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Perceived Impact of Women's Education Level on Maternal Health Service Utilization among Married Nursing Mothers in Okigwe Zone of Imo State, Nigeria

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Abstract

The study examined the perceived impact of women's education on the maternal health outcome among expectant mothers in Okigwe zone of Imo State. Three hypotheses based on the following variables: antenatal care services, use of skilled birth attendants, and awareness and management of pregnancy-related complications were raised and tested. A cross-sectional survey design was employed for the study. Population of the study comprised of all expectant mothers attending antenatal care services in Okigwe Zone. The study sample consisted of 365 participants selected using a multi-stage sampling procedure. The instrument used for data collection was a structured questionnaire. The questionnaire was reviewed and validated by three experts in public health education, and their feedbacks led to necessary modifications in language clarity, question relevance and construct alignment. The instrument was trial-tested on 20 expectant mothers at different hospital not included in the study sample. The internal consistency reliability was established using Cronbach's alpha, which yielded a coefficient of 0.82. Data analysis was done using frequency, percentage, Pearson correlation (r), and chi-square statistics set at .05 alpha level. The results showed all the three hypotheses were statistically significant. The results were obtained: antenatal care services ($p < .05$); skilled attendants ($p < .05$) and awareness and management of pregnancy-related complications ($r = 0.74$). The study proves that education is a key determinant of maternal health, influencing women's knowledge, empowerment, and access to healthcare. However, Government and agencies should institute deliberate long term measures to improve girl child education, especially maternal education in order to improve on reproductive health indicators among other aspects.

Keywords: Perceived impact, Women's education, Maternal health, Expectant mothers, Okigwe Zone

Introduction

Educational is widely acknowledged as a powerful social determinant of health that influences every aspect of human development. It involves a trajectory of activities that focus on imparting and acquiring knowledge through teaching and learning, especially at schools or similar institutions (World Health Organization [WHO], 2016). Education could be formal or informal. Formal education is in a structured system using curricula that is classroom-based and provided by trained tutors, while informal education is outside this structured system. Such places outside this structured system include those at home with parents, community-based and religious bodies (Abimbola et al., 2022). According to the Organisation for Economic Co-operation and Development [OEC], 2021), education, therefore, can be defined as the the process through which individuals acquire the knowledge, skills, attitudes, and values needed to thrive in an interconnected, rapidly changing world".

Educational attainment has been recognized as a strong social determinant of health for quality of life (WHO, 2019). Moreover, education can reshape life by influencing social and psychological factors like greater perceived personal control which has been associated with better physical and mental health (Khalema et al., 2023). Education is not just about what is erudite in the classroom; it is additionally about the entryways of the other factors later in life that contribute to future health and wellbeing. Further access to education unlocks the better opportunity in employment and housing and promotes the healthy behaviours of individuals (Besi & Alva, 2019). Impact of education on health shows mostly in two ways; first of all, education facilitates women to learn specifically about their own body and health; and secondly, the educational practice provides information and realistic thinking that allows them to practice a healthy lifestyle. Education is also associated with health literacy. Health literacy is the understanding people encompass about their wellbeing and how to access general health care services and health information (Andriano & Morden, 2019).

Female education is the key factor to improve the overall health and hygienic conditions of any nation (Ogueri, 2025). World Health Organization (WHO, 2015) asserted that knowledge the knowledge acquired through education is a pre-requisite for any health action. The organization maintained that many of the ailments' people suffer from are to large extent, self-influenced by anti-health practices due to lack of education. The United Nations Educational, Scientific and Cultural Organization (UNESCO) (2019) indicated that an educated, informed and knowledgeable person is one who understands among other things, the basic facts concerning health and diseases, protects his or her health and that of his or her dependents.

Female education encourages people to be healthy, to know how to stay healthy, to do what they can individually and collectively to maintain health and seek help when needed (WHO, 2019). It also changes behaviour pattern of mothers and help to promote health, prevent illness, cures diseases and facilitate rehabilitation. Moreover, apart from acquisition of knowledge and values conducive to social development, female education facilitates the expansion of logical and critical thinking by breaking away from old altitudes, beliefs and practices; encouraged to accept newer approaches regarding healthcare procedures, which lead to healthier outcomes for their children (Veneman, 2022). Khalema et al. (2023) submitted that maternal health can help one avoid high parity, attend antenatal and postnatal services more frequently, prefer healthcare clinics with trained birth attendants, have more understanding of physiology of human reproduction, and so more disposed to understanding the complications and the risks of pregnancy. In general, maternal education emerges as the single most significant predictor of utilization of maternal and child healthcare services.

In the same vein, higher level of maternal education result in improved child survival to a substantial extent because preventive health services are used to a greater extent by mothers with higher education than those with little or no education (Guma et al., 2019). Basu and Stephenson (2023) affirmed that women with less education want more children, get married earlier and less likely to use modern contraceptive than those with more education; and utilize more modern means of safeguarding their own health and that of their children.

Maternal health is an integral part of the total healthcare programme which forms bulk of any community health programme for health maintenance especially in developing countries such as Nigeria where women and children constitute around 65 per cent of the population. The WHO (2019) asserts that maternal and child health services are those, which ensures that every expectant nursing mother and the child maintain good health, mothers learn the act of childcare and expectant mothers have normal delivery and bear healthy children. In other words, it is the promotive, preventive, curative and the rehabilitative

healthcare of mothers and children up to pre-school age. Basically, the women and the child are two inseparable entities whose health is related, and this is why the health services such as maternal and child health care services are linked.

Female education encourages people to be healthy, to know how to stay healthy, to do what they can individually and collectively to maintain health and seek help when needed (WHO, 2019). In the same vein, Bhowmik et al. (2020) submitted that educated women avoid early marriage, teenage pregnancy, high parity, attend antenatal and postnatal service more frequently than the illiterate's ones who preferred maternity homes with traditional birth attendants, have more understanding of physiology of human reproduction and so are more disposed to understand the complications and risks of pregnancy than illiterate ones. In general, maternal education emerged as the single most significant prediction of utilization of maternal child health services.

Similarly, educated women are better able to break away from tradition to utilize modern means of safeguarding their own health and that of their children, and benefit of maternal education persists even when other socio-economic factors are considered (Gakidou et al., 2020). In the same vein, Mensch et al. (2019) observed that higher levels of maternal education substantially improve child survival, largely because mothers with higher educational attainment make greater use of preventive health services than those with little or no formal education. However, Basu and Stepheson (2023) affirmed that women with less education want more children, get married earlier and less likely to use modern methods of contraception that those with more education.

It is estimated that each year, approximately one-third of a million women worldwide die due to pregnancy-related conditions (United Nations' Children Fund [UNICEF], 2019), 99% of these deaths occur in developing countries like Nigeria and approximately three-quarters of them are considered avoidable (WHO, 2019). Despite numerous efforts by governmental and non-governmental organizations to promote maternal health and education in Imo State, maternal morbidity and mortality remain significant. The persistence of these outcomes suggests that education alone may not automatically translate into better maternal health practices. It is unclear whether the content, quality, and relevance of education adequately equip women with actionable maternal health knowledge. Moreover, contextual barriers such as cultural norms, patriarchal decision-making structures, and economic constraints may moderate the education-health relationship.

Hence, there is a pressing need to empirically investigate how education impacts maternal health among expectant mothers in Imo State. Understanding this dynamic will guide policymakers and health practitioners in designing interventions that bridge the gap between education and practical health behaviour. Despite numerous efforts by governmental and non-governmental organizations to promote maternal health and education in Imo State, maternal morbidity and mortality remain significant. The persistence of these outcomes suggests that education alone may not automatically translate into better maternal health practices. It is unclear whether the content, quality, and relevance of education adequately equip women with actionable maternal health knowledge. Moreover, contextual barriers such as cultural norms, patriarchal decision-making structures, and economic constraints may moderate the education-health relationship.

Hence, there is a pressing need to empirically investigate how education impacts maternal health among expectant mothers in Imo State. Understanding this dynamic will guide policymakers and health practitioners in designing interventions that bridge the gap between education and practical health behaviour. Hence, we need to understand the reason for poor utilization of these crucial maternal services. It is for this purpose, that the study

examines the impact of women's education on maternal health among nursing mothers in Okigwe Zone of Imo State, Nigeria.

Specifically, the objectives were to investigate the perceived impact of women's education (non-formal, primary, secondary and tertiary education) on maternal health (during antenatal, skilled assistance at the place of delivery and postnatal care) among married nursing mothers in Okigwe Zone of Imo State. The study provided answers to the following hypotheses.

1) There is no significant perceived impact of education level on antenatal care attendance among married nursing mothers in Okigwe Zone.
2) There is no significant perceived impact of education level on the use of skilled birth attendants among expectant mothers in Okigwe Zone, Imo State.
3) There is no significant perceived impact of education level on awareness and management of pregnancy-related complications among expectant mothers in Okigwe Zone, Imo State.

The study was limited to the perceived impact of women's education level on maternal health service utilization (during antenatal, skilled assistance at the place of delivery, and awareness and management of pregnancy-related complications) among expectant mothers in Okigwe Zone of Imo State, which comprise of six local government areas.

Methods

A cross-sectional household survey design was used for the study. The target population comprised all expectant mothers attending antenatal care services in Okigwe Zone during the study period. A sample size of 396 expectant mothers was drawn using Cochran formula for sample estimation in cross-sectional studies (Cochran, 1977), allowing for a 95% confidence internal and a 5% margin of error. A multi-stage sampling procedure was employed to select participants. In the first state, the six local government areas of Okigwe zone served as strata for proportional representation. In the second stage, three autonomous communities were randomly selected from each local government area (one urban, one semi-urban and one rural area) within each selected autonomous community. In the third stage, within each selected autonomous community, two health facilities, one public and one private were chosen. Finally, within each facility, 11 expectant mothers attending antenatal clinics on clinic days during the study period were selected to participate until the required sample size was reached, using convenience sampling technique. The instrument for data collection was a structured questionnaire titled "Perceived Impact of Women's Education and Maternal Health Questionnaire (PIWMHQ). The questionnaire was developed by the researchers based on relevant literature. The questionnaire was reviewed and validated by three experts in public health education, and their feedbacks led to necessary modifications in language clarity, question relevance and construct alignment. The instrument was pretested on 20 expectant mothers at different hospital not included in the study sample. The internal consistency reliability was established using Cronbach's alpha, which yielded a coefficient of 0.82. Data were collected over a four-week period using a direct administration approach. The researchers and trained research assistants visited the antenatal clinic during scheduled clinic days. Questionnaires were distributed to consenting mothers after receiving information about the study's purpose, procedures, and confidentiality. Participants were assisted in completing the questionnaire where necessary. Data collected were coded and analysed using the Statistical Package for the Social Sciences (SPSS) version 27.0. Descriptive statistics such as frequency and percentage were used to summarize the data. Inferential statistics including chi-square test to examine the association between mother's education and utilization of

maternal health care services and Pearson's Correlation co-efficient to assess the relationship between educational level and maternal health outcomes. All hypotheses were tested at 0.05 level of significance.

Results

Table 1: **Education Level and Antenatal Care Attendance among Expectant Mothers (n=365)**

Education Level	Regular ANC Attendance (%)	Irregular ANC Attendance (%)	No ANC Attendance (%)
No Formal Education	42.9	44.1	13.0
Primary Education	63.8	28.7	7.5
Secondary Education	81.6	16.4	2.0
Tertiary Education	92.4	7.6	0.0

ANC attendance ($\chi^2 = 28.76$, $p \leq .05$).

A Chi-square test revealed a significant relationship between educational attainment and ANC attendance ($\chi^2 = 28.76$, $p < .05$). The data indicate that the likelihood of consistent ANC attendance increases with higher education levels. The result shows that women with tertiary education (92.4%) were most likely to attend regular antenatal care, while those with no formal education had the lowest attendance rates (42.9%). This implies that education enhances women's awareness and appreciation of the importance of antenatal care.

Table 2: **Education Level and Use of Skilled Birth Attendants (n= 365)**

Education Level	Skilled Attendant (%)	Traditional Birth Attendant (%)	Self/Family (%)
No Formal Education	33.3	55.6	11.1
Primary Education	58.3	35.0	6.7
Secondary Education	79.1	17.6	3.3
Tertiary Education	93.4	6.6	0.0

($\chi^2 = 31.42$, $p \leq .05$)

A Chi-square test indicated a significant association between education and the use of skilled birth attendants ($\chi^2 = 31.42$, $p < .05$).The results indicate that as educational attainment increases, so does the use of skilled birth attendants. Among women with tertiary

education, 93.4% delivered under skilled supervision, compared to only 33.3% among those without formal education.

Table 3: **Education Level and Awareness of Pregnancy Complications (n = 365)**

Education Level	High Awareness (%)	Moderate Awareness (%)	Low Awareness (%)
No Formal Education	27.5	33.0	39.5
Primary Education	48.7	35.6	15.7
Secondary Education	68.2	26.0	5.8
Tertiary Education	89.1	10.9	0.0

($r = 0.74$, $p \leq .05$)

The Pearson correlation analysis showed a strong positive correlation between education level and awareness of pregnancy complications ($r = 0.74$). This result implies that education plays a critical role in increasing maternal health literacy. Women with tertiary education demonstrated the highest awareness levels, suggesting that education improves comprehension of medical advice, reading of health materials, and interpretation of public health campaigns.

Discussion

This section discusses the findings of the study on the perceived impact of women's education on maternal health among expectant mothers in Okigwe Zone of Imo State, in relation to the three hypotheses, and previous empirical studies.

The findings in Table 1 revealed a strong and positive relationship between educational attainment and utilization of maternal health services. The Chi-square analysis confirmed that this relationship was statistically significant. Women with higher levels of education, particularly those with tertiary education, demonstrated greater consistency in attending antenatal care (ANC) and completing the recommended number of visits compared to women with low or no formal education. This finding supports the assertion that education enhances maternal health-seeking behavior by increasing awareness, comprehension, and appreciation of health information. Educated women are more likely to understand the importance of antenatal care, recognize early warning signs of complications, and comply with medical advice (Babalola et al., 2021; Eze & Nwosu, 2021). It also aligns with the Social Determinants of Health framework (Solar & Irwin, 2010), which posits that education serves as a fundamental structural determinant influencing access to and utilization of health services. The implication is that education not only improves literacy but also fosters a culture of preventive health behavior, where women actively seek medical care rather than respond reactively to health crises. This finding is consistent with Kassa et al. (2020), who reported similar patterns in Ethiopia and Kenya, where educated women exhibited higher ANC attendance rates and better adherence to medical schedules.

The result in Table 2 found that women's educational level significantly influenced their choice of delivery assistance. The Chi-square test indicated a statistically significant

association between education and utilization of skilled attendants. A majority (of women with tertiary education delivered with skilled birth attendants, compared to only 33.3% of women without formal education. This finding reinforces the role of education as a catalyst for informed decision-making during childbirth. Educated women are more aware of the dangers associated with home deliveries and traditional birth attendants, such as hemorrhage, infection, and obstructed labor, and therefore opt for institutional deliveries (Adewuyi et al., 2020). It also reflects the Health Belief Model (Rosenstock et al., 1988), which emphasizes that individual who perceive greater benefits and fewer risks in medical care are more likely to adopt healthy behaviors. The result aligns with studies in Nigeria and Ghana, where higher education levels were associated with higher utilization of skilled birth services (Fekadu et al., 2021). However, despite this positive trend, some women with moderate education (secondary level) still preferred traditional attendants, indicating that educational attainment must be complemented with health education and cultural sensitization to fully influence behavior. Thus, while education strongly predicts safe delivery practices, it operates within a broader socio-cultural environment where access, affordability, and cultural norms may either reinforce or inhibit its effects.

The result in Table 3 revealed a strong positive correlation between educational level and awareness of pregnancy-related complications. Women with tertiary education exhibited high levels of knowledge about conditions such as hypertension, anemia, pre-eclampsia, and postpartum hemorrhage. Conversely, uneducated women demonstrated limited awareness, often attributing complications to cultural or spiritual causes rather than medical factors. This finding corroborates the assertion by UNESCO (2021) that health literacy—an essential product of education is critical to the prevention and management of maternal health risks. Educated women possess the cognitive ability to process and apply health information, adhere to treatment regimens, and seek timely medical assistance. Moreover, the result aligns with the findings of Adewumi and Okafor (2020), who observed that awareness of pregnancy complications significantly increases with years of schooling. Education therefore functions as a mechanism of empowerment, enabling women to exercise agency over their health decisions and mitigate preventable maternal complications. This also supports the Health Belief Model, which posits that individuals with higher perceived susceptibility and knowledge about health risks are more likely to take preventive action. The implication is that educational interventions that integrate maternal health literacy both in formal and non-formal education can substantially reduce maternal mortality in Okigwe zone of Imo State.

Conclusion

Based on the results of the study, it was concluded that there a strong positive between mothers' educational attainment and utilization of maternal health services. Education also greatly influenced the likelihood of using skilled attendants during delivery, and awareness and management of pregnancy-related complications increased with a higher educational level. However, Government and agencies should institute deliberate long term measures to improve girl child education, especially maternal education in order to improve on reproductive health indicators among other aspects. The community needs to be sensitized on negative effects of traditional practices and efforts to reduce it need to be pursued. The need for the government to prioritize improvement of infrastructure in the State. There is the need to sensitize the community about benefits of skilled care during antenatal, delivery and postnatal care services.

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