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Socio-Demographic Factors of Parents Influencing Childhood Immunization in Enugu State, Nigeria

Ngwu, C. N.
Department of Social Work
Faculty of the Social Sciences
University of Nigeria, Nsukka

Abstract

The purpose of this study was to examine the socio-demographic factors of parents that influence childhood immunization in Enugu State, Nigeria. The study population consisted of married women of childbearing age (18-49) and their husbands. A sample of 1000 respondents was selected. Questionnaire was used for data collection. Focus Group Discussions (FGD) sessions were also conducted. Quantitative data were analyzed using percentages. Findings showed, among others, that female respondents (62.6%) perceived immunization as very important to their children as against their male counter-parts (37.4%). Younger respondents (72.5%) perceived immunization as more important than older respondents (27.5%). It is recommended that Enugu State Government needs to strengthen the expanded programme on immunization in the state with the aims of mobilizing, sensitizing, and convincing the older respondents of childbearing age to reduce drastically the number of deaths among children arising from preventable diseases.

Keywords: Socio, Demographic, Variables, Childhood, Immunization.

Introduction

Immunization is the process whereby a person is made immune or resistant to an infectious disease, typically by the administration of a vaccine (WHO, 2015). It is a way of creating immunity to certain diseases by using small amounts of a killed or weakened microorganism that causes the particular disease. The vaccine components which include: aluminum, antibiotics, Bovine serum, egg protein, formaldehyde, Gelatin, Human albumin, Lactose, sucrose etc, are present in very small quantities and there is no evidence that any of them cause any harm in these amounts (OVG, 2015). Appropriate deployment of relevant vaccines would significantly reduce mortality and speed up the achievement of Millennium Development Goal 4. The key ingredient in all vaccines is the active ingredients which are the parts

of the vaccine made from viruses or bacteria (also called antigens).

Immunization is vital in the drive to decrease global childhood mortality. Immunization protects against diseases like measles, numps, rubella, hepatitis B, polio, diphtheria, tetanus and pertussis (whooping cough, chicken pox etc) (WHO, 2015). Infant immunization is currently central to national and international policy agenda to tackle ill – health and poverty in Africa and to achieve the Millennium Development Goals (MDG) in reducing childhood mortality and tackling infectious disease (leach & Fairhead, 2005). The prevention of childhood mortality through immunization is one of the most costs – effective public interventions in use in Nigeria. The prevention of diseases by immunization is today the best known practical way of protecting children against the major killer childhood diseases (Obionu, 2001). Immunization prevents more than 2.5 million child deaths each year and it has been shown that children who receive all appropriate immunization by nine months of age are less likely to die than those who do not (Rutherford, Dockerty & Jasseh, 2009). Routine immunization remains a particular concern for the government of Nigeria and its development partners.

However Nigerian's routine immunization schedule stipulates that infants should be vaccinated with the following vaccines: a dose of Bacillus Calmette – Guerin (BCG) vaccine at birth three doses of Diphtheria, pertussis and tetanus (DPT) vaccine at 6, 10 and 14 weeks of age, at least three doses of oral polio vaccine (OPV – at birth and at 6, 10 and 14 weeks of age, and one dose of measles vaccine at 9 months of age (Antai, 2009). It is generally agreed that antibody titres are generally higher with increasing age of immunization. As infants grow older, the immune system matures and transmitted maternal antibodies disappear (PAN, 2012).

Vaccine administration practices are based on clinical trials that determine the dose, route and schedule for each vaccine (Public Health Agency of Canada, 2013). All vaccine providers should receive education and competency – based training on vaccine administration before providing vaccines to the public.

The practice of incomplete immunization constitutes a huge threat to public health in the world today. Some studies have been conducted in Jamaica to investigate why some care-givers do not avail themselves of this cost effective means of disease prevention (Shuaib, Kimbrough, Roofe, McGwin and Jolly, 2010). One of the studies conducted by Bronte and Dejong (2005), found that low income and single parenthood, reduce the likelihood of children being fully immunized. Similar studies in Nigeria showed that poor immunization was attributable to low socio-economic status and low maternal education (Anastasia, Gage, Sommerfelt and Anrea, 1997).

There are some other reasons why some parents are so seemingly unconcerned about obtaining immunization for their children. One of them could be that they do not know how lives threatening some communicable illnesses still are. Others may believe these diseases have been eliminated and are therefore, no longer anything to worry about (Lynn, 2001). Fear of side effects does generally deter demand especially in rural communities of Enugu state, Nigeria. However some avoid immunization in the state because there have been rumours that immunization causes sterility, paralysis, and render children violent. However to date there has been no substantiated evidence that vaccines cause any of these problems, (Rapin, 1997). While minor discomforts, including mild fever, achiness and pain at the injection site may occur, vaccines are considered safe.

If mothers do not perceive vaccine preventable diseases as severe enough to warrant preventive action or if they do not perceive any particular benefit to their child's health from vaccination, then they will be less likely to complete immunization doses for their children and they are likely to oppose any law or policy that mandates such behavior. It is on the background of these mitigating factors that this study is set out to examine the socio-demographic factors of parents influencing childhood immunization in Enugu state, Nigeria.

Objectives of the study

The purpose of this study was to examine the socio-demographic factors of parents influencing childhood immunization in Enugu State, Nigeria. The study determined:

1. parent's awareness of childhood immunization based on their level of education.
2. perception on childhood immunization based on gender
3. urban/rural differences on the practice of childhood immunization.

Hypotheses

Furthermore, three null hypotheses were formulated to guide the study and they include the following:

HO_1: The parent's perception of the importance of immunization is dependent of their educational level

HO_2: The parent's perception of the importance of immunization is dependent of their sex

HO_3: The parent's perception of the importance of immunization is dependent of their age

Methodology

***Research Design*:** A survey research design was adopted for the study, as the opinions of parents were sought on the socio-demographic factors of parents influencing childhood immunization.

***Area of Study*:** The study was carried out in Enugu State of Nigeria. Enugu state is found in the South Eastern part of Nigeria with Igbo as the dominant ethnic group and the people are

predominantly Christians. Enugu state has 17 Local Government Areas (LGA) with more number of rural areas than the urban areas. This disparity has not affected their willingness to immunize as necessary for their children.

***Population for the Study*:** The study population consisted of married women of reproductive ages (18 – 49 years) and their husbands aged 18 years and above. The population of Enugu State in 2006 census exercise was 3, 572, 298 (FGN) Official Gazette, 2007. The population distribution of the state is 39% urban and 61% rural inhabitants.

***Sample and Sampling Technique*:** Multi-stage sampling approach was adopted in order to draw a sample of 1000 respondents in which 39.9% and 60.1% were males and females respectively. The difference in the gender balance was to elicit credible information from women who are said to have more knowledge about child health care services than their male counterparts. The sample size was made up of four hundred respondents from the two urban LGAs and six hundred respondents from the three rural LGAs.

The five LGAs were clustered into communities and from these clusters: two communities were selected from each of the (5) LGAs through simple random sampling. Ten communities were divided into villages/streets where twenty (20) villages or streets were selected through random sampling technique. To get at the dwelling units or households from where the actual respondents were contacted, households within the villages or streets were counted and numbered, using the systematic sampling method. Fifty respondents were selected from each of the twenty (20) villages/streets, to give 1000 respondents.

***Instruments for Data Collection*:** The study utilized questionnaire and Focus Group Discussion Guide (FGD) for data collection. The questionnaire consisted of open and close – ended items relating to the objectives of study. Questionnaire served as interview schedule for illiterate respondents.

***Data Collection Technique*:** Data were collected by the researcher with the help of research assistants who were specifically trained for that purpose. One thousand copies of questionnaires were distributed to the respondents but only 976 were dully filled and returned. A total of ten (10) FGD sessions were conducted with seven (7) persons in each group. During the FGD sessions, instruments like tape recorders, cameras and notebooks were used, with permission granted by the FGD teams. Note taking and tape recording were the main instruments used to record the focus group discussion sessions.

Data Analysis Technique: The responses obtained from the questionnaire were presented and analyzed using tables and relative measures such as percentages and cross tabulations. Chi-square (X^2) was used in testing hypotheses and it helped to determine the nature and the strength of the relationships

between the dependent and the independent variables stated in the hypotheses.

Findings of the Study

Background Information of Respondents

The respondents fall within the age range of 29 – 39 years. Also 40.1% were males and 30.5% were females. Out of 976 respondents, 68.2% of them indicated that they were married where 72.2% (males) and 65.6% (females) were involved in the marriage. Majority of the respondents 352 (36.1%) were engaged in farming, and 31.3% were civil servants. More females (37.5%) than males (33.9%) were engaged in farming activities. The level of income of the respondents showed that majority of them fall within the range of ₦13, 800 – ₦25, 000. The study revealed that more males (11.1%) than females (3.6%) received ₦51, 200 and above as monthly income. Majority of them had completed their secondary education (38.5%), while 29.4% and 46.9% were residing in urban and rural areas respectively.

Awareness of Childhood Immunization

Majority of the respondents (71.5%) indicated that they immunized their last children as and when due. A small proportion of the respondents (20.1%) did not immunize their last children while only 5.8 percent were not sure whether they immunized their last children or not. Almost two-thirds (66.4%) of the respondents admitted that they demanded to have their children immunized before this study while 25.4 percent had never demanded for immunization. Majority of the respondents (75.5%) considered immunization very important to their children while only (16%) failed to consider immunization as a necessary practice based on the negative rumours concerning immunization services. The rural respondents (51.8%) seem to have considered immunization more important than the urban respondents (48.2%).

With regards to the negative ways in which some parents especially mothers see immunization during the FGD sessions, they believed that immunization is not a necessary practice for their children. They had the belief

- That immunization no longer prevents diseases but exposes their children to illnesses.
- That they were not immunized during birth and they have not died of any known diseases.

To this group of respondents, immunizing their children can bring the disease about though mildly, rather than prevent the disease itself. This belief as indicated in the study is associated with illiteracy or ignorance. Some mothers allege that immunization causes sterility, death of children, infertility, paralysis and absences. Some of them believe that government uses it to control birth, therefore they will not bring their children for immunization and some

when they do they sometimes, refuse to complete the immunization doses.

Importance of Immunization Based on Sex, Age and Educational Level of Respondents

The findings revealed that female respondents (62.6%) perceived immunization as very important to their children as against their male counter parts (37.4%). In order words, more female respondents perceived immunization as a good practice more than their male folks. Certain factors which influence the use of maternal health care and childhood immunization includes: women's age, parity, media exposure, maternal education, wealth quintile, and residence (Tsaw, Moto, Netshivhera, Ralesego, Nyathi and Susuman, 2015).

Testing of Hypotheses

Table 1: Level of education and perceived importance of immunization

Level of Education	**Importance of Immunization**		**Total**
	Perceived Important	Perceived as not Important	
Low education	89 (12.1%)	36 (15.1%)	125 (1.8%)
Medium education	377 (51.2%)	149 (62.3%)	526 (53.9)
High education	271 (36.6%)	54 (22.6%)	325 (33.3%)
Total	737 (100.0)	239 (100.0)	976 (100.0)

(X^2 (2, N = 976) = 16.342, p≤.000).

Table 1 shows a significant relationship between the level of education and perceived importance of immunization. It reveals that more of the medium education groups (51.2%) perceived immunization more important than the high and low education groups (36.8%, and 12.1%) respectively. The hypothesis was tested with chi square (X^2) statistics. A calculated chi square value of 16.342 was obtained in the study at probability level of 0.5. Assumption significant level of .000 observed from the study is less than .05, indicating that the result is significant. We then accept the null-hypothesis which states that the parent's perception of the importance of immunization is dependent of their educational level.

Table 2: Age of respondents and the perceived importance of immunization

	Importance of Immunization		
Age of respondents	Perceived as important	Perceived as not important	**Total**
Younger respondents	534 (72.5%)	115 (48.1%)	649 (66.5%)
Older respondents	203 (27.5%)	124 (51.9%)	327 (33.5%)
Total	737 (100.0%)	239 (100.0%)	976 (100.0%)

X^2 (I, N = 976) = 47.987. P ≤ .000

Table 2 shows the relationship between age of the respondents and the perceived importance of immunization. The younger respondents' perception had a significant effect on many of these perception measures. 72.5% of them perceived immunization as important, while 27.5% of their older counterparts saw the program of immunization as not relevant. The hypothesis was tested with chi square (X^2) statistics. A calculated chi square value of 47.987 was obtained in the study at probability level of 0.5. Assumption significant level of .000 observed from the study is less than .05, indicating that the result is significant. We then accept the null-hypothesis which states that the parent's perception of the importance of immunization is dependent of their age. The possibility of obtaining this kind of result is based on the fact that most of these younger respondents fall within the child bearing age unlike the older respondents who may have already had the number of children they want. The older group of women may not be interested any longer in the issues of immunization. The central task of expanded programme on immunization is to make certain that eligible children within the reach of health services are identified and followed up until immunized.

Table 3: Logistic regression predicting perception of the importance of immunization

Variables	**B**	**S.E**	**Wald**	**df**	**Sig**	**Exp (B)**
Age of respondent	1.030	.157	43.027	1	.000**	2.802
Education	.342	.121	7.233	1	.007**	.723
Level of income	.273	.135	4.091	1	.043**	.761
Location	.081	.159	.258	1	.611	.922
Sex	.358	.163	4.831	1	.028**	.699
constant	.757	.578	1.713	1	.191	.469

Significant levels are denoted as ** $p < 0.05$ B: Unstandardized regression weight
SE: Standard deviation of a mean Wald: Individual Predictor variable
df: degree of freedom Sig: Significant level

Table 3 shows that four variables such as: age, education, sex and income level-were significant (p. 0.000, 0.007, 0.028 and 0.043) in predicting importance of immunization. The age of respondents had the most important influence on the perception of immunization, followed by the level of education which is associated with positive difference of 0.01 occurrences of importance of immunization. From the above analysis, it was observed that the place of residence is negatively associated with the perception of immunization. However, age, sex, education and income level of respondents were predictors of perceived importance of immunization. Place of residence was found to be a unique factor in that it

has no relationship with other dependent variables. By comparing data from the regression table, age, sex and education are the variables which are consistent in predicting the indicators of importance of immunization. With this result, one can conclude that there is a relationship between sex and perceived importance of immunization (x^2 (1, N = 976) = 7.277, P ≤ = .005).

Discussion

This study also investigated the perception of males and females on the importance of immunization. The findings revealed that female respondents (62.6%) perceived immunization as very important to their children as against their male counterparts (37.4%). In other words, more female respondents perceived immunization as a good practice. Meanwhile, the high level of demand of immunization among parents is corroborated with the UNICEF (2001) which asserts that mothers are aware that childhood diseases could cause disability and death and they mostly perceive childhood immunization as a beneficiary and a necessary practice. This was partly because the experiences about the consequences of the vaccine preventable diseases are still fresh in the minds of these mothers. Most of the information regarding immunization risks and benefits is related to the level of parental education (Omer .QB, Mohd .BB, Muhannad .RM, Mustafa .GA, Ramadan .ME & Shazia .QJ. 2014). The level of parental education is the most important factor related to immunization knowledge and practices of parents. With this result, one can conclude that there is a relationship between sex and perceived importance of immunization (X^2 (1, N = 976) = 7.277, p ≤.005). During the Focus Group Discussion, both male and female groups accepted the idea of immunizing a child but the female groups showed that they were more knowledgeable about immunization than the male groups.

In this study, more of the married women (wives) (42.6%) perceived immunization as more important than their husbands (31.1%). The reason for this may be because the married women are more knowledgeable about immunization and bear the pains of infant deaths than their husbands. Immunization knowledge is significantly related to age, occupation, educational status, and socioeconomic status of mothers (Singh, Singh & Singh, 2015). Strategies to increase full vaccination should target young mothers especially during antenatal periods (Okugo, Anwanyi & Kutima, 2015).

The study showed that there was a significant relationship between the level of education and perceived importance of immunization (x^2 (2, N = 976) = 16.342, P ≤ = 000). The study revealed that more of the medium education groups (51.2%) perceived immunization as a necessary practice than the high and low education groups (36.8%) and 12.1% respectively.

The education of women has been reported as a key factor in reducing infant and child mortality. Data from NDHS (1999) revealed that lower educational levels among females were related to higher infants and under-five mortality.

In spite of health education and information some mothers were reluctant to accept immunization based on their place of residence. The study showed that the place of residence is negatively associated with the perception of immunization. Place of residence appears to have no effect on the perceived importance of immunization. In order words, there is no significant difference in the way urban and rural respondents think about immunization issues (x^2 (1, N – 976) = 215, P ≤ = 349). One would have thought that urban respondents would be more likely to perceive immunization positively than the rural respondents, because they seem to be more enlightened or educated. One female FGD participant in Ovoko in Igbo-Eze South LGA reported that women were unable to immunize their children because the health centre was located very far away from their homes and children usually become feverish after injection. Another woman in the same locality complained of time wasted during immunization and drugs ineffectiveness in our hospitals.

Some parents refuse to immunize their children due largely to ignorance and the fear of unknown. Some parents are unwilling to immunize their children due to fear of feverish conditions in which some children experience after immunization (Adiboye et al 2014). Lynn (2001) argued that some parents are unconcerned about obtaining immunization for their children, because they do not realize how life threatening some communicable illness still is. It should be noted that immunization protects our children against the common vaccine-preventable diseases. The central task of expanded programme on immunization is to make sure that eligible children within the reach of health services are identified and followed up until immunization. This situation represents a major public health gain in the space of the past 20 years.

Conclusion

The people of Enugu State still believe that immunization is very important to the survival and development of children in Nigeria. Demographic variables such as age, sex, education and income level of respondents were found to be positively associated with the importance of immunization services in Nigeria. Some other parents failed to consider immunization services as a necessary practice for their children based on the negative rumors concerning immunization services in Nigeria. For instance, some parents especially women believed that immunization causes sterility, death of children, paralysis and feverish conditions after injection. Other problems surrounding the poor patronage of

immunization by parents included long distances and long waiting time at the health centers.

Recommendations

- Given all the benefits of immunization, parents should complete routine immunization schedules for their children by the age of 9 months.
- Health workers should address parents' concerns regarding the few appropriate side effects of immunization to help reduce unnecessary complaints resulting from their ignorance.
- Education should be employed to correct some of those cultural beliefs and practices attached to childhood immunization in Nigeria.
- Government should establish policies that will address poverty in the land and poor accessibility to medical care.
- It is pertinent to finally recommend that there should be an urgent need to invest in programmes that will enhance the awareness of childhood immunization in Nigeria.

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