
Maternal Socio-Economic Variables and Prevalence of Early Childhood Diseases in Asari-Toru Local Government Area of Rivers State, Nigeria

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Abstract

The main purpose of this study was to assess maternal socioeconomic variables as predictors of prevalence of early childhood diseases in Asari-toru Local Government Area of Rivers State. The early childhood diseases considered were, malaria, measles, diarrhoeal diseases, protein energy malnutrition and pneumonia. The specific objective of the study was to determine the influence of maternal education, age, income and marital status. To achieve these objectives, four research questions were raised and translated into four research hypotheses for testing at .05 level significance. Adopting a descriptive survey design and a random sampling technique 350 children with early childhood diseases were drawn for the study. A thirty-four item questionnaire (MSVPECD) was the only instrument used for data collection. It was exposed to validation and reliability testing using Kuder-Richarson (K-R) formular 21 and a reliability index of .85 was obtained. The research questions were answered using percentage, while chi-square was used to test the null hypotheses of P-value of .05. From the findings, it was observed that maternal education and income significantly influenced the prevalence of early childhood diseases in Asari-toru Local Government Area of Rivers State. The result also showed an insignificant influence of maternal

age and maternal marital status on prevalence of early childhood disease in the area. It was recommended that socioeconomic status of the citizens should be improved especially the women, provision of quality education, decent housing, access to healthy food and safe places for everyone despite gaps in affluence and provision/enforcement of immunization against infection diseases by relevant authorities.

Key words: Maternal, Socioeconomic Variables, Prevalence, Early Childhood Diseases, Immunization.

Social determinants of health are the economic and social conditions and their distribution among the population that influence individual and group differences in health status. They are health promoting factors found in one's living and working condition (such as the distribution of income, wealth, influence, and power) that influence the risk of a disease or vulnerability to disease or injury. According to Mikkonen and Raphael (2010), the distributions of social determinants are shaped by public policies that reflect the influence of prevailing political ideologies of those governing a jurisdiction. World Health Organization (WHO) (2008), stated that this unequal distribution of health damaging experiences is not in any way a natural phenomenon but is the result of a toxic combination of poor social policies, unfair economic arrangements (where the already well-off and healthy become even richer and the poor who are already more likely to be ill become even poorer), and bad politics.

WHO (2008) report identified two broad areas of socioeconomic determinants of health that needed to be addressed. The first area was daily living conditions, which included healthy physical environments, fair employment and decent work, social protection across the lifespan, and access to health care. The second major area was distribution of power, money and resources, including equity in health programmes, public financing of action on the social determinants, economic inequalities, resources depletion, health working conditions, gender equity, political empowerment, and a balance of power and property of nations. According to Brennan, Ramirez, Baker and Mctzlar (2008), the Centre for Disease Control (CDC), defined social determinants of health as life-enhancing resources, such as food supply, housing, economic and social relationship, transportation, education, and health care, whose distribution across populations effectively determines length and quality of life. This include access to care and resources such as food, insurance coverage, income, housing and transportation. Social determinants of health influence health promoting behaviours, and health equity among the population is not possible without equitable distribution of social determinants among groups. Social condition such as education, income, and race were very much defendant on one another, but these social conditions also apply independently to influenceshealth (Woolf, 2009) .

In most developing countries, women of reproductive age (WRA) constitute more than one-fifth of the total population. According to WHO (2006) women of reproductive age are exposed repeatedly to poor existing socioeconomic condition and the inadequacy of medical and health facilities for themselves and their children. Infant

and under-five morbidity/ mortality are high in the developing countries especially in sub-Saharan African where disease, conflict, poverty and low level of education abound (WHO,2004). Infant/child mortality is an indicator of overall health status of children below the age of five years and defined as the ratio of death of under-five years of age in a given year to the total number of live birth in the same year: usually expressed as ratio per 1000 live birth (WHO,2003). Nigeria with an estimated one million under five children death annually, is ranked as one of the Countries with the highest infant and under-five morbidity and mortality in the world (United Nations Emergency Fund- UNICEF, 2009)

The Nigeria Demographic and Health Survey NDHS, (2013) found that under-five morbidity which are diseases occurring in early childhood and resulting in mortality was estimated of 201 per 1000 live birth while infant mortality rate was 100 per 10,000 live births. The figures, when compared to those from other developing countries such as Ghana, Kenya and South Africa which have an average of 100-189 per 1000 live births, is quite high. Figures from developed countries such as the United States of America and Canada indicate much lower figures ranging from 5-7 per 1000 live births. According to Park (2011), it is customary to divide early childhood into the following age period: Infancy; neonatal period (first 28 days of life), post neonatal period (28 days to 1 year), pre-school age (1-5 years). Park noted that early childhood is a very important age grouping which constitutes about 20% of the total population in all societies. According to the Park, development at this period forms the bedrock of the future, and as the predictors of chronic diseases in later life as health behaviours are laid at this stage.

Early childhood diseases therefore are considered as diseases occurring after birth and within the first years of life (Gupta, 2011). Hornby, (2001), also, stated that prevalence connotes the existence of something in a particular place or at a particular time. In support of this, Park (2011) posited that disease prevalence refers specifically to all current case (old and new) existing to a given point in time or over a period of time in a given population.

Even though, there are several early childhood diseases, Gupta (2007) posited that due to the prevailing poor economic situations and ignorance, the commonest and most prevalent early childhood disease in Sub-Saharan African, and Asian Countries are malnutrition, malaria, diarrhoeal diseases, measles and respiratory tract infections. Similarly, Park (2011) observed that the under-five prevalence disease which are the leading causes of death in Asia and Africa are malaria, acute respiratory infections, diarrhoeal disease, measles, malnutrition, human immune deficiency virus (HIV) /Acquired Immune Deficiency Syndrome (AIDs), and other neonatal causes.

In contribution to this view UNICEF (2013) posited that leading cause of infant/child mortality are birth asphyxia, pneumonic, term birth complications, neonatal infection diarrhoea (disease, malaria, measles and malnutrition). Many factors contribute to infant mortality, such as the mother's level of education, marital status, environmental conditions, maternal economic conditions, and political and medical infrastructure.

Malnutrition frequently accompanied these diseases, mentioned above and is a primary factor contributing to the complications of both diarrhoeal diseases and pneumonia, although the casual links and mechanisms remains unclear. Protein energy malnutrition and micronutrient deficiency are two reasons for stunted growth in children under-years old in the least developed countries. Malnutrition leads to diarrhoeal diseases and dehydration and alternately death, millions of woman in developing countries are stunted due to history of childhood malnutrition. Women's bodies are thus underdeveloped, and their chances of surviving childbirth decrease. Due to underdeveloped bodies, the probability of obstructed labour increases during delivery. Protein-energy deficiency results, in low quality breast milk that provides less energy and other nutrition (Andrew, Brouillatte&Brouillatte, 2008). Protein-energy malnutrition (PEM) is energy deficit condition due to chronic deficiency of macronutritons, PEM which are of two types- Kwashikor and marasrus, are very common childhood disease mainly found in Asia and sub- Saharan Africa due to lack of food, diets that is more deficient in protein that energy and starvation (Fotlillie, 2009). Approximately 43 percent children (230 million) in developing are malnourished (WHO,2003).

Seven out of ten childhood death are due to infections diseases, acute respiration infection diarrhoeal diseases, measles and malaria. Diarrhoea is the passing of three or more watery stools in 24 hours. Diarrhoea is the second-largest causes of childhood death in the world, (Andrews, Brouillette&Brovillette, 2008). The burden of diarrhoea and diarrhoeal diseases is greatest in Asia and sub-Saharan African mostly due to lack of access of safe water and poor sanitation (WHO, 2004). An estimated one million children in poor environments suffers from diarrhoea monthly (WHO, 2003).

Acute respiratory infection such as pneumonia, bronchitis, and bronchiolitis account for 30% of childhood death. Pneumonia is an inflammation of the lungs caused by bacteria, virus or chemical irritants. Ninety-five percent of pneumonia cases occur in the developing world (Andrew, Brouillette&Brouillette, 2008). Ten to fifteen percent of children with respiratory infection have pneumonia (Akinsola, 2003). This condition is mostly common in newborns and pre-scholars and is one of the prevailing childhood infections that exacts on our nation (Futulile, 2009).

Malaria is a protozoal disease caused by infection with parasites of genus plasmodium and transmitted to man by certain species of infected female anopheles mosquitor. Malaria accounts for 11 percent of childhood deaths. Park (2011) stated that about 100 countries in the world were considered malarious, with about half of the figures in Sub-Saharan Africa. WHO (2008) noted that the global burden of malaria remains enormous. They went further to state that in the sub-Saharan Africa thirty percent of all death result from Malaria with children age 1-5 years being the worst affected. Much earlier WHO (2007) report estimated that one in every five childhood death was due to malaria and that a child dies from the disease every 30 seconds.

Measles is a highly infections disease of childhood caused by a specific virus of the group of myxovirus. Measles is the fifth-largest cause of childhood mortality (Andrew, Bruillette&Bruillette, 2008). Park (2011), stated that measles is an epidemic disease and occur virtually in all parts of the world. It tends to occur as epidemic when the proportion of susceptible children reaches 40 percent. Park furtheropined that when the

disease is introduced into a virgin community, more than 90 percent of that community will be infected. Mortality of measles varies greatly in different parts of the world. It is 100-400 times more likely to cause death in pre-school children of developing countries than in the developing world (WHO, 2004). The body further states that an estimated 30 million cases of measles occur annually with a mortality rate of about 100,000 children. Maternal and family variables are integral factors in the family that predict or influence the development and health of an individual (Olori, 2004). Olori identified maternal/family variables as factors in the home or home conditions that influences the behavioural patterns of the family towards access and utilization of health services. Such variables include, education, income, age, religion, occupation, marital status, family size and place of living.

Education makes a woman knowledgeable, be aware of the environment, makes her take informed decision and therefore makes her have access to information readily. Chowdhury (2003) opined that education empower women to demand for more and better quality health for themselves and their children. According to Chowdhury studies from developing countries have shown that child morbidity and mortality is closely associated with parental education than any other factor. Accordingly Alam, Quershi, Adil and Ali (2004), higher level of maternal education has shown repeatedly to be positively associated with the utilization of maternal and child care health services.

A number of socio-demographic characteristics of an individual affect the underlying tendency to seek medical care for themselves and their household (Addai, 2000). The age of the mother is significant on the health of the child. A mother's can influence her utilization of maternal/child health services and thereby indirectly the health of the child. Nwakoby, (2004) found maternal age as one of the house factors that is most consistently associated with the use of health institution and this may sometimes serve as proxy for her accumulated knowledge of child care and may have a positive influence on the health of the child. However, Mekonnen (2005) observed that age does not significantly influence the utilization of health care services. He stated that in Ethiopia the younger the age group, the more likely they will patronize health care services for themselves and their household.

A woman's occupation, which directly relates to her income plays significant role in the utilization of health care services. The maternal income of a child is strongly associated with the child's health status. Doyal (2003) observed that poverty makes it difficult for women to acquire adequate health care. Ikorok (2004) stated that women many not have the means for utilization of health care services because of their low status in education and income. A study conducted in Calabar discovered that the reason for women's delay in seeking antenatal care services was poverty caused by low income (Ndifon & Asuquo, 2004). Accordingly Effe (2008), posited that earning could contribute to the use of health care services by empowering women inside and outside the household. The author opined that the poor suffered from greater morbidity, mortality and malnutrition and that poverty has been shown to go together with all health, and low health service utilization in many countries.

It had been observed that marital status of mothers significantly influence utilization of health care service. When a woman is married the husband variables come to play in her life. The husband's income, education and religion among other variables become relevant to the women and therefore will influence her outlook and perception of health care service. Once a woman gets married her socioeconomic status changes instantly to reflect that of her husband. A study conducted in Northern Nigeria, where they are predominantly Muslims indicated that their women in purdah especially those of child bearing age, are not allowed to engage in any form of commerce, so in times of emergency for themselves and their children depend on their husband for decision and wish to access health care service (Adamu & Slihu, 2002). A study in Pakistan also showed that wives generally need their husband permission to take their children to access health care services (Venkatesh, Umakanth & Yuvara, 2005). Simkhada, Van-TeiJingen, Porter and Simkhada, (2008), noted that married women use health care services more than singular mothers. However, Mekonnen and Mekonnen (2002) observed otherwise, in their study conducted in Ethiopia, which revealed that unmarried mothers are more than twice as likely as married mothers to receive assistance from a health professional for themselves and their children than their married counterpart.

Statement of the Problem

In compliance with WHO policy, which is to bring health care service to every citizen of a nation, the FMH/NHP, (1996) major goal of health care policy in Nigeria is the attainment by all Nigeria of a level of health that will enable them live socially and economically productive lives. To achieve this set goals, all tiers of government (local, state and Federal) are involved. Non-governmental and donor agencies have equally contributed their quota in sustaining the health policy by means of donation of funds and drugs, erection of health care facilities, facilitation of national Immunization programs and training of health personnel.

Women and children are the main focus of health policy all over the world and Nigeria is no exception; they are the primary beneficiaries of primary health care services. Childhood health promotion activities like regular Immunization programmes against deadly childhood diseases, nutrition education and demonstration clinic, oral dehydration therapy unit, health care facilities and training of health personnel – geared towards giving the under – five adequate health attention have also been addressed. Incidentally, despite the availability of these services, morbidity and mortality in the area of study is still significantly high compared to other areas in the federation. Recent evidence showed that under – five mortality rate in the country is 201/1000 live birth, much higher than supposedly less-endowed countries even within the African continent (NDHS, 2005). Some of these tend to be associated with ravages of vaccine preventable disease and common childhood ailments such as malaria, measles, pneumonia, malnutrition and diarrhoeal diseases which conscious effort, on their prevention would have been averted.

Material Socio-economic variables have generally been observed by researchers to have either positive or negative effect on the health of the household,

especially children. Such variables include maternal level of education, income, religious affiliation, family size, residential location and age.

Besides, Renzaho (2006) in a study conducted in Mozambique identified with similar social environment in his study of the cause of high infant morbidity / mortality rate in that country. It is possible that such trends could be found in Asari – toru Local Government Area of River State, where this study was conducted. This aroused a major question in the mind of the researcher who happens to be a father and an experienced medical practitioner as he sought to find out if the prevalence of early childhood diseases in Asari- toru L.G.A was based in maternal education, age, income, and marital status.

Objective of the Study

The main purpose of this study was to examine the maternal socioeconomic variables that predict the prevalence of early childhood diseases in Asari-toru Local Government Area of Rivers State. Specifically, the study aimed to:

- i. Determine the influence of maternal education on the prevalence of early childhood diseases in Asari-toru Local Government Area.
- ii. Ascertain the influence of maternal income on the prevalence of early childhood diseases in Asari-toru Local Government Area.
- iii. Examine the influence of maternal age on the prevalence of early childhood diseases in Asari-Toru Local Government Area.
- iv. Determine the influence of maternal marital status on the prevalence of early childhood diseases in Asari-toru Local Government Area.

Research Questions

The following Research Questions were raised to guide the study.

1. What is the prevalence of early childhood disease in Asari-toru Local Government Area based on maternal education?
2. What is the prevalence of early childhood diseases in Asari-toru Local Government Area based on maternal income?
3. What is the prevalence of early childhood diseases in Asari-toru Local Government Area based on maternal age?
4. What is the prevalence of early childhood diseases in Asari-toru Local Government Area based on maternal marital status?

Research Hypothesis

The following hypotheses were formulated to guide the study and were tested at .05 level of significance.

H₀₁: There is no statistical significant influence of maternal education on the prevalence of early childhood diseases in Asari-toru Local Government Area

H₀₂: There is no statistical significant influence of maternal income on the prevalence of early childhood disease in Asari-toru Local Government Area.

H₀₃: There is no statistical significant influence of maternal age on the prevalence of early childhood diseases in Asari-toru Local Government Area.

Ho₄: There is no statistical significant influence of maternal marital status on the prevalence of early childhood diseases in Asari-toru Local Government Area.

Methodology

Research Design

A descriptive survey design was used to accomplish the purpose of the study. This was useful in collecting data and describing it in a systematic manner. Obasi (2000) adopted this design in his study to examine the socio-cultural problems militating against the acceptance of modern health services in rural Nigeria. Juarez (2004), also adopted descriptive study design in his study to examine the spatial distribution pattern of health care delivery facilities and the utilization of available health services in Ecuador. George (2010), also used this method to determine the utilization antenatal care services by women in riverine communities of South-east senatorial district of Rivers State. Moreover, the variables used in study were not subject to researchers control or manipulation.

Area of the Study

The area of the study is Asari-toru Local Government Area of Rivers State. It is one of the twenty-three local government Areas in Rivers state. It is made of thirteen communities. The total population of Asari-toru at 2006 stood at 220,100. The indigenes of Asari-toru Local Government Area are the Kalabris made up of thirteen communities. Their predominant occupation is fishing, trading, artisan to white collar jobs. The people are mainly Christians but of various church denominations. There are three health facilities - Comprehensive Health Centre, Abalama, Comprehensive Health Centre, Ido and General Hospital, Buguma.

Population for the Study

The population consisted of all children who were admitted into Government health facilities in Asari-toru Local Government Area from 2011-2015. This included both male and female numbering 1515.

Sample and Sampling Techniques

The sample size of 350 was drawn for the study. This is in line with Nwana (1993) who suggested that if the population is a few hundreds, 40 percent or more sample will do. If a few thousand, 10 percent or more will do and if several thousand 5 percent or less of the population could be used. Based on this, the researcher decided to use 40 percent of the population.

The purposive sampling technique was used. This was considered most appropriate because it helped the researcher to draw only under-five patients who were diagnosed with any of the five disease conditions used in this study, namely; malaria, measles, protein energy, malnutrition, diarrhoeal diseases and pneumonia and were also treated in the government health facilities in the local government in the last five years.

Instrument for Data Collection

The instrument used for the collection of data was a checklist titled, maternal socio-economic variables and prevalence of early childhood diseases (MSVPECD). It consisted of two sections, A and B, section A listed options of the family variables used in the study. Section B listed the disease conditions and the personal demographic variables or maternal variables of the patient taken on admission in the health care facilities. This was cross-checked and tickled accordingly.

Validation of the Instrument

Face and content validity of the checklist was done by two experts from the Department of Physical and Health Education and one expert of measurement and evaluation in University of Uyo. This was to ensure the opportunities and relevance of items in the instrument and also ascertain of it should be included in the checklist.

Reliability of the Instrument

To ascertain the reliability of the study, using the checklist, data were drawn from records of thirty respondents who were not part of the study.

The reliability was established using Kuder-Richard (K-R) formular 21 which is based on the assumption that call for items of equal or near equal difficulty and equal inter-correlation. The reliability index stood at .85 for the instrument.

Method of Data Collection

The researcher visited each of the health facilities and obtained permission from the heads of the facilities to carryout a research in their facilities upon the presentation of a letter of introduction from the Department of Physical and Health Education, University of Uyo. This involved access to children admission registers and folders. Two assistants from each health facilities were trained after the purpose of the study was explained to them. Needed data were then drawn from the admission register of the facilities and folders.

Method of Data Analysis

Data was collected, coded and tallied. Percentage was used to answer research questions while contingency chi-square statistic ($df = (n-1) (c-1)$) was used to test the null hypothesis at .05 level of significance.

Results

Data Presentation and Analysis

Findings of the study are presented in the below based on research questions and hypotheses

What is the prevalence of early childhood disease in Asari-toru Local Government Area based on maternal education? Data used in answering this questions are presented in table 1

Table 1
Percentage Analysis of Prevalence of Early Childhood Disease Based on Maternal Education

Childhood disease	Non-formal	Primary	Secondary	Tertiary	Total
Malaria	29(28.4)	24(23.5)	34(33.3)	15(14.7)	102(100)
Measles	21(32.8)	18(28.1)	11(17.2)	14(21.9)	64(100)
Diarrhea Diseases	19(26.8)	25(35.2)	16(22.5)	11(15.5)	71(100)
Protein Energy Malnutrition	31(50.8)	10(16.4)	11(18)	9(14.4)	61(100)
Pneumonia	11(21.2)	24(46.2)	12(23.1)	5(9.6)	52(100)
Total	111(31.7)	101(28.9)	84(24.0)	54(15.4)	350(100)

As show in the table 1, 102 of the sample had malaria, 64 had measles, 71 had diarrhea, 61 had protein energy and 52 had pneumonia. On the overall, the table indicates that 31.7 percent of the sample had non-formal education and 28.4 percent had malaria, 32.8 percent measles, 26.8 percent diarrhea, 50.8 percent protein energy malnutrition and 21.2 percent pneumonia; 28.9 percent of the sample had primary education and 23.5 percent had malaria, 28.1 percent measles, 35.2 percent diarrhea, 16.4 percent protein energy malnutrition and 46.2 percent pneumonia; 24 percent of the sample had secondary education and 33.3 percent had malaria, 17.2 percent measles, 22.5 diarrhea, 18 percent protein energy malnutrition and 32.1 percent pneumonia; and 15.4 percent of the sample had tertiary education and 14.7 had malaria, 21.9 percent measles, 15.5 percent diarrhea, 14.4 percent protein energy malnutrition and 9.6 percent pneumonia. The data was further subjected to chi-square analysis to see if it was significant. See table 5. This indicates that maternal education has significance influence on the prevalence of early childhood diseases in Asari-toru Local Government Area.

Research Question Two

What is the prevalence of early childhood diseases in Asari-toru Local Government Area based in maternal income? Data used in answering this questions are presented in table 2.

Table 2
Percentage Analysis of Prevalence of Early Childhood Disease Based on Maternal Income

Childhood disease	Below 10,000 per month	11,000-30,000	31,000 – 50,000	50,000 and above	Total
Malaria	19(18.6)	32(31.4)	37(36.3)	14(13.7)	102(100)
Measles	18(28.1)	22(34.4)	16(25)	8(12.5)	64(100)
Diarrhoeal Diseases	26(36.6)	17(23.9)	16(22.5)	12(16.9)	71(100)
Protein Energy Malnutrition	28(45.9)	16(26.2)	10(16.4)	7(11.5)	61(100)
Pneumonia	22(42.3)	13(25)	9(17.3)	8(15.4)	52(100)
Total	113(32.3)	100(28.6)	88(25.1)	49(14)	350(100)

As show in the table 2, 102 of the sample had malaria, 64 had measles, 71 had diarrhea, 61 had protein energy and 52 had pneumonia. On the overall, the table indicates that 32.3 percent of the sample had below 10,000 income per month and 18.6 percent had malaria, 28.1 percent measles, 36.6 percent diarrhea, 45.9 percent protein energy malnutrition and 42.3 percent pneumonia; 28.6 percent of the sample had income between 11,000 – 30,000 and 31.4 percent had malaria, 34.4 percent measles, 23.9 percent diarrhea, 26.2 percent protein energy malnutrition and 25 percent pneumonia; 25.1 percent of the sample had income between 31000 - 50000 and 36.3 percent had malaria, 25 percent measles, 22.5 percent diarrhea, 16.4 percent protein energy malnutrition and 17.3 percent pneumonia; and 14 percent of the sample had above 50000 and 13.7 percent had malaria, 12.5 percent measles, 16.9 percent diarrhea, 11.5 percent protein energy malnutrition and 15.5 percent pneumonia. The data was further subjected to chi-square analysis to see if it was significant. See table 6. This indicates that maternal income has significance influence on the prevalence of early childhood diseases in Asari-toru Local Government Area

Research Question Three

What is the prevalence of early childhood disease in Asari-toru Local Government Area based on maternal age? Data used in answering this research questions are presented in table 3

Table 3
Percentage Analysis of Prevalence of Early Childhood Disease Based on Maternal Age

Childhood disease	Below 20 years	21-30 years	31-40 years	41 years and above	Total
Malaria	28(27.5)	27(26.5)	23(22.5)	24(23.5)	102(100)
Measles	21(32.8)	18(28.1)	16(25)	9(14.1)	64(100)
Diarrhoeal Diseases	23(32.4)	19(26.8)	16(22.5)	13(18.3)	71(100)
Protein Energy Malnutrition	19(31.1)	14(23.0)	13(21.3)	15(24.6)	61(100)
Pneumonia	18(34.6)	14(26.9)	11(21.2)	9(17.3)	52(100)
Total	109(31.1)	92(26.3)	79(22.6)	70(20)	350(100)

As show in the table 3, 102 of the sample had malaria, 64 had measles, 71 had diarrhea, 61 had protein energy and 52 had pneumonia. On the overall, the table indicates that 31.1 percent of the sample were below 20yrs of age and 27.5 percent had malaria, 32.8 percent measles, 32.4 percent diarrhea, 31.1 percent protein energy malnutrition and 34.6 percent pneumonia; 26.3 percent of the sample had age between 21 - 30yrs and 26.5 percent had malaria, 28.1 percent measles, 26.8 percent diarrhea, 23 percent protein energy malnutrition and 26.9 percent pneumonia; 22.65 of the sample had age between 31 - 40yrs and 22.5 percent had malaria, 25 percent measles, 22.5 percent diarrhea, 21.3 percent protein energy malnutrition and 21.2 percent pneumonia; and 20 of the sample had over 40yr of age and 23.5 percent had malaria, 14.1 percent measles, 18.3 percent diarrhea, 24.6 percent protein energy malnutrition and 17.3 percent pneumonia. The data was further subjected to chi-square analysis to see if it was significant. See table 7. This means that maternal age has no significance influence on the prevalence of early childhood diseases in Asari-toru Local Government Area.

Research Question four

What is the prevalence of early childhood diseases in Asari-toru Local Government Area based on maternal marital status? Data used in answering this research questions are presented in table 4

Table 4
Percentage Analysis of Prevalence of Early Childhood Disease Based on Maternal Marital Status

Childhood Disease	Single	Married	Divorced	Total
Malaria	47(46.1)	27(26.5)	28(27.5)	102(100)

Measles		21(32.8)	18(28.1)	25(39.1)	64(100)
Diarrhoeal Diseases		17(23.9)	19(26.8)	35(49.3)	71(100)
Protein Malnutrition	Energy	31(50.8)	14(23)	16(26.2)	61(100)
Pneumonia		28(53.8)	10(19.2)	14(26.9)	52(100)
Total		144(41.1)	88(25.1)	118(33.7)	350(100)

As show in the table 4, 102 of the sample had malaria, 64 had measles, 71 had diarrhea, 61 had protein energy and 52 had pneumonia. On the overall, the table indicates that 41.1 percent of the sample were single and 46.2 percent had malaria, 32.8 percent measles, 23.9 percent diarrhea, 50.8 percent protein energy malnutrition and 53.8 percent pneumonia; 25.1 percent of the sample were married and 26.5 percent had malaria, 28.1 percent measles, 26.8 percent diarrhea, 23 percent protein energy malnutrition and 26.9 percent pneumonia; and 33.7 percent of the sample were divorced and 27.7 percent had malaria, 39.1 percent measles, 49.3 percent diarrhea, 26.2 percent protein energy malnutrition and 26.9 percent pneumonia. This indicates that marital status did not significance influencethe prevalence of early childhood diseases in Asari-toru Local Government Area

Hypothesis 1

There is no statistical significant influence of maternal education on prevalence of early childhood diseases in Asari-toru Local Government Area.

Table 5
Chi-square Analysis of Prevalence of Early Childhood Disease Based on Maternal Education

Childhood disease	Non-formal	Primary	Secondary	Tertiary	df	X_{cal}	X_{cri}
Malaria	29(28.4)	24(23.5)	34(33.3)	15(14.7)	12	29.30	21.03
Measles	21(32.8)	18(28.1)	11(17.2)	14(21.9)			
Diarrhea Diseases	19(26.8)	25(35.2)	16(22.5)	11(15.5)			
Protein Energy Malnutrition	31(50.8)	10(16.4)	11(18)	9(14.4)			
Pneumonia	11(21.2)	24(46.2)	12(23.1)	5(9.6)			
Total	111(31.7)	101(28.9)	84(24.0)	54(15.4)			

Table 5 showed that the calculated chi-squared value (29.30) is greater than the critical chi-squared value (21.03). Thus, the null hypothesis is rejected. This implies that there exists statistical significant influence of maternal education on the prevalence of early childhood diseases in Asari-toru Local Government Area.

Hypothesis 2

There is no statistical significant influence of maternal income on prevalence of early childhood diseases in Asari-toru Local Government Area.

Table 6

Chi-square Analysis of Prevalence of Early Childhood Disease Based on Maternal Income

Childhood disease	Below 10,000 per month	11,000-30,000	31,000 – 50,000	50,000 and above	df	X _{cal}	X _{cri}
Malaria	19(18.6)	32(31.4)	37(36.3)	14(13.7)	12	22.92	21.03
Measles	18(28.1)	22(34.4)	16(25)	8(12.5)			
Diarrhoeal Diseases	26(36.6)	17(23.9)	16(22.5)	12(16.9)			
Protein Energy Malnutrition	28(45.9)	16(26.2)	10(16.4)	7(11.5)			
Pneumonia	22(42.3)	13(25)	9(17.3)	8(15.4)			
Overall	113(32.3)	100(28.6)	88(25.1)	49(14)			

Table 6 showed that the calculated chi-squared value (22.92) is greater than the critical chi-squared value (21.03). Thus, the null hypothesis is rejected. This implies that there exists statistical significant influence of maternal income on the prevalence of early childhood diseases in Asari-toru Local Government Area.

Hypothesis 3

There is no statistical significant influence of maternal age on prevalence of early childhood diseases in Asari-toru Local Government Area.

Table 7
Chi-squared Analysis of Prevalence of Early Childhood Disease Based on Maternal Age

Childhood disease	Below 20 years	21-30 years	31-40 years	41 years and above	df	X _{cal}	X _{cri}
Malaria	28(27.5)	27(26.5)	23(22.5)	24(23.5)	12	4.05 ^{NS}	21.03
Measles	21(32.8)	18(28.1)	16(25)	9(14.1)			
Diarrhoeal Diseases	23(32.4)	19(26.8)	16(22.5)	13(18.3)			
Protein Energy Malnutrition	19(31.1)	14(23.0)	13(21.3)	15(24.6)			
Pneumonia	18(34.6)	14(26.9)	11(21.2)	9(17.3)			
Total	109(31.1)	92(26.3)	79(22.6)	70(20)			

NS = Not significant at .05 level of significance

Table 7 showed that the calculated chi-squared value (4.05) is less than the critical chi-squared value (21.03). Thus, the null hypothesis is not rejected. This implies that there is no statistical significant influence of maternal age on the prevalence of early childhood diseases in Asari-toru Local Government Area.

Hypothesis 4

There is no statistical significant influence of maternal marital status on prevalence of early childhood diseases in Asari-toru Local Government Area.

Table 8
Chi-squared Analysis of Prevalence of Early Childhood Disease Based on Maternal Marital Status

Childhood Disease	Single	Married	Divorced	df	X _{cal}	X _{cri}
Malaria	47(46.1)	27(26.5)	28(27.5)	8	20.00 [*]	15.51
Measles	21(32.8)	18(28.1)	25(39.1)			
Diarrhoeal Diseases	17(23.9)	19(26.8)	35(49.3)			
Protein Energy Malnutrition	31(50.8)	14(23)	16(26.2)			
Pneumonia	28(53.8)	10(19.2)	14(26.9)			
Overall	144(41.1)	88(25.1)	118(33.7)			

= Significant at .05 level of significance

Table 8 showed that the calculated chi-squared value (20.00) is greater than the critical chi-squared value (15.51). Thus, the null hypothesis is not rejected. This implies that there is no statistical significant influence of maternal marital status on prevalence of early childhood diseases in Asari-toru Local Government Area.

Discussion of Findings

The analysis of data as shown in table 1 and 5 indicated that prevalence of early childhood diseases is highest in children of mothers who had non-formal education with a percentage of 33.7. This was followed by children of mothers with primary education of 28.9. children of mother with secondary education as tertiary education were the least affected. This can be attributed to the fact that mothers with higher education were most knowledgeable in prevention of diseases when compared to those of lower level of education.

The findings collaborated with earlier studies (Chowdhury,2003; Alam at al; 2004) who observed that higher level of material education has shown repeatedly to be positively associated with the utilization of material and child health care services. Education also empowers women to demand for more and better quality health for themselves and their children. The researchers concluded that higher maternal education might lead to more decision making power for the mother within the household. Education also increases mother's knowledge of modern health care, its effectiveness and how to apply it. Fotulile (2009) also stated that the level of education of a mother has influence on the prevalence of childhood diseases and that the educational level of mothers was an important bedrock and predominant predictor of the health of their children and health care utilization.

As shown in the table 2 and 6 indicated that the higher the income of the mothers, the lower the prevalence of childhood diseases, the lower the incomes of the mothers, the higher the prevalence of childhood disease, the chi-square analysis also revealed a significant influence of mother's income on the prevalence of early childhood diseases in Asari-toru Local Government Area. Finding supported earlier observation by Doyal (2003), that poverty makes it difficult for women to acquire adequate health care. Ndifon, and Asuquo (2004), also,opined that the reason women delay in seeking health care services for themselves and their household was caused by poverty due to low income. In support of this view Effe (2008), stated that the cost, distance and lack of knowledge are the major barriers to health care for the poor as well as cultural factors such as the need to obtain permission from their spouses before seeking treatment.

The data analysis as shown 3 and 7 indicated a non-significant influence of maternal age on the prevalence of early childhood diseases. This finding supports that of Makonna (2005), who observed that age does not significantly influence the utilization of health care services by mothers. The study stated that in Ethiopia the younger are group patronizes health care services more for themselves and their household. The finding is rather contrary to that of Nwakoby (2004) who found that the

older a mother's age is she likely to utilize child health care services, as it may sometimes serve as proxy for her accumulated knowledge of child care.

The data analysis shown in tables 4 and 8, maternal marital status did not significantly influence the prevalence of early childhood diseases. These support the earlier findings of Adamu and Slihu (2002) and Vanketesh, Umakanth&Yurary, (2005), who observed that married women most times need to take permission from their husbands before they can access health care services for themselves and their household, especially in the Islamic world where the women are kept in pudah and depend on their husband's decision and wish before they can avail themselves and their children to maternal and child health care services even in an emergency.

Conclusion

Based on the findings of this study, it was concluded that maternal education and income significantly influences the prevalence of early childhood diseases in Asari-toru Local Government Area of Rivers State, while maternal age and maternal marital status does not significantly influence the prevalence of early childhood diseases.

Recommendations

1. Government and relevant agencies should improve the circumstances in which people are born, grow, live, work and age, through formulating good policies and implement same.
2. Government and relevant agencies should tackle the inequitable distribution of power, money and resources, which are the structural driver of economy of daily life.
3. Provision of quality education, decent housing, access to affordable health care, access to healthy food and safe places for everyone despite group influence.
4. Expansion of knowledge of the social determinants of health, including among health care workers through health education, can improve the quality and standard of care for people who are marginalized, poor or living in developing nations by preventing early death and disability while working to improve the quality of life.
5. Government, non-governmental organization, and related agencies must ensure provision and access to clean drinking water to improve sanitation.
6. Provision and enforcement of immunization against infectious disease by relevant authorities.

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