

## KNOWLEDGE OF MATERNAL MORTALITY AMONG WOMEN OF CHILDBEARING AGE IN NSUKKA HEALTH DISTRICT, ENUGU STATE

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### Abstract

*The purpose of the study was to determine the level of knowledge of maternal mortality among women of childbearing age (WCA) in Nsukka health district of Enugu state. Four research questions were posed and two hypotheses postulated. Descriptive survey research design was used for the study. The population was 3,600 from which a sample of 360 was drawn for the study using multi stage sampling procedure. The research instrument used for the study was questionnaire administered to WCA. The research questions were analyzed using means and percentages while null hypotheses were tested using ANOVA. The result showed that WCA in Nsukka health district possessed high level of knowledge regarding all the dimensions of maternal mortality. WCA with secondary and tertiary education had high level knowledge while those with no formal and primary education had low and average level of knowledge in all the dimensions of maternal mortality. Also, the result indicated that independent variables of level of education and age had significant difference on the knowledge of all the dimensions of maternal mortality among WCA. The study recommended that seminars and workshops should be organized in health facilities, churches and town halls to enlighten women, provision of free and compulsory education for every female child to tertiary level, to enact laws prohibiting child marriages and to strengthen the free maternal health care policy.*

**Keywords:** Maternal Mortality, Knowledge, Women of Childbearing Age.

### Introduction

Maternal mortality is a serious public health problem, especially in many African countries including Nigeria and Enugu State in particular. Maternal mortality rates in many countries have remained essentially a public health challenge. Worldwide over 500,000 women of childbearing age (WCA) die of complications related to pregnancy and childbirth each year (World Health Organization –WHO, 2007). Over 99 per cent of these deaths occur in developing countries such as Nigeria. Partnership for Transforming Health Systems-PATHS (2005) stated that every day, at least 1,450 WCA worldwide die from complications of pregnancy and childbirth. Majority of these deaths (almost 99%) occur in Asia and sub-sahara Africa and less than one per cent in the developed countries. Khalid (2006) stated that life time risk of maternal death is 1 in 2,500 in developed country like America while in West Africa it is 1 in 13.

Maternal death has been defined as the death of a woman while pregnant or within 42 days of delivery, miscarriage or termination of pregnancy, from any cause related or aggravated by pregnancy or its management, but not from accidental or incidental causes (Lewis & Drife, 2001). The complications of pregnancy may be experienced during pregnancy or delivery itself or may occur up to 42 days following childbirth. Maternal mortality in the context of this study refers to the death of a woman during pregnancy, in labour or first six weeks after delivery or termination of pregnancy from causes directly due to pregnancy or to conditions aggravated by pregnancy. Maternal deaths is subdivided into direct and indirect obstetric deaths (Lucas & Gilles, 2009).

Direct obstetric deaths results from obstetric complications of pregnancy, labour, or post partum period, from interventions, omissions, incorrect treatment, or from chains of events resulting from any of the above. They are usually due to one of the five major causes:- haemorrhage, sepsis, eclampsia, obstructed labour, and complications of unsafe abortion. Indirect obstetric deaths usually result from previously existing diseases or from diseases arising during pregnancy which were aggravated by the physiological effects of pregnancy. Examples of such diseases include HIV and AIDS, malaria, diabetes and anaemia. Maternal mortality has generated great concern among United Nations and international agencies as well as in developing countries like Nigeria (Onuzulike, 2006).

Nigeria's maternal mortality rate continues at an unacceptable high rate despite numerous strategies devised by the Nigerian government and international partners to reduce it. Audu (2010) estimated that Nigeria maternal mortality ratio (MMR) is 1, 500 per 100, 000 live births. With this figure, Nigeria accounts for 10 per cent of the world's maternal death. State Economic Empowerment and Development Strategy (SEEDS, 2004), Enugu State pointed that maternal mortality rate for south east zone of Nigeria was 286 per 100,000 live births and North West 1,549 per 100,000 live births in the year 2000. SEEDS also indicated that maternal mortality rates are twice higher in the rural settings compared with urban settings. This may be attributed to non-availability of skilled birth attendants and emergency obstetric services in the rural settings. Nigerian Demographic and Health survey-NDHS (2008), posited that Nigeria ranks second globally (next to India) in number of maternal deaths. Glew and Uguru (2005) reported an estimated maternal mortality ratio of 1,549/100,000 live births in Borno State and 1,732/100,000 in Bauchi State in the North Eastern region of Nigeria. This alarming situation of maternal deaths in the North East may not be too different from that of Enugu State.

Maternal mortality is high in Enugu State. This may be attributed to poor antenatal care practices, lack of access to and use of skilled birth attendants and a weak healthcare delivery system. NDHS (2003) put the MMR for Enugu State at 1,400/100,000 live births. This ugly situation is further aggravated by poverty, ignorance, which account for women's inability to access evidence-based antenatal care and delivery services. Onyeneho and Okonofua (2004) stated that MMR is high in Enugu State, with figures ranging from 772-988/100,000 live births. Early in 2000, several reports indicated that maternal health in Enugu state was deplorable and that maternal mortality was more than 3000/100,000 live births in Nsukka Senatorial Zone of the state. Onah (2009) noted the high rate of pregnancy related complications in Nsukka senatorial zone and posited that childbearing activities are high in the zone, and this may be reason why maternal deaths are also high. These maternal deaths have some causes.

The five major causes of maternal deaths are haemorrhage, sepsis, obstructed labour, eclampsia and complications of unsafe abortion. Federal Ministry of Health (2007) outlined the causes of maternal death thus- severe anaemia in pregnancy, puerperal sepsis, obstructed labour, unsafe abortion, pregnancy induced hypertension, hepatitis, diabetes mellitus, malaria, HIV and AIDS. These conditions are worsened by poor antenatal care attendance, delivery in maternity homes without skilled nurses and midwives who can provide emergency obstetric services. Omoruyi (2010) also stated that five major causes of obstetric death are haemorrhage, infection, abortion, hypertensive diseases of pregnancy and obstructed labour. Haemorrhage refers to excessive bleeding through the vagina more than 500 meals during late pregnancy, delivery or after delivery. This accounts for about 23 per cent of maternal deaths (FMH, 2007). Hypertensive diseases of pregnancy occur in about 4 per cent of pregnancies, especially in the last stage of pregnancy (UNICEF - 2008). Hypertensive diseases include pre - eclampsia and eclampsia. The clinical manifestations are high blood pressure, protein in urine, Oedema, convulsion and coma. Obstructed labour always put the mother at risk of developing vesico - vagina fistula (VVF), recto - vaginal fistula (RVF), infection, rupture of the uterus, feto - maternal exhaustion and death. This contributes 11 per cent of maternal deaths (FMH - 2007).

Unsafe abortion is defined as the termination of unwanted pregnancy either by persons lacking the necessary skills or in an environment lacking the minimal standards, or both (Warrier & Shah, 2006). Abortion also means the death or expulsion of the fetus spontaneously or by induction, before the 24 weeks of pregnancy. Spontaneous abortion is the involuntary loss of the products of conception prior to 24 weeks of gestation. Most of these abortions occur in the first 12 weeks of the pregnancy. Complications of abortions include bleeding, infection, injury to female reproductive organs, infertility and or increased pregnancy wastage and injury to abdominal organs. Globally, it has been estimated that some 68, 000 woman die each year from complications of unsafe abortion and 5.3 million suffer disability (Ahman & Shah, 2002). Unsafe abortion accounts for 13 per cent of maternal deaths in Nigeria (WHO, 2005).

Puerperal sepsis is an infection of the genital tract following childbirth or abortion. It contributes about 17 per cent of maternal deaths (Kanyiabe, 2008). It can result from unsterile procedures during delivery such as the use of unclean hands by traditional birth attendants (TBAs) or use of dirty instruments. It can also result from prolonged labour when fetal membranes have ruptured and the woman has not delivered within 24 hours. This clinical feature of puerperal sepsis includes

high grade fever, abdominal pains, vomiting, headache, loss of appetite, offensive vaginal discharge and coma. These types of deaths occur mostly in women of childbearing age.

Women of childbearing age (WCA) are referred to as women aged between 15-49 years. These are women within the reproductive age. Samuel (2010) defined WCA as women aged between 15-45 years. Some groups of WCA are more at risk than others. NDHS (2003) stated that adolescent women have higher risk of pregnancy related complications and thus constitute a high proportion of maternal mortality. This may be due to complications arising from unsafe abortion and lack of knowledge for prevention of maternal death due to under age. However, deaths of WCA during pregnancy and childbirth can be prevented.

In response to challenges of the high maternal mortality in the State, Enugu State government initiated a policy on free maternal and child health care in 2007. The policy was aimed at preventing maternal deaths during pregnancy and childbirth. Barnhart (1995) defined prevention as the act or practice of stopping something bad from happening. If WCA avail themselves to the free maternal health care services, complications can be detected early and efficient services provided to avert deaths. United Nations Children's Fund-UNICEF (2008) posited that interventions for improving maternal health during pregnancy and childbirth should focus on quality and affordable antenatal care, skilled birth attendants, accessible emergency obstetric care and postnatal care. Prevention of maternal mortality should come from multi-faceted effort involving the community, government, international agencies, WCA and good spirited individuals. Okonofua (2008) identified four main interventions to reducing maternal mortality as family planning, antenatal care, skilled birth attendants and emergency obstetric care. Prevention of these regrettable deaths among WCA could be reduced by possession of adequate knowledge.

Knowledge is critical to man's quality of life because everything we do depends on what we know and perceive. Therefore, there is need for possession of adequate knowledge by WCA regarding pregnancy and childbirth to avert this type of death. Denning (2000) defined knowledge as facts, information and skills acquired by a person through experience, association or education. Knowledge about how to take care of pregnant mothers, detect complications and tackle them has existed for centuries. This notwithstanding, millions of mothers continue to die from severe complications associated with pregnancy and childbirth probably because they lack the knowledge inherent in the effective management of pregnancy related problems (Jatua, 2000). Knowledge is used in this study to refer to the ability of WCA in Nsukka Health District to understand the concept, causes and possible preventive measures of maternal mortality.

Knowledge of MM among WCA can be influenced by certain socio-demographic variables. Such variables are age, level of education, location, occupation and parity. Also some cultural practices inherent in this district may be having adverse effects on the knowledge of women regarding causes of maternal death. Some of these practices are early marriages and early childbirths, sex preference and love for many children.

Nsukka Health District (NDH) is a typical rural settlement in Enugu State. WCA in this district are mostly peasant farmers, hawkers, petty traders and a very few civil servants. This indicates that these women are not gainfully employed. They lack adequate finance to eat balanced diet or seek timely medical assistance. Health facilities are few and are poorly equipped and staffed. The poor distribution of the health facilities together with the poor socio-economic status may be affecting the knowledge of WCA in NHD, hence the topic knowledge of maternal mortality among WCA in Nsukka health district.

Possession of adequate knowledge of maternal mortality will motivate WCA to desire quality maternal health care services to enable them stay healthy during pregnancy, childbirth and even throughout life. Adequate knowledge of causes of MM will enable them to book early for antenatal in a hospital with emergency obstetric care services, deliver in a standard hospital with skilled birth attendants, access postnatal care services after delivery, practice family planning and to report to hospital early for treatment of health problems. When these services are accessed, maternal deaths could be averted. Adequate knowledge of what can be done constitutes to avert maternal mortality or complications of pregnancies and child birth is capable of reducing the maternal and infant mortality thereby jeopardizing their lives and that of their unborn babies. Some of these WCA prefer to register in maternity homes with quacks who cannot handle emergency obstetric problems. Some WCA even reject family planning services for religious and cultural reasons to the detriment of their health. Since

maternal mortality is high in Nsukka senatorial zone as pointed out by (Onah-2009), it is worthwhile to find out the level of knowledge possessed by WCA in Nsukka Health District regarding concept, causes and how to prevent maternal mortality. Additionally, the study will examine the level of knowledge possessed by WCA based on the level of education and age.

The study determined the knowledge WCA in Nsukka Health District, Enugu State. Specifically, possessed regarding maternal mortality. The study answered the following questions.

1. What is the level of knowledge of concept of maternal mortality among WCA?
2. What is the level of knowledge of causes of maternal mortality among WCA?
3. What is the level of knowledge of preventive measure of maternal mortality among WCA?
4. What is the difference in the level of knowledge of maternal mortality by the women according to level of education.

### **Hypotheses**

The study tested two null hypotheses at .05 level of significance.

1. There is no significant difference in the level of knowledge of maternal mortality by the women according to age ( $P < .05$ ).
2. There is no significant difference in the level of knowledge of maternal mortality by the women according to level of education ( $P < .05$ ).

### **Methods**

The descriptive survey research design was employed for the study. Nwana (1986) opined that this design facilitates the description of situation in its present state and solicits information directly from the respondents. Frankfort – Nachmias (2006) stated that descriptive survey design is a research design used most predominantly in survey research as it facilitates the gathering of information about a longer population by collecting information from a segment of that very population from where generalization can be inferred. The population for the study consisted of registered WCA attending antenatal clinics in different health facilities in Nsukka Health District. The total population of registered WCA in Nsukka Health District was 3,600 (Nsukka Health District Board, 2010). The sample for the study consisted of 360 WCA representing 10 per cent of the study population. This sample size used was based on Nwana's (1991) rule of thumb which states that when the population is a few thousands, 10 per cent should be considered representative. The multi-stage sampling procedure was employed to draw the sample for the study. The procedure for sample selection involved three stages. In the first stage, stratified random sampling was used to stratify the health facilities in the three Local Government Areas that make up the district into predominantly urban and predominantly rural health facilities. The second stage involved the use of simple random sampling techniques of balloting without replacement to select four health facilities out of the five functional ones in each of the three LGAs. Two was selected from urban and two from rural health facilities. This resulted in selecting 12 health facilities for the study. In the third stage, sample random sampling of balloting without replacement was also used to select 30 women from each of the 12 health facilities that were sampled. The decision to select 30 respondents from each of the selected health facility was to meet up with the (10%) recommended by Nwana (1991).

The instrument for data collection was the researcher – designed questionnaire called knowledge of Maternal Mortality Questionnaire - KMMQ. It consisted of two sections A and B. Section A consisted of the bio – data of respondents while section B comprised of multiple choice questions that determined the knowledge of concept, causes and prevention of maternal mortality among WCA. The respondents were expected to choose from options A – D the one that correctly describes the statement or answers the question.

The validity of the research instrument was established by the judgment of three experts from the Department of Health and Physical Education, University of Nigeria, Nsukka. The instrument was administered to the respondents (WCA) in each health facility by the researcher and four research assistants (public health nurses). Split – half method was used to establish the reliability of the instrument. A reliability index of .60 was established using Spearman Rank – Order. Ogbazi and Okpala (1994) stated that in a reliability test, if the correlation co-efficient index obtained is up to .60 and above, the instrument is considered reliable. Since the reliability co-efficient index obtained was up to .60 and above, the instrument questionnaire was considered reliable for the present study. The

instrument administered after filling by the respondents, were collected back by the researcher and her assistants in the spot. Means and percentages were used to analyze the research questions while ANOVA statistics was used to test the hypotheses.

### Results.

The data collected are analyzed and presented in tables as they relate to research questions and hypotheses with brief interpretations.

**Table 1.**  
**Level of knowledge of Concept of Maternal Mortality (KCOMM) Among WCA (n – 343)**

	N	$\bar{x}\%$
KCOMM	343	64.02
KCMM	343	64.02
KPMM	343	68.10

Data in Table 1 show a mean score of 64.02 per cent which fell between 60-80 per cent. This implies that level of KCOMM was high among WCA. The Table further shows the mean score of 65.48 per cent which fell between 60-79 per cent. This implies that level of KCMM was high among WCA. Table 1 also shows the mean score of 68.10 per cent which fell between 60-79 per cent, indicating high level of KPMM among WCA.

**Table 2.**  
**Level of Knowledge of Maternal Mortality by WCA according to level of education**

Dimensions Of MM	Level of Education			
	No formal Education (n=5) $\bar{x}\%$	Primary Education (n=61) $\bar{x}\%$	Secondary Education (n=144) $\bar{x}\%$	Tertiary Education (n= 133) $\bar{x}\%$
KCOMM	36.00	47.21	65.83	70.83
KCMM	28.00	49.09	65.14	74.44
KPMM	48.00	20.59	65.28	77.44

Table 2 shows that the mean score of WCA with tertiary education ( $\bar{x} = 70.83\%$ ), secondary education ( $\bar{x} = 65.83\%$ ), primary education ( $\bar{x} = 47.21\%$ ) and no formal education ( $\bar{x} = 36\%$ ). This implies that WCA with tertiary and secondary education possessed high level of knowledge of concept of maternal mortality while WCA with primary education and no formal education possessed average and low level of knowledge of concept of maternal mortality respectively.

The table further shows that the mean score of WCA with tertiary education ( $\bar{x} = 74.4\%$ ), secondary education ( $\bar{x} = 65.14\%$ ), primary education ( $\bar{x} = 49.09\%$ ) and no formal education ( $\bar{x} = 28\%$ ). This implies that WCA with tertiary and secondary education possessed high level of knowledge regarding the causes of maternal mortality while WCA with primary and no formal education had average and low level knowledge of causes of maternal mortality respectively.

Table 2 also shows that the mean score of WCA with tertiary education ( $\bar{x} = 77.44\%$ ), secondary education ( $\bar{x} = 65.28\%$ ), primary education ( $\bar{x} = 20.59\%$ ) and no formal education ( $\bar{x} = 48.00\%$ ). This reveals that WCA with tertiary and secondary education possessed high level of knowledge of prevention of maternal mortality while WCA with no formal education and primary education had average and low level of knowledge prevention of maternal mortality.

**Table 3**  
**One-way Analysis of variance (ANOVA) Testing the Null Hypothesis of No Significant Difference in the Level of Knowledge of Maternal Mortality by the Women according to Age**

Dimensions of MM groups	Sum between	Square within	DF	Mean between groups	Squares within groups	F value	P.value
KCOMM	7280.279	166767.334	3	2426.7602	491.940	4.933	.002*
KCMM	4319.904	182976.723	339	1439.968	539.751	2.668	.048*
KPMM	9052.112	204016.110	342	3017.371	601.817	5.014	.002*

\*significant

Table 3 shows the F-values and their corresponding p-values for KCOMM (F=4.933, P=value=.002 < 0.05), KCMM (F=2.668,=.048 < .05) and KPMM (F=5.014, P-Value=.002 < .05) were less than .05 level of significant at 3 and 339 degrees of freedom. The null hypothesis of no significant difference is therefore rejected. Thus implies that WCA differed in their knowledge of various dimensions of maternal mortality according to age.

**Table 4**  
**One-way ANOVA Testing the null Hypothesis of No Significant Difference in the Level of Knowledge of Maternal Mortality by the Women to Level of Education**

Dimensions Of MM	Sum between groups	Square within groups	DF	Mean between groups	Squares within groups	F value	p. value
KCOMM	27792.561	146255.252	3	9264.187	431.431	21.437	.000*
KCMM	32637.337	154658.290	339	10879.112	456.219	23.846	.000*
KPMM	23612.768	189455.454	342	7870.923	558.866	14.084	.000*

\*significant

Table 4 shows that the F-values and their corresponding p-values for KCOMM (F=21.437, P=.000 < .05), KCMM (F=23.846, P= .000 < .05) and KPMM (F=14, P= .000 < .05) which are less than .05 level of significant at 3 and 339 degrees of freedom. The null hypothesis of no significant difference is therefore rejected. This implies that WCA differed in their level of knowledge of various dimensions of maternal mortality according to their level of education.

## Discussion

Results in Table 1 revealed that WCA in Nsukka Health District (NHD) possessed high level of knowledge of the various dimensions of maternal mortality. The finding was expected and therefore not surprising. This is because WCA might have been attending antenatal clinics where trained nurses and midwives taught effectively the rudiments of desirable maternal health practices. Embedded in these practices are to identify danger signs and symptoms during pregnancy, causes of maternal death and preventive measures. This finding is in consonance with that of Mgekem and Okon (2009) who reported that their respondents exhibited high level of knowledge, attitude and preventive practice towards pregnancy induced hypertension. Also educated women can read books, newspapers and even listen to radio and watch television from where information can be elicited on causes and prevention of maternal mortality.

Table 2 indicated that the level of knowledge of WCA with no formal education and primary education was low and average respectively in all the dimensions of maternal mortality while WCA in secondary and tertiary exhibited high level of knowledge and maternal mortality. This finding is not surprising but expected. This is due to the fact that WCA with high educational attainments are expected to exhibit adequate knowledge of maternal mortality. It is a well established fact that education empowers individual's (WCA inclusive) intellectual capacity to understand some difficult concepts especially the practical ones. The finding agrees with that of NPSM (2003) which found that women without formal education had a risk of maternal mortality five times greater than that of educated women. Educated WCA may have gained some knowledge in maternal and reproductive

health issues in their course of study which may have improved their knowledge of maternal mortality.

Table 3 showed that there was significant difference in the level of knowledge of all the dimensions of maternal mortality among WCA according to age. This implies that WCA of various age groups differed in their knowledge of all dimensions of maternal mortality. This finding was not surprising and therefore expected. There is a tendency for older WCA with several contacts with skilled birth attendants during their previous pregnancies may tend to possess high level of knowledge than the young WCA. This finding disagrees with that of Anandalashimy, Talwar, Buckshee and Hingoran (2002) who indicated that maternal mortality was 3-4 times higher among mothers of 35 years and above compared to mothers aged 20-24years and nearly three times higher than that of teenage mothers

Table 4 revealed that there was significant difference in the level of knowledge of all dimensions of maternal mortality among WCA according to level of education. This finding was not surprising, and thus expected. It is expected that WCA with higher educational attainment are expected to possess adequate knowledge of all the dimensions of maternal mortality compared with the non-educated ones. It is commonly said that education is power. WCA who were educated can attend awareness programmes, such as seminars and workshops to improve their level of knowledge of maternal mortality unlike the uneducated ones. This finding agrees with NDHS (1999) that reported that education is correlated with maternal mortality and that non utilization of maternal health care services is common among the illiterate mothers.

### Conclusions

Based on the findings and discussion, the following conclusions were attained.

1. WCA possessed high level of knowledge of the concept, causes and prevention of maternal mortality.
2. The overall level of knowledge for various dimensions of maternal mortality for WCA with no formal and primary education were low while that of secondary and tertiary education were high.
3. Age and education had significant difference in the level of knowledge of WCA regarding various dimensions of maternal mortality.

### Recommendations

On the basis of the findings and conclusions, the following recommendations were made.

1. Ministry of Education in conjunction with the Ministry of Health and Ministry of Women Affairs should organize seminars and workshops in health facilities, churches and town halls to enlighten women on causes and prevention of maternal death, especially during pregnancy and childbirth, and consequences of early marriages.
2. State government should provide free and compulsory education for every female child to enable them acquire education up to tertiary level so as to widen their scope in all spheres of life including maternal health issues.
3. To enact laws prohibiting child marriages and early childbearing and to strengthen free maternal health care services.

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