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Influence of Maternal Health Literacy on Healthy Pregnancy and Pregnancy Outcomes of Women Attending Public Hospitals in Ibadan, Oyo State, Nigeria

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Mojoyinola, J.K. **-** Department of Social Work, Faculty of Education, University of Ibadan, Nigeria
E-mail: jkmojoyinola@yahoocom
Mobile Phone No: +2348034670349

Abstract

The present study investigated the influence of maternal health literacy on healthy pregnancy and pregnancy outcomes. It was carried out among 231 pregnant women and nursing mothers using the descriptive survey research design of the expost-facto type. Three hypotheses were tested by using pearson product moment correlation. The study established that there were significant relationships between maternal health literacy and antenatal care (r = .445, df = 229, p<.05) and healthy pregnancy (r = .367, df = 229, P<.65). However, it established that there was no significant relationship between maternal health literacy and pregnancy outcomes (r = .006, df = 229, P> .05). Based on the above findings it was recommended that, the health care-givers should encourage the pregnant women and nursing mothers to enroll in adult education programmes to improve their level of literacy, and become better educated on what to do when they perceive danger signs during pregnancy.

Key words: Literacy, Health Literacy, Maternal health literacy, Healthy pregnancy, Pregnancy outcomes, Public hospitals.

Introduction

Literacy refers to capacity to read, read and have basic numeric skills (the three Rs'). However, it has moved away from this simple definition to one that accounts for complexity, culture, individual empowerment and community development (Kickbusch, 2001). In health care settings, literacy is regarded as health literacy, which refers to the ability to read, understand and act on health care information, or capacity to obtain, interpret and understand basic health information and services to enhance health.

Health literacy means more than being able to read pamphlets and successfully make appointment. By improving people's access to health information and their capacity to use it effectively, health literacy is critical to empowerment (Nutbeam 2000). In the area of physical health, examples of health literacy include knowledge and use of a healthy diet, taking actions to prevent skin cancer, performing breast examination, having first aid skills and knowing how to look up health information in a library or on the internet (Jorm, 2000). In obstetric and gynaecology health literacy is in form of maternal health literacy, which is a skill to diagnose the dangerous symptoms of the pregnancy period, the method of a healthy life and the suitable nutrition in pregnancy period (Kohan, Ghasemi and Dodangesh, 2007).

According to Renkert and Nutbeam (2001), maternal health literacy can be defined as the cognitive and social skills which determine the motivation and ability of women to gain access to understand, and use information in ways that promote and maintain their health and that of their children. Maternal health literacy and some cognitive skills are required for healthy maternity and pregnancy outcomes. These include ability to detect risk factors and taking actions for healthier life style and better nutrition during pregnancy (Kohan et al 2007).

Maternal health literacy is enhanced by antenatal education, which focuses attention on facts surrounding pregnancy, labour and baby care skills (Renkert and Nutbeam 2001). It also provides opportunity for women to learn a range of options for pain management and obstetric interventions. Its contents prepare women to manage decisions during pregnancy and childbirth. However, in situations where many pregnant women cannot read, write, do simple calculations, understand medical instructions or prescriptions, they may not be able to participate fully in health literacy, health education or antenatal care classes. As a result of this they may

experience unhealthy maternity, poor pregnancy outcomes and faulty early parenthood.

A study by Adhoc Committee on Health Literacy (1999) has shown that poor health literacy is more common among patients who have low educational attainment. Studies have also shown that patients with poor health literacy have many difficulties when seeking for health care. For instance Williams, Parker and Baker (1995) and Kalichman, Ramanchandrau and Catz (1999) observed that the patients have greater difficulties naming their medications and describing their indications, more frequently hold health beliefs that interfere with adherence, and care more likely to have poor understanding of their conditions. Lustman, Adderson, and Freeland (2000) revealed that patients with poor health literacy level have difficulties that range from reading labels on a pill bottle and interpreting blood sugar values or dosing schedules to comprehending appointment slips, educational brochures, or informed consents documents.

The relationship between health literacy and health outcomes, was examined by Baker, Gazamararian, Williams, et al (2002), Sudore and Schillinger (2009). Baker et al (2002) found that people with inadequate health literacy have 29% to 52% higher hospitalization rates, even after adjustment for baseline socio-economic status, health status and health behaviours. Limited health literacy was found to be associated with poor health outcomes (Sudore and Schillinger, 2009). In another study, Baker, Wolf and Feinglass (2007) established that the crude mortality rates for participants with adequate, marginal and inadequate health literacy were 18.9%, 28.79% and 39.4%.

Generally speaking patients with low health literacy are at a greater risk of misunderstanding of treatment recommendations, having problems in accurately taking prescription medications, and self-reporting lower health status and poorer health outcomes Arnold, Davies, Berkel, Jackson, Mandy and London (2001). Although, low health literacy can affect all populations, it is especially problematic among those of modest financial means, many of whom are older adults, or people with limited education, or English proficiency (Win and Schillinger, 2003).

Some studies have demonstrated the usefulness or importance of health literacy during pregnancy and after baby delivery. For instance, Kohan et al (2007) examined the effect of maternal health literacy on prenatal care and pregnancy outcomes. They found that women with adequate health literacy

had significant difference in starting earlier and frequency of antenatal care, neonatal birth weight, mother hematocrit, ferrous and folic acid tablet consumption, pregnancy weight gain, gestation age at birth, method of delivery and breast feeding. Other birth outcomes were similar between groups. Similarly, Ohnishi, Kakamura and Takano (2005) found that mothers with suitable maternal health literacy have the less low birth infancy, the less premature infancy and the less death of the infancy and the feeding with the mother's milk have been more than the other group.

Ikeako, Onah, and Ilobachie (2006) in their study, investigated the influence that formal maternal education has on the use of maternity services and choice of place of delivery by pregnant women in Enugu, Nigeria. They found that there were statistically significant associations between level of education and choice of institutional and non-institutional deliveries. Furthermore, they found a significant positive correlation between educational levels and the level of care in where their respondents delivered. They concluded that formal education is still a significant predictor of whether women deliver within or outside health institutions.

Lin-Lin, Yap-seng, Yiong-Huak et al (2007) in their study investigated whether antenatal breast feeding education alone or postnatal lactation support along improves rates of exclusive breast feeding compared with routine hospital care. They found that women receiving antenatal education were more likely to breast feed exclusively up to six months after delivery. They concluded that postnatal support was marginally more effective than antenatal education.

A study conducted by Endres, Sharp, Haney and Dooley (2004) on health literacy and pregnancy preparedness in pregestational diabetes revealed that women with low health literacy were significantly more likely to have unplanned pregnancy ($P = 0.02$) and significantly less likely to have discussed pregnancy ahead of time with and endocrinologist or obstetrician ($P = 0.01$) or taken folic acid ($P = 0.001$). They concluded that low functional health literacy among women with pregestinational diabetes is associated with several factors that may adversely impact birth outcomes.

Ayoola, Netlleman, Stommel and Canady (2010) examined the relationship between the time of pregnancy recognition and the time of initiation of prenatal care and the number of prenatal visits among women of childbearing age. They found that early pregnancy recognition was associated with

significantly increased odds of initiating prenatal care early (OR = 6.05 P<0.01). They concluded that early pregnancy recognition was associated with improved timing and number of prenatal care visits.

Some of the literatures reviewed above revealed the problems of low health literacy on health care and health outcomes. Few of them revealed the effects that maternal health literacy and antenatal education have on healthy pregnancy, pregnancy outcome and early parenthood. Therefore, the problem of this study therefore, is to determine whether maternal health literacy enhances or impedes healthy pregnancy and pregnancy outcomes.

Hypotheses

i. There is a significant relationship between maternal health literacy and response to antenatal care.

ii. There is a significant relationship between maternal health literacy and healthy pregnancy.

iii. There is a significant relationship between maternal health literacy and pregnancy outcomes.

Methodology

Research setting and design - The study was carried out among pregnant women and nursing mothers attending Adeoyo Maternity Hospital, and State Hospital, Ring Road Ibadan, Nigeria. The descriptive survey research design of the expost facto type was used for the study.

Population and sample size – All pregnant women attending the antenatal clinics of the selected hospitals until the time of their delivery constituted the population for the study. 250 of them were randomly selected as sample for the study.

Instrumentation – A single questionnaire tagged "Maternal Health Literacy and Pregnancy Outcome Questionnaire (MHLAPQ) was developed and used for the study. It contains 33 items measuring demographic variables level of maternal health literacy, healthy pregnancy and pregnancy outcomes. The instrument was reliably validated, yielding cronbach alpha value of 0.81.

Research procedure – The study was carried out after obtaining approval from the management of the hospitals and ethical committee of the states ministry of health. The consents of the participants were also obtained before they were considered for participation in the study.

After these approvals, pregnant women of different literacy levels that attend antenatal clinics, health education classes, health talks, nutritional classes, and immunization programmes up to six months were considered to participate in the study.

The research questionnaires were administered unto them before and shortly after delivery by two research assistants employed for the study. Out of 250 questionnaires administered, 231 properly completed copies were finally used for data analysis.

Analysis and Results

Analysis of Demographic Variables

Findings from the study revealed the following characteristics of the respondents. 127 (55.0%) of the respondents are within age range 20-30 years, 9(34.2%) are within age range 31-40 years, 20(8.7%) are within age range 41-50 years, while 5(2.2%) are 51 and more years.

In term of the marital status of the respondents, 10(4.3%) of them are single (not with any husband) while 221 (95.7%) are married. The study revealed further that 6(2.6%) of the respondents are farmers, 91(39.4%) are traders, 43(18.6%) of them are teachers, 65(28.1%) are civil servants, while 26(11.3%) belonged to other businesses respectively. The level of education of the respondents are as follow, 15(6.5%) had no formal education, 16(6.9%) of the respondents had primary school education, 57(24.7%) of them had secondary education, 141(61%) of the respondents had higher education, while 2(0.9%) had other educational qualification. This implies that majority of the respondents are highly literate.

Findings from the study also indicated that 124(53.7%) of the respondents are Christians, 102(44.2%) of them are Muslims, 4(1.7%) are traditional worshippers and the remaining 4(1.7%) of them belong to other unknown religions. Finally, in term of income levels of the respondents, the study revealed that 40(17.3%) of the respondents earned less than ₦6,000, 31(13.4%) earned between ₦6,500 - ₦9,500, 65(28.1%) earned between ₦9,580 - ₦22,250, 31(13.4%) earned between ₦22,500-₦29,400, 37(16%) earned between ₦30,200 - ₦50,000, while 27(11.7%) earned over ₦50,000 respectively. This result implies that majority of the respondents earn between ₦9, 580 - ₦22, 250.

Analysis of Research Hypotheses

i. There is a significant relationship between maternal health literacy and antenatal care. The hypothesis was put to test, based on scores obtained on items measuring maternal health literacy and level of antenatal care. The results obtained are summarized in table 1. From the table, it could be seen that there was a significant relationship between maternal health literacy and antenatal care ($r = .445$, $df = 229$, $P < .05$). The result gives support to the hypothesis. Hence the hypothesis was accepted.

ii. There is a significant relationship between maternal health literacy and healthy pregnancy. The hypothesis was put to test, based on scores obtained on items measuring maternal literacy and healthy pregnancy. The results obtained from the test are summarized in table 2. The table showed that there was a significant relationship between maternal health literacy and healthy pregnancy ($r = .367$, $df = 229$, $p < .05$). The result gives support to the hypothesis. Therefore, the hypothesis was accepted.

iii. There is a significant relationship between maternal health literacy and pregnancy outcomes. The hypothesis was tested, based on scores obtained on items measuring maternal health literacy and pregnancy outcomes. The result obtained from the test are summarized in table 3. The table revealed that there was no significant correlation between maternal health literacy and pregnant outcomes ($r = .006$, $df = 229$, $p > .05$). The result does not give support to the hypothesis. Hence, the hypothesis was rejected.

Discussion of Findings and Recommendations

The result of the first hypothesis indicated a significant relationship between maternal health literacy and antenatal care ($r = .445$, $df = 229$, $P < .05$). The result is supported by the finding of Simkhada, Teijlingen, Porter and Simkhada (2008) that maternal education had significant influence on antenatal care use. Also the result is consistent with the finding of Kohan et al (2007) that women with adequate health literacy had significant difference in starting earlier and frequency of antenatal care. The result is in line with the finding of Ikeako et al (2006) that there were significant associations between level of education and choice of institution and non-institutional deliveries. Furthermore, the result is supported by the finding of Lin-Lin et al

(2007) that women receiving antenatal education were more likely to breast feed exclusively up to six months after delivery.

The above finding implies that the literacy or educational levels of pregnant women goes a long way in helping them to understand when to start antenatal clinics, attend nutritional classes, go for health education, health talks and immunization programmes organized for them by the midwives and nurses.

Though, majority of women understudied are literates, the illiterates ones among them need to be helped to become literate in preparation for their subsequent pregnancies. The health care-givers (social workers, nurses or midwives) should encourage them to enroll in adult education or literacy centres in their localities.

The result obtained form testing the second hypothesis indicated a significant relationship between maternal health literacy and healthy pregnancy ($r = .367$, $df = 229$, $P < .05$). The result is in line with the finding of Ikeako et al (2006) that there was a significant positive correlation between educational levels and level of care of pregnant women in where they delivered. The result is further supported by the finding of Anya, Hydewa and Esjaiteh (2009) that women attending rural antenatal clinics were 1.6 times more likely to recognize signs of anaemia, and hypertension as implicative danger which compared to women attending urban antenantal clinics.

The above finding suggest that the literacy levels of the pregnant women understudied helps them to understand danger signs in pregnancy, take adequate care of themselves and adhere to the advice given to them by the midwives and nurses during the antenatal clinics, which help them to experience healthy and safe pregnancy. It is necessary therefore, that all pregnant women should be educated on what to expect during pregnancy and what to do when they perceive unusual signs or dangers. In order to experience healthy and safe pregnancy, nurse, midwives and social workers should endeavour to assist the illiterate pregnant women by interpreting medical prescription, drug labels, and other vital information during clinic days.

The result of the third hypothesis revealed that there was no significant relationship between maternal health literacy and pregnancy outcomes. However, there was a positive relationship between the two variables ($r = .006$, $df = 229$, $P > .05$). The result is supported by the finding of Ohnishi et al (2005) that mothers with suitable maternal health literacy have the less low

birth infancy, the less premature infancy and the less death of the infancy. The result is also in line with the finding of Ekwempu (2008) that the educated patients experienced reduced perinatal death and maternal mortality compared to uneducated unbooked patients.

The above finding implies that the different levels of literacy of the pregnant women understudied affect the outcomes of their pregnancies. Though there were some of them (10%) that experienced still birth and other complications, these are not necessarily related to their level of literacy. However, it is imperative that all pregnant women and nursing mothers acquire some basic literacy skills that can help them cope successfully with their pregnancy and have easy and safe delivery.

Conclusion

Findings from the study indicated significant positive relationships among maternal health literacy, antenatal care, and healthy pregnancy. The study also revealed a positive association between maternal health literacy and pregnancy outcomes. Therefore, it can be concluded that maternal health literacy is an important and effective tool in ensuring effective antenatal care, healthy pregnancy and successful pregnancy outcome.

In this regard there is need for pregnant women to attend antenatal care clinic, health education and nutritional classes as well as immunization programmes organized by the nurses and midwives regularly in order to experience positive pregnancy outcomes.

It also behoves pregnant women with low literacy level to attend adult literacy classes in their various communities with which they can improve their literacy levels and have adequate and appropriate information about pregnancy and childbirth.

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Table 1: Pearson Product Moment Correlation showing the Relationship between Maternal Health Literacy and Antenatal care

Variable	Mean	Standard Deviation (SD)	df	r-cal	r-crit	P	Remark
Maternal Health Literacy	22.30	4.45	229	.445	.163	.05	Significant
Ante-natal care	19.51	3.38					

r = .445, df = 229, P< .05

Table 2: Pearson Product Moment Correlation showing the Relationship between Maternal Healthy Literacy and Health Pregnancy

Variable	Mean	Standard Deviation (SD)	df	r-cal	r-crit	P	Remark
Maternal Health Literacy	22.30	4.45	229	.367	.163	.05	Significant
Healthy Pregnancy	2158	3.32					

r = .367, df = 229, p< .05

Table 3: Pearson Product Moment Correlation showing the Relationship between Maternal Health Literacy and Pregnancy Outcomes

Variable	Mean	Standard Deviation (SD)	df	r-cal	r-crit	P	Remark
Maternal Health Literacy	22.30	4.45	229	.006	.163	.05	Not significant
Pregnancy outcomes	17.93	2.83					

r = .006, df = 229, p> .05