routine immunization. Low economic and educational status could also contribute to the lack of utilization of immunization Programme. According to Partnership for Transforming Health Systems (PATHS, 2004) several socio demographic factors such as age, educational level and occupation can affect uptake of immunization services by the people. Those who have been through formal education system and with higher socio-economic status could have greater awareness of immunization activities and benefits. Occupation and socio-economic status could also be some other important predictors of use of immunization services because these increase a person's exposure to information and consequently a higher knowledge of vaccine preventable diseases and routine immunization. Level of education of mothers could also have significant relationship with their knowledge of routine immunization because mothers with a higher education are likely to have better knowledge of vaccine preventable diseases and routine immunization.

When planning for immunization Programme, there is a tendency to neglect rural communities which are usually under served. These rural communities need effective expanded programme on immunizationirrespective of the ages, level of education and occupation of the mothers. If this is done, one would be in a better position to understand the variables associated with the rural women's knowledge of vaccine preventable diseases and routine immunization. It is against this background that this study has been designed to determine the knowledge of vaccine preventable diseases and routine immunization among mothers in katagum local Government

Purpose of the Study

The main purpose of the study was to determine knowledge of vaccine preventable diseases and routine immunization among nursing mothers in katagum local Government area; specifically this study sought to ascertain:

1. Mothers' knowledge of vaccine preventable diseases based on age.
2. Mothers' knowledge of vaccine preventable diseases based on educational level.

Research Questions

The following research questions guided the study:

1. What is the knowledge of mothers about vaccine preventable diseases based on their age in katagum local Government area?
2. What is the knowledge of mothers about vaccine preventable diseases based on their levels of education inkatagum local Government area?

Hypotheses

The following null hypotheses were tested at O.O5 level of significance:

1. There is no significant difference in the mean scores of mothers on their knowledge of the vaccine preventable diseases based on their age.
2. There is no significant difference in the mean scores of mothers on their knowledge of routine immunization based on their age.

II. Methodology

Research Design

The research design that was used for this study was a descriptive survey design. A descriptive survey research design is one in which a group of people or items are studied by collecting and analyzing data from only a few people or items considered to be representative of the entire group (Floyd, 2002). It is also a commonly used design in which the researcher tries to explore what is going on in a given situation.. The researcher therefore decided to use this design because it is the most appropriate for the study.

Population of the study

The population for the study involved 2043 mothers (18-49years) who are the inhabitants of the ten villages in katagum local Government Area. Age ranges of 18 to 49 years was chosen because these women were still in their reproductive or child bearing ages and wereusually the ones who were often saddled with the responsibility of child care and nurturing which involved routine immunization. According to the 2006 population census, Katagum LGA has 2043 women of child bearingage. (National Population Commission NPC, 2006).

Sample and Sampling Technique

The sample for the study was 1,437 women of childbearing age (70 percent of the population). Cluster sampling technique was used for the study. The area is made up of ten villages. Simple random sampling was used to select six villages making a total of twelve clusters. All the houses in each of the selected clusters were visited and every mother of childbearing age in the house was included. Where there was no eligible mother, the next house was visited. If there were more than one in a house, all were included. So at the end all women of childbearing age in the selected clusters were used for the study.

Instrument for Data Collection

The instrument for data collection was a structured questionnaire titled questionnaire on knowledge of vaccine preventable diseases and routine immunization. It was developed by the researcher based on the objectives of the study. It consisted of twenty six closed ended questions and had two sections. In section A, the respondents were required to provide their personal and demographic information such as age group, educational level, occupation and so on. Section B of the questionnaire sought information about their knowledge of vaccine preventable diseases and routine immunization.

Method of Data Collection

The researcher went to the selected villages on several occasions to administer the instrument to the respondents with the help of five research assistants who were trained for one day. They were taught how to interpret the questions on the instrument correctly to illiterate and less educated women and how to fill the respondents' responses correctly. The questionnaire was administered to the respondents directly by the researcher and assistants and the completed copies of questionnaire issued to the women were collected on the spot. This was to ensure a high percentage return rate. It also enabled the researcher and the assistants to be available to explain questions that the respondents did not understand. Confidentiality was ensured. The administration and collection of the instrument lasted for one week. The research ethical principles of confidentiality, beneficence and justice were also assured.

Method of Data Analysis

At the end of data collection exercise, the researcher tallied and coded the responses to get the aggregate scores of the respondents.

Descriptive statistics of Means were used in answering the research questions while one way analysis of variance (ANOVA) was used to test the hypotheses at 0.05 level of significance with appropriate degree of freedom. Any mean(x) below 50 is not acceptable as possessing good knowledge. A null hypothesis is rejected if the calculated F is greater than the critical F.

III. Results

The analysis and interpretation of results were presented as follows

Research Question 1

What is the knowledge of mothers about vaccine preventable diseases based on their age in katagum local Government area?

Table 1: Mean responses on the mothers' knowledge of vaccine preventable diseases basedon their age. N=1,232)

AGE RANGE	Nx	RESPONSES
18 – 25 years	364	58.50
26 – 33 years	230	75.52
34 – 41 years	291	92.89
42 and above	347	89.77

Table1 show that, the mean knowledge responses for mothers between ages 34 – 41 was 92.89, followed by mothers between ages 42 and above who had 89.77. Mothers between ages 26 – 33 years had 75.52 while those between ages 18-25 years had 58.50. This shows that older mothers are more knowledgeable about vaccine preventable diseases than the younger ones.

Research Questions 2

What is the knowledge of mothers about vaccine preventable diseases based on their levels of education in katagum local Government area?

Table 2: Mean responses on the mothers' knowledge of vaccine preventable diseases based on their levels of education. (N=1,232)

EDUCATIONAL LEVEL	Nx	RESPONSES
No formal education	379	55.76
Primary Education	490	86.84
Secondary Education	304	90.01
Tertiary Education	59	98.30

Table 2 shows that the mean knowledge responses for mothers with tertiary education were 98.30, followed by those with secondary education who had 90.01. Mothers who had only primary education had 86.84 while those with no formal education had 55.76. This shows that mothers with higher educational background had more knowledge of vaccine preventable diseases than those of lower educational level.

Test of hypotheses

Null Hypothesis 1

There is no significant difference in the mean scores of mothers on their knowledge of the vaccine preventable diseases based on their age.

Table 3: ANOVA summary of mothers' knowledge of vaccinepreventable diseases based On age.

Source of variance	SS	MS	df	Crit. F P<0.05
Between Group	251966.015	83988.672 3	1228	2.60
Within Group	451026.59	367.286		
Total	702992.61			

Table 3 reveals that at 0.05 level of significance, 3df numerator and 1228df denominator, the calculated F 228.67 is greater than the critical F 2.60. Therefore, there is significant difference in the mothers' levels of knowledge of the vaccine preventable diseases based on their age. This means that the null hypothesis was rejected.

IV. Discussion

Findings of this study revealed the mean scores on the level of the mothers' knowledge of vaccine preventable diseases based on levels of education. It indicated that majority of the mothers had excellent knowledge of vaccine preventable diseases and that mothers with higher educational background had more knowledge of vaccine preventable diseases than those of lower educational level. The present finding is in agreement with that of Manjunath and Pareek(2005) who revealed in their study that many mothers were aware of the importance of vaccination in general and had good knowledge about vaccine preventable diseases in particular. If mothers are aware of the vaccine preventable diseases it implies that there is good future for our children just as Lucas and Gilles (2008) pointed out. George (2002) argued that people may have knowledge of vaccine preventable diseases but may not be aware of the desirable number of immunizations for optimal protection. This could be the reason why it was reported by Nossal (2002) that globally, at least two million deaths still occur from vaccine preventable diseases yearly in children under five years.

Data analysis further revealed that the mothers' knowledge of vaccine preventable diseases was really affected by their level of education. It was deduced from the findings that mothers with no formal education had the lowest mean score while those at the secondary and tertiary levels had the highest mean score. In other words, highly educated mothers had more knowledge of vaccine preventable diseases than those with primary and no formal education. This finding tallied with the finding of Sharma and Bhasim (2006) in East Delhi where they reported that fifty three percent of mothers knew about all mandatory vaccine preventable diseases for children and this knowledge was significantly greater among those mothers with a higher rather than lower educational level. This finding implies that knowledge is power and is acquired through learning or education. Maternal education is a strategy for children's survival and health. It is an effective way of improving children's health and reducing mortality. Based on this finding, it could be concluded that education has an important part to play on the knowledge of mothers concerning vaccine preventable diseases. In addition to the above findings, it was found out that there was significant difference in the mothers' level of knowledge of the vaccine preventable diseases based on their ages. The ages of the mothers were found to have significant impact on their knowledge of vaccine preventable diseases. The mean score of the mothers aged 34 – 41 years and above was highest followed by those 26 – 33 years whereas the younger ones aged 18 – 25 years scored the least. One hundred and sixty five mothers of the age range of 18 – 25 years were found to have poor or no knowledge of vaccine preventable diseases. The above figure may look minimal but it should be borne in mind that the death of a single child from vaccine preventable disease is a tragedy to the family affected because life is very precious and irreplaceable. There is therefore a great need for health education programmes concerning vaccine preventable diseases for mothers; not only mothers but men too and even unmarried young girlswho will become mothers tomorrow. Therefore mothers of 34 years and above had more knowledge of the vaccine preventable diseases than the younger ones. This study agreed with the findings of the study by Angelilloet al (2009). Findings of their study showed that knowledge is significantly greater among mothers who were older at the time of the child's birth.

Finally, the findings of the study also revealed that students, civil servants, and traders had more knowledge of the vaccine preventable diseases than the housewives and farmers. This is in agreement with Ogunmekan (2007), who reported that women in higher socio-economic groups were more knowledgeable about the causes and the prevention of vaccine preventable diseases.

In this study, it was also found out that majority of the mothers had excellent knowledge of routine immunization based on their age, level of education and occupation. If mothers in Katagum local Government area have this high knowledge of routine immunization there is hope for the children of the community. The finding of the present study agreed with that of WHO, (2000) which revealed that majority of mothers are aware of the benefits and the desirable doses of routine immunization. One should be happy due to the present finding because PATHS, (2004) had earlier observed that there are widespread misconceptions that immunization can prevent all childhood illnesses. Also increased knowledge about routine immunization was associated with higher level of immunization recorded in the past. In fact, Kasule and Kampikaho (2003) had earlier stressed that knowledge of immunization was established to be a significant factor influencing immunization coverage. They stated that immunization, a form ofpreventive medicine was aimed at protecting individuals, children and communities from infectious diseases. However, PATHS (2004) emphasized that misinformation about vaccines and their side effects could mount a hindrance to immunization uptake. However, Yakubu (2005) pointed out that lack of understanding by mothers of both the concept and importance of immunization was also a contributing factor as to why children were not fully immunized in the Northern part of Nigeria. The truth then is that awareness is essential if people are to participate actively in health development and related activities.

Further findings in this study revealed that there was significant difference in the mothers' level of knowledge of routine immunization based on their age. This corroborates the findings of Sharma and Bhasim(2006) which indicated that nearly two third (68%) of the respondents knew that routine immunization is done for children up to the age of five years.

Data analysis further revealed that there was significant difference in the mothers' level of knowledge of routine immunization based on their levels of education. This agrees with the findings of Sharma and Bhasim(2006) which showed that the educational level of their respondents was found to have an association with their knowledge about routine immunization. The highly educated ones were more knowledgeable than the illiterate ones on routine immunization. Formal education of women results in increased child survival because of greater knowledge of the protective function of the childhood immunizations. Education is also associated with greater awareness of proper immunization schedules.

In this study, it was also observed that there was significant difference in the mothers' knowledge about routine immunization based on their types of occupation. Students, civil servants and traders were more knowledgeable on routine immunization than the housewives and farmers.

This is in agreement with the findings of PATHS (2004) which stated that people with occupation and higher socio-economic status had greater awareness of immunization activities. This is because these increase a person's exposure to information and consequently a higher knowledge of routine immunization.

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