



Effects of Health Education on Knowledge of Safe Motherhood Services among Women of Reproductive Age in Rivers East Senatorial District, Rivers State

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Authors' contributions

This work was carried out in collaboration among all authors. Author GA designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Author CEE managed the analyses of the study. Author WFU managed the literature searches. All authors read and approved the final manuscript.

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ABSTRACT

The knowledge of safe motherhood services helps to improve maternal well-being and healthy reproductive life, thereby reducing maternal mortality. This study investigated the effect of health education on the knowledge of safe motherhood services among women of childbearing age in Rivers East Senatorial district. Research question and hypothesis were formulated to guide this study. Quasi experimental design was implemented for this study. The population of the study area was 567,861 women within the age of 15-64 years. Sample size of 400 was obtained using Taro Yamane method which was selected through multi-stage sampling technique. The instrument for eliciting data for the study was titled 'Knowledge and Utilization of Safe Motherhood Service Questionnaire' (KAUSMOSQ) and an eligibility index of 0.86 was obtained using Kuder-Richardson. Data was analyzed using SPSS version 21.0. The results of this study illustrated that the health

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education had a significant effect on knowledge of safe motherhood service ($\eta^2 = 0.43$, $p < 0.05$). The result of the study revealed that respondents in the intervention group had a mean score of 20.99 ± 0.44 while respondents in the control group It was recommended that the Rivers State government in collaboration with the local government areas should provide functional health education units in the health facilities and at community levels to make health education on maternal health a continuous activity in order to enhance the knowledge of women of reproductive age as a strategy to reduce maternal deaths and healthcare professionals should incorporate health education in their effort to promote the utilization of maternal healthcare services thereby improving the overall health and wellbeing of women.

Keywords: Health education; knowledge; safe motherhood services; women of reproductive age.

1. INTRODUCTION

Motherhood should be a period of happiness and fulfilled life experience, but a good number of women encounter pains, complications and even death following pregnancy and childbirth. Lapinni and Ayinmodu asserted that a woman dies somewhere in the world from complications related to pregnancy and childbirth every minute of the day and about 515,000 women die from the same cause annually [1]. However, developed countries have invested hugely in maternal health to ensure that the burden of maternal mortality (the death of women due to complications from pregnancy and childbirth related causes) is reduced, such that one out of thirty-one (1:31) women die through childbirth, as against one in every thirteen (1:13) women in sub-Saharan Africa who die through the same process [2]. In the light of this, Briggs and the World Health Organization reported that about 99% of maternal deaths occur in developing countries, Nigeria inclusive [3,4]. In the same vein, Stanhope and Lancaster pointed out that South Asia and sub-Saharan Africa are the two regions with the worst maternal deaths in the world [5].

Knowledge means familiarity, awareness or understanding of a thing. Igbokwe and Adama reported that knowledge is an important aspect of man's quality of life because everything an individual does depends on it [6]. Adewoye, Musa, Atoyebi and Babatunde also shared their views that knowledge of health is one of the key factors which enable women to become aware of their health status in order to seek appropriate health services when necessary [7]. Awosika - Olumo's study as cited by Adama submitted that it is difficult for childbearing mothers to utilize appropriate safe motherhood services due to several problems ranging from poor knowledge of safe motherhood, to unsafe motherhood practices [8].

Igbokwe and Adama conducted a study on knowledge and practices of Safe Motherhood Initiative (SMI) among child bearing mothers attending Maternal and Child Health (MCH) clinics in Nsukka health district [6]. The result of the study showed that child bearing mothers' have higher knowledge (72.9) of prenatal care (KOPC), intra – partum care (KOIC), postnatal care (KPOC), and Post abortions (KOAC). Turan, Tesfagiorgis, and Polan conducted a similar research on evaluation of a community-based intervention for promoting safe motherhood in Eritrea [9]. The study showed that the community-based intervention was associated with significant improvements in safe motherhood knowledge and use of essential maternity services in Eritrea.

Adewoye, Musa, Atoyebi and Babatunde carried out a study on knowledge and utilization of antenatal care services by women of reproductive age in Ilorin-East local government area, north central Nigeria using a descriptive cross- sectional study on a sample of 405 pregnant women. Multi-stage sampling technique was employed in selecting the respondents [7]. The study reported that women of reproductive age in Ilorin-East local government area had good knowledge of antenatal care services. Eman, Omnia and Huny studied on the effectiveness of community based health education intervention about safe motherhood among 122 pregnant females in Sharkia Governorate, Egypt [10]. The study showed that an average knowledge and attitude regarding antenatal care, post natal care, family planning and breast feeding among rural women.

Novendy, Pratama, Azhar, Marcelina and Ardianti carried out a study on the Effect of Health Education and Pregnant Mothers Awareness Movement on Knowledge and Community Participation in Safe Motherhood, in Tangerang, Banten among 25 pregnant women

[11]. The findings of the study revealed that expectant mothers who received the intervention were 3.19 times more likely to have good knowledge in safe motherhood than those who did not receive the intervention (OR=3.19; 95% CI=1.00 to 10.17; p=0.047). Umar, Garba, Joel, Rejuaro, Aliyu and Durojaye carried out a study on impact of health education intervention on knowledge and utilization of post natal care services among 120 women in Edu local government of Kwara State, Nigeria [12]. The result showed the positive impact of health education intervention on knowledge and willingness of women of reproductive age to utilize post natal care services in Edu LGA (pre-intervention mean scores of 64.26 to post-intervention scores of 98.15 for experimental group) on knowledge against (68.88 post-interventions mean score of control group); while the pre-intervention mean score of utilization was (56.67 compared with post intervention mean score of 92.91 for the experimental group) and (61.04 for the control group).

Similarly, Jibril, Saleh, Badaki, Anyebe, Umar, and Kamal carried out a research on health education intervention on knowledge and accessibility of 120 pregnant women to antenatal care services in Edu, Kwara State [13]. An increase from pre-intervention mean score of 71.08 to 93.33 post intervention mean score in the experimental group indicating a positive impact of health education intervention on the knowledge of pregnant women to access antenatal care services was reported. Okhakhume and Okhakhume researched on knowledge and practices of women of reproductive age towards safe motherhood in Ekiti state [14]. The result indicated that immunization and personal hygiene practices of CBMs were excellently adequate (97.6% and 92.5%) respectively, also nutritional practice (77.2%) was considered adequate.

Ango, Oche, Abubakar, Awosan, Kaoje and Raji studied on effects of health education intervention on knowledge and utilization of health facility delivery services among 232 pregnant women in Sokoto State, Nigeria [15]. The study showed that the proportion of participants with good knowledge of the danger signs of pregnancy and labour increased significantly ($p < 0.05$) from 96.6% in both groups at baseline to 100% and 98.1% in the intervention and control groups at post intervention. In recent times, antenatal care turn up in health centres has been very poor, with few

delivery records in some health facilities, particularly in the rural areas of Rivers East Senatorial District. This study therefore, investigated the effect of health education on the knowledge and utilization of safe motherhood services among women of reproductive age in Rivers East Senatorial District.

1.1 Purpose of the Study

The purpose of the study was to investigate the effect of health education on the knowledge of safe motherhood services among women of reproductive age in Rivers-East Senatorial District. Specifically, the objective of the study seeks to determine the effect of health education on the knowledge of safe motherhood services among women of reproductive age in Rivers-East Senatorial District.

1.2 Research Question

The research question was: Does health education affect the knowledge of safe motherhood services among women of reproductive age in Rivers-East Senatorial District?

1.3 Hypothesis

The hypothesis of the study was: Health education has no significant effect on the knowledge of safe motherhood services among women of reproductive age in Rivers-East Senatorial District.

2. METHODOLOGY

The research design adopted for the study was quasi-experimental (pre-test and post-test) research design.

2.1 Population for the Study

The population for the study consisted of 567, 861 women of reproductive age in Rivers-East Senatorial District [16].

2.2 Sample and Sampling Techniques

The sample size for the study consisted of 400 women of reproductive age which was determined using Taro Yamane's formula for calculation of sample size:

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

A multi-stage sampling procedure was adopted for the study comprising of cluster sampling and simple random technique.

2.3 The Instrument for Data Collection

The instrument for data collection was a structured questionnaire titled “Knowledge and Utilization of Safe Motherhood Services Questionnaire (KUSMSQ)”.

2.4 Reliability of the Instrument

The reliability coefficient was determined using Kuder-Richardson for knowledge of safe motherhood services because it had dichotomous responses. The reliability coefficient was 0.74 depicting that the instrument was reliable for the study.

2.5 Procedure for Data Analysis

Data collected were entered and recorded in the Statistical Product and Service Solutions (SPSS) version 23. Data were analyzed using descriptive statistics including mean and standard deviation (SD) to answer research questions.

3. RESULTS

3.1 Presentation and Analysis of Data

3.1.1 Research question

Does health education have an effect of health education on the knowledge of safe motherhood services among women of childbearing age in Rivers-East Senatorial District?

Table 1 showed the mean and standard deviation on effect of health education on the knowledge of safe motherhood services among women of reproductive age. The result of the study showed that respondents in the intervention group had a mean score of 20.99±0.44 while respondents in the control group had a mean knowledge score of 17.32±2.96 with a mean difference of 3.67 in the post test. The eta square statistics was calculated to ascertain the effect of the intervention on the group. An eta square statistics of 0.43 was obtained indicating a large effect of health education on the knowledge of safe motherhood services among women of reproductive age.

3.1.2 Hypothesis

Health education has no significant effect on the knowledge of safe motherhood services among women of reproductive age in Rivers-East Senatorial District.

Independent sample t-test was conducted to compare the effect of health education on knowledge of safe motherhood among the intervention and control group. The result of the study showed that there was a significant effect in the pre-test scores of the intervention group (M = 20.99, SD= 0.44) and post-test of the control group (M = 17.99, SD= 2.96) of knowledge of safe motherhood $t(359)=16.89, p = 0.00$. The null hypothesis which states that health education has no significant effect on knowledge of safe motherhood services among women of reproductive age in Rivers East Senatorial district was thus not accepted.

Table 1. Mean and standard deviation on the effect of health education on the knowledge of safe motherhood services among women of reproductive age

Test	Group	M	SD	M.D	t-value	Df	Eta	Decision
Pre-test	Intervention	14.81	2.93					
Pre-test	Control	9.31	4.08	5.49	15.09	378	0.38	Large effect
Post-test	Intervention	20.99	0.44					
Post-test	Control	17.32	2.96	3.67	16.89	359	0.43	

Table 2. Independent sample t-test on effect of health education on the knowledge of safe motherhood services

Test	Group	M	SD	M.D	z-value	Df	p-value	Decision
Pre-test	Intervention	14.81	2.93					
Pre-test	Control	9.31	4.08	5.49	15.09	378	0.00	Reject Ho
Post-test	Intervention	20.99	0.44					
Post-test	Control	17.32	2.96	3.67	16.89	359	0.00*	

4. DISCUSSION

4.1 Effect of Health Education on the Knowledge of Safe Motherhood Services

The findings of this study showed that health education had a large significant effect on the knowledge of safe motherhood services among women of reproductive age with the eta square statistics of 0.43 and a mean difference of 3.367 in the post test. The findings of this study is expected because health education deals with the dissemination of health information to influence people's knowledge, which was done in this study as intervention carried out in this study was basically geared towards the enhancement of respondents' awareness of safe motherhood services. The report of the study is in line with that of Tamrakar and Nagaseshamma on effectiveness of planned teaching program on knowledge of primigravidae regarding selected aspects of safe motherhood which disclosed an increase in the post test score of participants in the experimental group on knowledge of safe motherhood [17].

This study is also in agreement with that of Novendy, Pratama, Azhar, Marcelina and Ardianti on the effect of health education and "pregnant mothers' awareness movement" on knowledge and community participation in safe motherhood which revealed that health education can effectively increase knowledge in safe motherhood and antenatal visits among pregnant mothers [18]. Similar findings was also made by Umar et al. which showed that health education intervention has a positive impact on knowledge of postnatal care services among women with pre-intervention mean scores of 64.26 and post intervention scores of 98.15 [12].

Ango et al. reported similarly that health education intervention has an effect on knowledge of maternal health as there was an increase in the proportion of the respondents in the intervention group who identified danger signs of pregnancy than in the control group; also that the proportion of participants with good knowledge of the danger signs of pregnancy and labour increased significantly ($p < 0.05$) from 96.6% in both groups at baseline to 100% and 98.1% in the intervention and control groups respectively at post intervention [15].

This report also agrees with the study by Jibril et al. on health education intervention on

knowledge and accessibility of pregnant women to antenatal care services in Edu, Kwara State which showed a positive impact of health education intervention on the knowledge of pregnant women to access antenatal care services in Edu local government area with pre-intervention mean score of 71.08 to 93.33 post intervention mean score in the experimental group [13]. The present study agrees with the assertion of Stanhope and Lancaster that, education is an activity undertaken or initiated by one or more agents that is designed to effect changes in knowledge of individuals, groups, or communities [5].

However, the report of Okereke et al. who reported poor knowledge of the benefits of health facility delivery with a skilled attendant is in variance with this study [19]. Another contrasting report is the study by Mseu et al. who reported poor knowledge and utilization of maternal and child health care services among respondents [20]. Similarly, Sufiyan et al. in their study on knowledge, attitude and perception of pregnancy danger signs among women of childbearing age reported that only 4.9% of the respondents in Samura Community, North-Western Nigeria had good knowledge about danger signs in pregnancy [21]. Also this study is in disagreement with that of Etuk et al. who reported low knowledge of antenatal care services in Ikot Ekpene, Nigeria [22]. The variance between previous studies and the present study may be due to difference in research design, population, sample size and geographical location of the studies carried out.

5. CONCLUSION

Based on the findings of the study, health education had a significantly large effect on the knowledge of safe motherhood services among women of reproductive age in Rivers East Senatorial District.

6. RECOMMENDATIONS

Based on the findings of the study, the following were recommended:

1. Rivers state government in collaboration with the local government areas should provide functional health education units in the health facilities and at community levels to make health education on maternal health a continuous activity in

order to enhance the knowledge of women of reproductive age as a strategy to reduce maternal deaths.

2. Healthcare professionals should incorporate health education to promote the utilization of maternal healthcare services thereby improve the overall health and wellbeing of women.
3. Health educators as well as other health personnel should use all available settings at the community level such as town hall meetings, churches, market square (etc) in the dissemination of maternal health information to women of reproductive age.

CONSENT

As per international standard or university standard, participant's written consent has been collected and preserved by the authors.

ETHICAL APPROVAL

It is not applicable.

COMPETING INTERESTS

The authors have declared that no competing interests exist.

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