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MATERNAL SOCIOECONOMIC STATUS AND CHILD HEALTH IN NIGERIA: EVIDENCE FROM EKITI STATE.

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ABSTRACT

We examine the impact of the socio-economic status of mothers on child health in Nigeria regarding Ekiti State. The research employed a cross-sectional research design method where data were collected randomly in the selected unit of population. The sample size was determined following the sample size determination proposed by Taro Yamane to be 400 mothers between the ages 18-56 years, with a sampling error of 5 percent and the confidence level assumed to be 95%. Data were collected using structured questionnaires with a ratio of 3:2 i.e, 60% to relative urban and 40% to relative rural areas. The study adopts the logistic regression technique. The findings show that maternal occupation and income raise the odds of under-five children contracting malaria, while raise in maternal education of a child, in both conventional and child/health education are less likely to experience malaria. The study recommends that mothers are encouraged to be more committed and/or active in participating in childcare activities to reduce the vulnerability of the children to the malaria parasite.

KEYWORDS: socioeconomic status, maternal, logistic regression, child health, malaria

INTRODUCTION

Despite the advances in universal immunization and oral hydration therapy, diverse government intervention programs and the availability of natural resources that can be used to generate income to boost the standard of living of the people, the morbidity and mortality rate of children in some parts of African countries are still alarming. Therefore, special attention needs to be paid to the maternal socioeconomic status because a child caretaker is usually a mother (Lisa, Usha, Aida Lawrence and Reynaldo, 2003) and the overall position of women has a key role to play in the progress of a nation (Sam, 2014). Furthermore, the present status of child health determines how

healthy the labour force of a nation will be in the future because it has futuristic effects on the productivity of an individual in adulthood (Yashim, 2014). Also, its contribution to economic growth cannot be overestimated. Anyanwu et al (2007), stated that "health is indeed closely intertwined with economic growth and sustainable development".

Nigeria was ranked the second largest contributor to the child mortality rate in the world with 2300 deaths every single day in 2013 (UNICEF as cited by Abiola, 2013). Meanwhile, 70% of the estimated deaths were caused by infectious diseases that are curable and preventable. Ochiawunma (2002), affirmed that child survival in Nigeria is threatened by nutritional deficiencies and illnesses such as malaria, diarrhea, vaccine-preventable diseases (VPD), and acute respiratory diseases (ARI). The Federal Government of Nigeria made a concerted effort towards the control of malaria among the under-five children and pregnant women by developing the National Malaria Control Strategic Plan 2000-2005, 2006-2010 which focused on the distribution of insecticide treated nets and Artemisinin Combination Therapy (ACT), etc. Anthony, Chukwudi, Agwu, Godwin, Comfort, Iea, and Tenny (2016), But as stated in Millennium Development Goal endpoint status 2015, there are rapidly rising cases of malaria. 11% of maternal mortality and 30% of hospitalization among under-five children was attributed to malaria cases with the highest prevalence of close to 50% in children aged 6-59 months in the South-West. Also, despite the nationwide distribution of insecticide-treated net, only 38.9% of children sleep under it as of 2015. Although, the underlying risk factors of child morbidity and mortality were attributed to family poverty, illiteracy, overcrowding, unsafe drinking water, and unsanitary sanitation habit (Ezeonu, Chima, Oguonu, Ikefuna, and Nwafor, 2014). In addition, children of mothers with little or no education and those born into families in the lower wealth quintiles were less likely to receive care or treatment for malaria or fever (Nigeria Demographic Health Survey, 2013). The objective of this study is to investigate the impact of maternal socioeconomic status and sanitation-related environmental factors on child health in Ekiti-state, Nigeria. The rest of the paper is organized as follows: Section II presents a short revision of the main literature; Section III presents the methodology; Section IV examined the main findings of the research in Ekiti State. Finally, Section V is based on the conclusions and policy recommendations.

LITERATURE REVIEW

Socio-Economic Status (SES) is the placement or position of an individual, family, or household within a hierarchical social and economic structure. According to the American Psychological Association SES comprises quality of life attributes with opportunities and privileges afforded to people within the society. It affects all areas of human functioning both physical and mental health. Low SES indicators in the life of an individual ultimately affect societal performance and widening health inequalities. The complex interplay of social and economic factors dictates the standard of

living and command of consumption activities of a person. These factors include occupation, education, income, wealth, health, and contact with the criminal justice system among others. Several studies have investigated variations in the outcome of socioeconomic, health nexus. Mugo (2012), analyzed the impact of parental socioeconomic status on child health outcomes in Kenya focusing on maternal labour force participation, the study showed that maternal labour force participation exhibited an insignificant positive effect on child health. Adeolu et al (2016), investigated environmental and socioeconomic determinants of child mortality in Nigeria with data on Nigeria demographic and health survey of married women who had experienced child mortality and those who have not. Their report showed that the mortality rate was more rampant among mothers with no education and lowest among mothers with tertiary education, in addition, child mortality tends to increase steadily with family size. Therefore, their findings pointed out that, maternal education and hygiene environments are prerequisites to reducing the child mortality rate in Nigeria. Yashim (2014) examined the impact of health investment on child mortality in the ECOWAS region. Among the indicators observed are maternal literacy and per capita income which exhibited a negative relationship with child mortality. Also improved sanitation and improve water sources has a positive and negative relationship with child mortality respectively.

Case, Daren, and Paxson (2002), the report showed that long-run income (Permanent Income) determined health investment and health status at different ages, and suggested that children's health status is most closely associated with the household permanent income and the impact becomes largest the older is the child. Broadway, Kalb, Kuohnle, and Maeder (2015), evaluated the effect of paid parental leave (income level) on child health in Australia. The study showed that paid parental leave eligibility/rights reduce the tendency of a child prone to unwanted health challenges. Meaning that paid parental leave might have financial access to health facilities reduce the problem of children having multiple controllable health difficulties. Furthermore, the paid parental leave or income helps children with the lower socioeconomic background to access equally with highly educated parents with high income the same health facilities. Orimadegun and Ilesanmi (2015) examined the perceptions, prevention, and treatment practices for childhood malaria by mothers in rural communities of Ise-Orun, Nigeria. The study showed that lack of formal education was the only predicted factor of poor malaria perception while treatment of malaria by some parents was attributed to the high cost of accessing health facilities in their domain which resulted in the adoption of home self-medication, local herbal remedies, and orthodox medicine. Amoran, Owumbe, Salami, and Martin (2014), investigated the influence of environmental sanitation on the prevalence of malaria in a rural town in southwestern Nigeria, with the report that regular cleaning of habitation environment was statistically significant with the prevalence of malaria while the knowledge of the environmental impact of malaria and malaria transmission was not significantly associated with malaria prevalence.

The study concludes that regular household cleaning is associated with the prevalence of malaria infection in the household of rural areas of Nigeria.

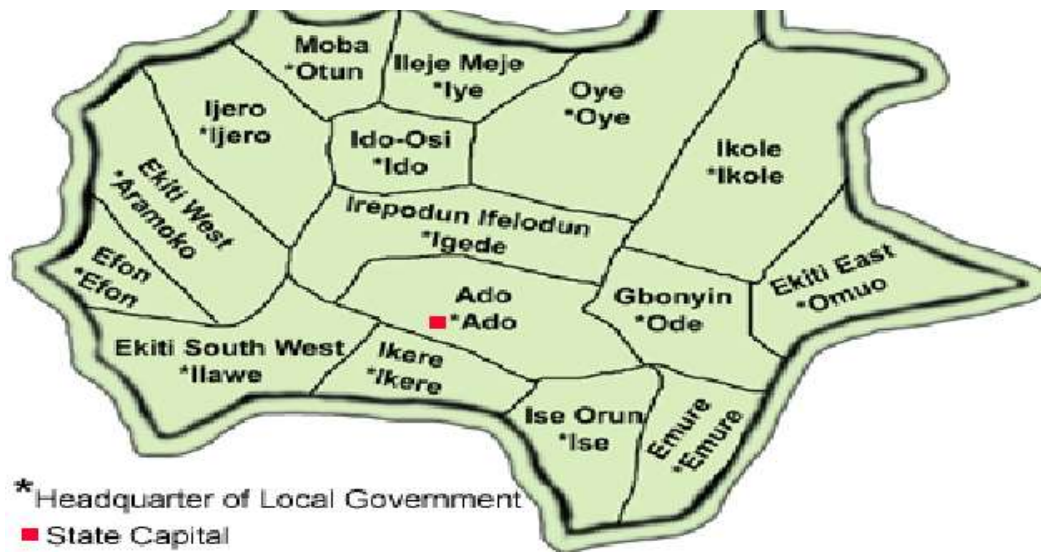
METHODOLOGY

The theoretical spine for this work followed the concept Germano, (2008) and Kanjana, (2012) framed that child health is embedded and determined by mother's utility-maximizing behaviour, as shown in Grossman's (1972), "the basis of individual health production studies" the theory of health capital and demand for health care. According to Jacobson (2000), an individual can temporarily derive utility from the health status of his or her child by using both market and non-market or behavioural input in the production of a child's health.

STUDY AREA

The survey was carried out in Ekiti State using six local government areas from the three senatorial districts of the state, namely Ikole, Ilejemeje, Ekiti West, Irepodun Ifelodun, Emure, and Ekiti South West. The headquarters of each of the six local government areas namely; Ikole, Iye, Aramoko, Igede, Emure, and Ilawe were used as the proxy for relative urban from the three senatorial districts while some other villages from the local governments; Ayebode, Iludun, Ido Ile, Eyio, Eporo, and Ogotun represent relative rural. This is due to the higher availability of accessible health facilities and a higher population at the local government headquarters and less in the rural areas.

The figure, 1.1 shows the Map of Ekiti State Nigeria



Research Design and Population

The research design used in this study is a cross-sectional research design method where data were collected randomly in the selected unit of population. The study adopts this because it allows identified groups in the survey to be purposely selected and provides useful data for simple static description and interpretation. (Babbie, 2010).

According to the National Population Commission projection for local governments as of 2016, the population of Ekiti West was 244,900, Ikole was 232,300, Emure was 128,500, Irepodun/Ifelodun was 179,100, Ilejemeje was 59,300 while Ekiti Southwest was 225,100. The total population of the six areas is 1,069,200. NBS, (2014).

Sample Size and Sample Techniques

This study is based on a sample survey technique which is the kind of survey in which data are collected for only a part of the unit of the population. According to the 2016 National Population Projection, Ekiti State has a population of 3.2 million. The sample size was determined using the formula for sample size determination as proposed by Taro Yamane with a sampling error of 5 percent and the confidence level assumed to be 95%. The questionnaires were shared at the ratio of 3:2 i.e, 60% to relative urban and 40% to relative rural areas.

$$n = \frac{N}{1 + N * e^2}$$

Therefore,

$$n = \frac{1069200}{1 + (1069200 * 0.05^2)}$$

$$n = 169200/2674$$

$$n = 399.85 \approx 400$$

3.7 Model Specification

To achieve the stated objectives of this study, logistic regression models were adopted in line with Edward, Aaron, and Eric (2012). Therefore, the empirical model specifications are as follows:

$$h_{ij} = \alpha + \sum_{i=1}^4 \beta_i Y_{ij} + e_i \dots \dots \dots (1)$$

$$P_{ij} = \frac{e^{X_{ij}}}{1 + e^{X_{ij}}} \dots \dots \dots (2)$$

If the probability of a child having an infection is given as;

$$1 - P_{ij} = \frac{1}{1 + e^{X_{ij}}} \dots \dots \dots (3)$$

And the probability of not getting infected is;

$$\frac{P_{ij}}{1 - P_{ij}} = e^{X_{ij}} \dots \dots \dots (4)$$

Therefore, the ratio of equation seven and eight is;

$$\ln \frac{P_{ij}}{1 - P_{ij}} = X_{ij} \dots \dots \dots (5)$$

Taking the natural log of equation five;

Where $X_{ij} = F(Y_{ij}, Z_{ij}, B_{ij})$

X_{ij} - are factors that can affect child health which are maternal socioeconomic factors, sanitation and air related environmental factors.

$\frac{P_{ij}}{1 - P_{ij}}$ - is the odd ratio of a child having an infection.

This is therefore translated to econometrics equation

$$ch = \alpha + \beta_1 inc + \beta_2 hin + \beta_3 edu + \beta_4 occ + e_i \dots \dots \dots (6)$$

Where h_{ij} is ch which represents the health status of the i th child of the J th mother. It is a dichotomous indicator of if a child experiences malaria/pneumonia or not. The vector Y_{ij} are maternal socioeconomic status determinants which include inc for maternal income; hin for husband's influence on mother's decision on child health; edu for maternal education, and occ for maternal occupational status. α and β_i are the intercept, regression coefficient, and the vector of unobserved variables.

FINDINGS

This section presents the empirical analysis of the impact of maternal socioeconomic status and on child health in Ekiti State, Nigeria.

Table 1.1 shows the logistic regression result of the impact of maternal socioeconomic status on child malaria.

Independent variable	Coefficients	Odd ratio	Std. Error	z-Statistic	Probability
Maternal income	0.385262*	1.469999	0.129622	2.972205	0.0030
Husband influence	-1.001603*	0.367290	0.376507	-2.660251	0.0018
Maternal Education	-0.952756*	0.385677	0.273261	-3.486621	0.0005
Maternal occupational status	1.952057*	7.043160	0.246724	7.911929	0.0000
Constant	2.981909*	19.725437	1.052774	2.832430	0.0046
LR statistics	97.42401				
Pseudo R-Square	0.194768				
LR (Probability)	0.0000				

Source: Computation result. * Represents significance at 5%

From the result, the slope coefficient indicates that a unit increase in maternal income increases the log of odds of a child experiencing malaria by 0.39units and a unit change in maternal occupational status raises the log of odds of the child experiencing malaria by 1.95unit. While the log of odds of the occurrence reduces by 1.00unit and 0.95unit as mother's decisions on child health are influenced by husband and maternal education increases respectively.

The exponent (Exp) of the slope coefficients reveal that if there is an increase in maternal income, about 46.9% $[(1.469-1) \times 100]$ of the children are more likely to suffer from malaria. Also, children whose mother has an occupation are more than seven times as likely to experience malaria while the children are less likely to experience malaria by 61.4% $[(0.3673-1) \times 100]$ and 63.3% $[(0.3857-1) \times 100]$ when mother's decisions on child health are influenced by husband and maternal education becomes higher respectively. Meanwhile, all the predictors exhibit a significant relationship. The LR statistics follow the Chi-Square

distribution which is 97.424 and the LR probability implies that the variables are jointly significant at a 5% level of significance.

Maternal Socio-economic Status and Child Pneumonia

Table 2 shows the logistic regression result of the impact of maternal socioeconomic status on child pneumonia.

Independent variables	Coefficient	Odd ratio	Std. Error	z-Statistics	Probability
Maternal Income	-0.478116*	0.619950	0.209937	-2.277425	0.0228
Husband's influence	0.009236	1.009279	0.452917	0.020392	0.9837
Maternal Education	-0.217506	0.804523	0.270768	-0.803292	0.4218
Maternal occupational status	0.732745*	2.080785	0.328150	2.232960	0.0256
Constant	-0.843593	0.430162	1.041598	-0.809903	0.4180
LR statistics	19.18682				
Pseudo R-Square	0.065865				
LR (Probability)	0.000722				

Source: Author's computation. * represents significance at 5%

Based on the above result the slope coefficients depict that a unit increase in maternal income and maternal education decreases the log of odds of a child experiencing pneumonia by 0.48units and 0.22unit and a unit change in husband influence on mother's decision and maternal occupational status increases the log of odds of a child suffering from pneumonia by 0.01unit and 0.73unit respectively.

The odd ratio result implies that if there is an increase in maternal income and maternal education the children are less likely to suffer from pneumonia by 38.0% $[(0.6199-1)\times 100]$ and 0.20% $[(0.8045-1)\times 100]$ and on average 0.09 % of the Children are more likely to experience pneumonia when mother's decisions on child health are influenced by husband. Also, children whose mother has an occupation are more than twice as likely to suffer from pneumonia. But both maternal income and maternal occupational status

exhibit significant relationships. The LR statistics follow the Chi-Square distribution which is 19.187 and the LR probability implies that the variables are jointly significant at a 5% level of significance.

DISCUSSION

Investigation on the impact of maternal socioeconomic status on child malaria results showed that if the mother has an occupation under five children are more likely to experience malaria. This might be as a result of the time required by the mother's occupation because spending more time at labour work increases income but reduces household activities directed towards the production of household commodities which include healthy children. This is in confirmation with the household production theory and the study of Adeolu et al (2016). Also, like maternal education increases, especially in the area of child/health education, therefore, children are less likely to experience malaria. Furthermore, higher maternal income raises the odds of a child contracting malaria. This may be attributed to the fact that increasing income without health knowledge is not a sufficient means of reducing child health problems (Todaro and Smith, 2011). In addition, when the husband influences the mother's decision towards child health improvement, the children are less likely to experience malaria which may be due to the socioeconomic status of the husband. Meanwhile, all the variables exhibited a significant impact on the occurrence of malaria in under-five children.

CONCLUSION AND POLICY RECOMMENDATION

Based on the findings in this study, this study concludes that an increased odds of an under-five child experiencing malaria is linked to the occupational status of the mothers in which most parents spent their productive hours on the conversional or official jobs in Ekiti state and increase in mother's income may not likely reduce the presence of malaria symptoms in the children while mother's education lowers the odds of the occurrence. The study recommends that women are encouraged to be more committed and/or active in participating in childcare activities, also, policy intervention aimed at paid parental leave should be extended for mothers with children under five years to enable them to have enough time at their disposal for childcare.

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