High-Risk Pregnancies and Perceptions of Maternal Mortality among Women in Plateau State, Nigeria

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Abstract
This study is on high-risk pregnancies and perceptions of maternal mortality among women in Plateau State of Nigeria. Three (3) research questions were stated to guide the study. Relevant literatures were reviewed. Both primary and secondary data were explored for the study and quantitative and qualitative techniques of data collection were triangulated for analysis. Yamane's sample size determination was used to determine the adequacy of sample. Questionnaires were administered on 300 respondents who were women within reproductive ages (15-49); in-depth interviews were conducted on 16 key informants drawn from medical personnel and women within reproductive ages in the study area. In addition, 7 focus group discussions (FGDs) consisting of 84 participants (12 in each group) were carried out. Data were analyzed and findings revealed that religion, education and culture influenced high-risk pregnancies and high-risk pregnancies were major contributory factors to the high-rate of maternal mortality in Plateau state. Every pregnancy was found to be associated with high-risk due to obstetric factors, medical conditions and unpredicted outcomes. Based on these findings, the study recommends among other that Social Workers and Sociologists as well as Medical Personnel should educate women on the need to prevent unwanted and early pregnancies and to engage in family planning, as well as regular attendance of ante-natal clinics.

Key Words: Women, High-Risk Pregnancies, Maternal Mortality.

Grossesses et Perception de la Mortalité Maternelle à Haut Risque Chez les Femmes dans l'état de Plateau au Nigeria

Résumé

Cette étude porte sur les grossesses et les perceptions de la mortalité maternelle à haut risque chez les femmes dans l'Etat de Plateau au Nigeria. Trois questions (3) de recherche ont été formulées pour guider l'étude. Les littératures pertinentes ont été examinées. Les deux données primaires et secondaires ont été explorées pour l'étude et des techniques quantitatives et qualitatives de la collecte des données ont été triangulées pour l'analyse. La détermination de la taille de l'échantillon de Yamane a été utilisée pour déterminer la pertinence de l'échantillon. Des questionnaires ont été administrés à 300 répondants qui étaient des femmes en âge de procréer (15-49 ans); des entretiens approfondis ont été effectués sur 16 informateurs clés provenant du personnel médical et les femmes dans les âges de la reproduction dans la zone d'étude. En outre, 7 discussions des groupes de discussion (DGC) composées de 84 participants (12 dans chaque groupe) ont été réalisées. Les données ont été analysées et les résultats ont révélé que la religion, l'éducation et la culture ont

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influencé les grossesses à haut risque et les grossesses à haut risque ont été les principaux facteurs qui contribuent au taux élevé de mortalité maternelle dans l'Etat de Plateau. Chaque grossesse a été trouvé à être associée à un risque élevé en raison de facteurs obstétricaux, les conditions médicales et les résultats imprévus. Sur la base de ces résultats, l'étude recommande entre autres que les travailleurs sociaux et les sociologues ainsi que du personnel médical doivent éduquer les femmes sur la nécessité de prévenir les grossesses non désirées et précoces et de participer à la planification familiale, ainsi que la fréquentation régulière des cliniques prénatales.

Mots clés: Femmes, Grossesses à risque élevé, la mortalité maternelle.

Introduction

Maternal mortality is the death of a woman while pregnant or within forty two days after termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes. Late maternal death is defined as the death of a woman from direct or indirect obstetric causes occurring more than 42 days but less than one year after the termination of the pregnancy (World Health Organization, 1993).

Reproductive health experts defined high-risk pregnancies as pregnancies that occurs when mothers' are too young or too old; when children are born at less than a two-years birth interval, and when there are high-birth order children (NPC & ICF Macro, 2009). Very young mothers may experience difficult pregnancies and delivery because of their physical immaturity. Older women may also experience age-related problems during pregnancy and delivery. A mother is considered to be" too young" if she is less than18 years and "too old" if she is older than 34 years at the time of delivery. A "short birth interval" is a birth occurring within 24 months of a previous birth (NPC & ICF Macro, 2009). High-risk pregnancies cover both medical and obstetric factors, but this research focused on three (3) basic factors: early pregnancies (before 18 years), late pregnancies (34 years and above), and continuous child bearing after having large number of children. The risk categories are: (a) unavoidable risk category (first order births between ages 18 and 34years) and (b) Single high-risk category (when the mothers' age is less than 18 or greater than 34 (NPC & ICF Macro, 2009).

The risk factors for high-risk pregnancies are: maternal age, medical conditions that exist before pregnancy, medical conditions that occur during pregnancy and pregnancy related issues. One of the most common risk factors for a high-risk pregnancy is the age of the mother-to-be. Women who will be under 17 or over 35 when their baby is due are at greater risk of complications than those between their late teens and early 30s. The risk of miscarriage and genetic defects further increases after age 40.Conditions such as high blood pressure; breathing, kidney, or heart problems; diabetes; autoimmune disease; sexually transmitted diseases (STDs); or chronic infections such as human immunodeficiency virus (HIV) can present risks for the mother and/or her unborn baby. A history of miscarriage, problems with a previous pregnancy or pregnancies, or a family history of genetic disorders is also risk factors for a high-risk pregnancy. Even if a woman is healthy when she becomes pregnant, it is possible to develop or be diagnosed with problems during pregnancy that can affect her and the baby (Icon Group International, 2004).

Pregnancy-related issues are classified as high risk because of issues that arise from the pregnancy itself and that have little to do with the mother's health. These include: premature labor, multiple births, placenta previa and fetal problems. Premature labor is labor that begins before the 37th week of pregnancy. Although there is no way to know which women will experience preterm

labor or birth, there are factors that place women at higher risk, such as certain infections, a shortened cervix, or previous preterm birth. It is on the basis of the foregoing observations that the researcher investigated the issue of high-risk pregnancies and maternal mortality in Nigeria, specifically in Plateau State, with a view to having holistic understanding of the problem in the area.

Research Problem

A recent World Health Organization (WHO) report on 'Trends in maternal mortality: 1990-2013' classifies Nigeria as one of the 10 countries of the world that contribute about 60 per cent of the world's maternal mortality burden. Nigeria currently has a maternal mortality ratio of 560 per 100,000 live births (World Health Organization, 2014).Maternal mortality ratio is worst in Northern Nigeria; an average staggering figure of 2,420 (ranging between 1,373 and 4,477) per 100,000 live births was recorded in Kano State (Kapadia, Shah & Sikri, 1997). In addition, another cause of concern is women's apathetic attitude towards their own health and its management during illness. Women were found to seek treatment only when their health problem caused great physical discomfort or when it affected their work performance (Kapadia, Shah &Sikri, 1997). The North East zone has the highest Maternal Mortality Rate (1,549 per 100,000 live births), which is almost ten times higher than in the South West. The rate in the North West (1,025 per 100,000 live births) is six times higher than in the South West (NPC, UNICEF, 2001; cited in James, 2008).

Most African cultures value children highly, but few people including women themselves understand the risks involved in bearing children. About one third of the total disease burden among women aged 14 to 44 years in Africa is linked to health problems arising out of pregnancy, childbirth, abortion and reproductive infections (Arkutu, 1995; Olusola, 2011). For instance, Arkutu (1995) observed that women in Africa die much more frequently from the complications of pregnancy and childbirth than women in Europe and North America. This view has been similarly expressed by various stakeholders in Plateau State, where cases of maternal mortality and morbidity are high. The maternal mortality ratio of Plateau was reported to be 1,060 deaths per 100,000 live births (Ujah, Uguru, Sagay & Otubu 1999).

Nigeria is ranked second in the world behind India and Nigeria is part of a group of six countries in 2008 that collectively accounted for over 50% of all maternal deaths globally. In terms of the maternal mortality ratio, Nigeria is ranked eighth in Sub- Saharan Africa behind, Angola, Chad, Liberia, Niger, Rwanda, Sierra Leone and Somalia (National Demographic and Health Survey, 2008).Nigeria makes up 2% of the world's population, but it accounts for 10% of its maternal deaths. In a report by World Health Organization (WHO, 2008), Nigeria was identified as having the world's second-highest number of maternal deaths with approximately 59,000 of such deaths taking place annually. Similarly, Obadaki (2009) observed that a woman in Nigeria has 1 in 8 risk of dying in child birth or from pregnancy-related causes during her life time, which is higher than the overall 1 in 22 risks of women throughout sub-Saharan Africa. The risks of maternal deaths are even greater for certain Nigerian women such as those in the Northern region of the country, rural women and low income women without formal education.

Furthermore, most studies on maternal mortality and morbidity have concentrated on other causes of maternal mortality and morbidity, ignoring high-risk pregnancies, such as: early child bearing, late child bearing, and having large number of children. According to World Health Organization (WHO, 2005) one out of every 22 women in Africa dies from pregnancy-related complications. For every woman who dies, about 50 to 100 other women suffer from an illness or disability caused

by childbearing. This means that every year, more than 150,000 African women die and millions of women suffer a serious illness, because of pregnancy and child birth (Arkutu, 1995). In particular, the National Demographic and Health Survey (NDHS, 1990) reported that more than 67.68% of all pregnancies in Nigeria (from 1985-1990) were high-risk pregnancies. It was therefore important to know the contributory percentage of high risk pregnancies to the issue of maternal mortality using Plateau state as a reference point.

Research Questions

This study was predicated on the following research questions:

i. To what extent is high-risk pregnancies practiced in Plateau State?
ii. What are the manifestations of maternal mortality in Plateau State?
iii. What is the relationship between practices of high-risk pregnancies and knowledge of maternal mortality in Plateau State?

Objectives of the Study

Generally, this study was aimed at investigating the relationship between respondent's knowledge and their indulgence in high-risk pregnancies, to know if such can lead to maternal mortality in Plateau State. However, the specific objectives of the study were to:

i. Investigate the practices of high-risk pregnancies in Plateau State.
ii. Explain the manifestations of maternal mortality in Plateau State.
iii. Investigate respondents' indulgence in high-risk pregnancies and its relationship to their knowledge of maternal mortality in Plateau State.

Literature and Theory

Practices of High-Risk Pregnancies

Nigerians want large families. According to the 2003 NDHS, women would like to have at least 6 children; men would like to have almost 9 children. Currently married people want even larger families- 7.3 children for married women and 10.6 for married men. The 2003 NDHS suggest that women are waiting longer to marry and to have their first births. Overall, among women age 25-49, the median age at first marriage is 16.6 years. However, among younger women, age 20-24, the median age at first marriage is 19.1. In contrast, among older women, age 45-49, the median age of marriage is 15.5. Younger Nigerian women are also delaying sexual activity. Overall, one-third of women age 25-49 reported having sexual intercourse by age 15. However, younger women, age 20-24, start sexual activity at the median age of 17.6 compared with a median age of 15.5 for older women age 45-49. The findings suggest, however, that younger Nigerian women are more likely to begin sexual activity before marriage compared with their mothers and grandmothers. The median age at first birth is increasing. Among women ages 25-29, the median age at first birth is 20.3 years. In contrast, for women 35 and older the median age is less than 19 years (NPC & ICF Macro, 2003). The reason why Nigerians want large families has not been investigated.

The total fertility rate in the 1999 NDHS indicates that if fertility rates were to remain constant at the level prevailing during the 1994-98 period, a Nigerian woman would bear 5.2 children in her lifetime. The age specific rates indicate a pattern of late childbearing, with a peak at age group 25-29 and the rate at age group 30-34 being slightly higher than that of the 20-24 age

group (NPC & ICF Macro, 2000). Childbearing begins early in Nigeria, with about half of women 25 years and above becoming mothers before reaching the age of 20. The median age at first birth is 20. The data also show that there has been no significant change in the median age at first birth between older and younger women. The most noticeable differentials occur with respect to region, with women in the northern regions starting to bear children earlier than those in the Central, Southeast, and Southwest regions. Educated women, particularly those with a higher education, start bearing children later than those with a primary and secondary education (NPC & ICF Macro, 2000). According to 2008 NDHS report, the risk ratio for single high-risk categories is 1.37, while the risk ratio for multiple high-risk categories is 1.92. The highest risk is associated with mothers in the single high-risk category, age less than 18 years (1.73), followed by mothers in the multiple high-risk category, younger than 18 years, with birth intervals less than 24 months (3.88) (NPC & ICF Macro, 2009). Why are there differences in child bearing by region?

Manifestations of Maternal Mortality

About 60 percent of the maternal deaths occur during childbirth and the immediate postpartum period, with 50 percent of these deaths occurring within the first 24 hours of delivery. In a study in Eritrea, 16 percent of maternal deaths occurred during pregnancy, 48 percent during childbirth, and 36 percent postpartum (Ghebrehiwot, 2004). These findings imply that the causes of the deaths in this critical period are either the result of labor or worsened by labor and delivery. Maternal mortality is among the health indicators that reflect the greatest disparity between rich and poor. While every woman is at risk for experiencing sudden and unexpected complications during pregnancy, childbirth and following delivery, adequate anti- natal, obstetric and post-natal care can reduce the risk of death considerably (Olusola, 2011).

Relationship between Practices of High-Risk Pregnancies and Knowledge of Maternal Mortality

The proximate and more distal determinant of fertility contributes to maternal morbidity and mortality because pregnancy is a pre-condition. Models of the proximate determinants suggest for example that non-contraception, non-lactating women in stable sexual unions are most exposed to the risks of pregnancy and on an aggregate level; these characteristics together with induced abortion primarily determine the total fertility rate (Bongaarts & Potter, 1983). Age is another important determinant which influences both fecund-ability and the likelihood of exposure to intercourse. The implications of these proximate determinants of pregnancy for maternal health have been illustrated by Graham and Airey (1987), who among others, show that in many settings, the majority of maternal deaths come from the mid reproductive ages where the most women are giving birth despite the youngest and oldest women having the highest age-specific risks per pregnancy. Although not yet demonstrated, empirically, the same relationships are likely to hold for age and maternal morbidity.

Distal determinants of fertility are often considered at both the societal and individual levels (Cochrane & Lesthaeghe, 1981). Social institutions, cultural norms, economic and environmental conditions as well as women's education, status, employment, ethnicity, and family size desires have been identified as important distal determinants. Generally higher levels of education, income and women's status are associated with lower levels of fertility and it is assumed that they have a similar association with maternal morbidity and mortality although this is by no means certain.

Theoretical: Political Economy of Health

The political economy of health refers to a frame of analysis and a perspective on health policy which seeks to understand the conditions which shape population health and health service development within the wider macro-economic and political context. Alubo (1985) observed that health care is linked to a nation's political economic system. The state of medical underdevelopment reflects economic underdevelopment. Basic assumptions of political economy perspective are:

i. Society is characterized by class struggle, in which the ruling class uses economic and political power to reinforce its domination and exploitation of the working class.
ii. Historical patterns of accumulation in the human society and how generated wealth is distributed among the people is characterized by alienation, which is perpetuated by the class relation.
iii. Dominant economic structure of the society determines inequality and power as well as shaping the relations upon which the major social institutions are built.
iv. The relations of domination within patriarchal capitalism create conditions of deprivation among the people. There is also the contradictions in the pursuit of society's goals and capitalists' interest in the society.

Africa and other parts of the developing world treasure motherhood and attach such a high premium to children to the extent that women have little control over their reproductive and maternal health (Berer, 1994; Paolisso & Leslie, 1995). This has consequently led to high fertility rate within the continent thus endangering the health of mothers and children because the higher the number of births per woman the higher the mortality rate and by extension, child mortality rate (Turmen, 1993). According to Berer (1994, p. 43), "we glorify motherhood on the one hand and still we let half a million die each year worldwide in pregnancy, childbirth and dangerous abortion".

Methodology

This paper derives from a descriptive community-based cross-sectional research. The sources of primary data were women (literate and non-literate, divorced, separated, widowed, and single mothers) within reproductive ages, maternal health care providers, such as nurses/midwives, doctors, as well as married men which made up the study population within Jos North local government area. Seven (7) focus group discussions were conducted with twelve (12) participants in each group, making a total of eighty four (84) participants to generate more primary data alongside sixteen (16) in-depth interviews. In addition, secondary data from governmental and non-governmental published documents were used. The purposive sampling method was used to select sixteen (16) key informants for the in-depth interviews (IDI's). The units of analysis were regular households with a group of persons consisting of conjugal families.

A multi-stage sampling procedure was adopted for the survey component of the study. In the absence of direct sampling source, a strategy is needed for linking population numbers to some kind of groupings that can be sampled (Flower, 2009). Given the widely dispersed population of the Local Government, the multi-stage sampling allowed for representation of various groups with cluster sampling. From the main district, named 'Gwong district'; seven (7) wards were selected through simple random sampling technique out of the fourteen (14) wards. This was done by walking through major streets in each area, north, east, west, and south and administering

questionnaires. Households were selected for the study through systematic sampling by selecting three main streets in the community and every third numbered house on both sides of the street for the administration of questionnaire. In houses with one to three households, one household was selected, for houses with four to six households; two were selected, while for those with seven or more, three households were chosen. Within each household, respondents were selected through a simple random sampling. Also some questionnaires were administered to women on ante-natal clinic days of the selected hospitals. A total sample size of 300 respondents was selected for the survey.

In-depth interview key informants were selected through purposive sampling (a non-probability sampling technique). The chance that a particular sampling unit will be selected for the sample depends on the judgment of the researcher (Nachmias & Nachmias, 1981:299, cited in Nwagbara, 2007). Purposive sampling was also used to select discussants for FGDs. Factors like literacy and age category was taking into consideration especially in the groups that involved women.

The Yamane's formula was used to determine the sample size. Three hundred women within reproductive ages were administered with questionnaires and medical personnel, married men and women were engaged in FGDs and IDIs, which compensated for the remaining hundred percent. Both quantitative and qualitative techniques were triangulated for analysis. Seven (7) FGDs were conducted with 12 participants in each group. The first and second group consisted of women within reproductive ages (i.e. 15-45 years), the third and fourth group consisted of nurses/midwives, and the fifth group consisted of medical doctors, and the other groups were a combination of participants. Participants' age and literacy level were taking into consideration in the groupings. An FGD guide was made based on the objectives of the study; participants were asked questions and probed for further responses by reframing the questions and asking them again. A note taker and a moderator were assigned to take notes and moderate sessions. The FGDs were conducted in Kauna Hospital, University of Jos Clinic, Solat Women hospital and Jos University Teaching Hospital. Also sixteen (16) in-depth interviews were conducted, with women as well as medical personnel who served as key informants. The purpose of the FGDs and IDIs were to gain knowledge about high-risk pregnancies and maternal mortality by discussing with a group of women directly affected by the problem, as well as people who are knowledgeable about it, to explore the depth and nuances of opinions. A tape recorder was used with the consent and permission of the participants to record the data. Qualitative data were analyzed using content analysis, while quantitative data were analyzed using Social Science Statistical Package (SPSS) and Chi-Square (x^2) analysis was used to explore the relationship between variables.

Results

Practices of High-Risk Pregnancies

This section assessed the indicators of high-risk pregnancies in terms of age at marriage, age at first child birth, average age difference between children, frequency of child birth and total number of children a woman bore.

Table 1: Practices of High-Risk Pregnancies, N = 300

Variables	Frequency	Percentage
Age at marriage		
No response	6	2.0
15-19yrs	70	23.3
20-24yrs	105	35.0
25-29yrs	78	26.0
30-34yrs	28	9.3
35yrs above	13	4.3
Age at first child birth		
No response	20	6.7
15-19yrs	40	13.3
20-24yrs	106	35.3
25-29yrs	95	31.7
30-34yrs	28	9.3
35yrs above	11	3.7
Average age difference between children		
No response	42	14.0
1yr	11	35.7
2yrs	27	37.7
3yrs	113	9.0
4yrs above	107	3.7
Frequency of child birth		
No response	50	16.7
Yearly	20	34.7
Every 2 years	126	42.0
More than every 2 years	104	6.7
Total number of children including previous marriages if any		
No response	35	11.7
One	46	15.3
Two	59	19.7
Three	51	17.0
Four and above	109	36.3

Source: Author's field work, 2013**.**

With reference to age at marriage, table 1above shows that 23.3% (70) married between the ages of 15 – 19 years. The data on age at first child birth indicated that 13.3% (40) started child bearing within the age range of 15 – 19 years. The data on the average age difference between children indicated that 35.7% (11) gave a year birth interval between their children and 3.7% (107) gave 4 years birth interval between their children. Also, on the frequency of child birth, the distribution indicated that 34.7% (20) of the respondents gave birth yearly. The distribution on the total number of children a woman bore indicated that majority (36.3%) 109 had four children and above, this implies that birth order greater than 4 which is a high-risk factor was commonly practiced.

Manifestations of Maternal Mortality

This section analysed the knowledge of respondents on maternal mortality within the last 5years, manifestations of maternal mortality, period of maternal mortality (is it during pregnancy, during labour or after child birth) marital status category that experience maternal mortality most (is it the single, married or divorced), and age category of women that experience maternal mortality most (is it the younger women, middle aged women, or older women).

Table 2 below which shows data on respondents' knowledge of maternal mortality within the last 5 years indicated that 64.7% (194) had knowledge of such. The distribution on respondent's perception of causes of maternal mortality indicated that bleeding (haemorrhage) 21.0% (63) was the number one cause of maternal mortality. On period of maternal mortality, 32.0% (96) of respondents opined that women died most during labour. On the marital status category that experience maternal mortality most, respondents opined that every marital status category had an equal chance of experiencing maternal mortality. On the age category of women that experience maternal mortality most, respondents opined that younger women 46.3% (139) experienced maternal mortality most.

Table 2: Manifestations of maternal mortality, N = 300

Variables	Frequency	Percentage
Knowledge of anybody that died as a result of pregnancy or childbirth within the last 5years		
No response	28	9.3
Yes	194	64.7
No	78	26.0
Causes of maternal mortality		
No response	120	40.0
High blood pressure(Pre-Eclampsia)	22	7.3
Sickness during pregnancy period	10	3.3
Complications during child birth(Labour)	46	15.3
Poor medical attention	3	1.0
Poverty/Inability to obtain medical care	7	2.3
Ectopic pregnancy	3	1.0
Bleeding(Haemorrhage)	63	21.0
Late medical attention	5	1.7
Misconception and believes on ante-natal/CS and others	21	7.0
Period of maternal mortality		
No response	82	27.3
During pregnancy	29	9.7
During labour	96	32.0
After child birth (Pueperium)	93	31.0
Marital status category that experience maternal mortality most		
No response	44	14.7
Single	60	20.0
Married	173	57.7
Divorced	23	7.7
Age category of women that experience maternal mortality most		
No response	36	12.0
Young women	139	46.3
Middle aged women	76	25.3
Older women	49	16.3
Total	**300**	**100.0**

Source: Author's field work, 2013**.**

Relationship between Practices of High-Risk Pregnancies and Perceptions of Maternal Mortality

Table 3 below shows the relationship between practices of high-risk pregnancies and perceptions of maternal mortality. 74.7% (224) of the surveyed respondents opined that pregnancy at an age

Table 3: Relationship between Practices of High-Risk Pregnancies and Perceptions of Maternal Mortality, N = 300

Variable	Frequency	Percentage
Do you think becoming pregnant at an age below 18 can lead to maternal mortality?		
No response	20	6.7
Yes	224	74.7
No	56	18.7
Do you think becoming pregnant at the age of 34 and above can lead to maternal mortality?		
No response	36	12.0
Yes	146	48.7
No	118	39.3
Do you think continuous pregnancy after having a large number of children can lead to maternal mortality?		
No response	23	7.7
Yes	240	80.0
No	37	12.3
Total	300	100.0
Do you think poor birth spacing can lead to maternal mortality?		
No response	20	6.7
Yes	216	72.0
No	64	21.3
What was your mode of last delivery?		
No response	43	14.3
Spontaneous virginal delivery(Normal delivery)	213	71.0
Cesarean section(CS)	44	14.7

Source: Author's field work, 2013**.**

below 18 years is high-risk and can lead to maternal mortality. Also, 48.7% (146) of the respondents opined that child bearing at the age of 34 years and above is high-risk and can lead to maternal mortality. In addition, 80.0% (240) of the respondents' opined that continuous child bearing after having a large number of children are high-risk and can lead to maternal mortality. Furthermore, 72.0% (216) of the surveyed respondents opined that poor birth spacing is high-risk and can lead to maternal mortality. Lastly, 14.7% (44) said they delivered their last babies through caesarean section (c/s).

Chi-square tests were also employed to show the degree of relationship between the variables.

Table 4-Relationship between Religion and Age at marriage

			Age at marriage					Total
			15-19yrs	20-24yrs	25-29yrs	30-34yrs	35yrs above	
Religion	**Christianity**	Count	43	82	70	27	12	238
		% within Religion	18.1%	34.5%	29.4%	11.3%	5.0%	100.0%
		% of Total	14.3%	27.3%	23.3%	9.0%	4.0%	79.3%
	Islam	Count	27	23	8	1	1	62
		% within Religion	43.5%	37.1%	12.9%	1.6%	1.6%	100.0%
		% of Total	9.0%	7.7%	2.7%	.3%	.3%	20.7%
Total		Count	70	105	78	28	13	300
		% within Religion	23.3%	35.0%	26.0%	9.3%	4.3%	100.0%
		% of Total	23.3%	35.0%	26.0%	9.3%	4.3%	100.0%

$X^2_c = 25.854$ Alpha level = .000 df = 5 $X^2_t = 13.388$

Table 4 above shows that religion has a significant influence on the age at which women get married. The data shows that between the ages of 15-19yrs, more Muslims 43.5% (27) got married, compared to 18.1%(43)Christians who got married at that age. Also, 5.0% (12) of the Christians got married at the age of 35yrs and above, compared to 1.6% (1) of the Muslims respondents who got married at that age. Since calculated X^2 value (25.854) is greater than the table X^2 test (13.388), it shows a significant relationship between religion and age at marriage.

Table 5 below shows that religion has a significant influence on age at first child birth. The data shows that between the ages of 15-19yrs, more Muslims 30.6% (19) had their first child birth, compared to 8.8% (21) Christians who had their first child birth at that age. Also, 4.6% (11) of the Christians had their first child birth at the age of 35yrs and above, compared to 0.0% (0) of the Muslims respondents who had their first child birth at that age. Since calculated X^2 value (37.323) is greater than the table X^2 test (13.388), it shows a significant relationship between religion and age at first child birth.

Table 5-Relationship between Religion and Age at first Child Birth

			Age at first child birth					Total
			15-19yrs	20-24yrs	25-29yrs	30-34yrs	35yrs above	
Religion	**Christianity**	Count	21	82	84	28	11	238
		% within Religion	8.8%	34.5%	35.3%	11.8%	4.6%	100.0%
		% of Total	7.0%	27.3%	28.0%	9.3%	3.7%	79.3%
	Islam	Count	19	24	11	0	0	62
		% within Religion	30.6%	38.7%	17.7%	.0%	.0%	100.0%
		% of Total	6.3%	8.0%	3.7%	.0%	.0%	20.7%
Total		Count	40	106	95	28	11	300
		% within Religion	13.3%	35.3%	31.7%	9.3%	3.7%	100.0%
		% of Total	13.3%	35.3%	31.7%	9.3%	3.7%	100.0%

$X^2_c = 37.323$ Alpha level = .000 df = 5 $X^2_t = 13.388$

Table 6below shows that religion has a significant influence on the total number of children a woman bears. The data shows that more Muslims 54.8% (34) gave birth to more than four children, compared to (31.5%)75 Christians who gave birth to more than four children; 17.6% (42) of the Christian respondents gave birth to three children, compared to 14.5% (9) of the Muslim respondents who had three children; 23.1.% (55) of the Christian respondents gave birth to two children and 17.2% (41) gave birth to onechild, compared to 6.5% (4) of the Muslim respondents who gave birth to two childrenand 8.1% (5) who gave birth to a child.Since calculated X^2 value (18.616) is greater than the table X^2 test (18.465), it shows a significant relationship between religion and the total number of children a woman bears.

Table 6- Relationship between Religion and Total number of Children

			Total number of children including previous marriages if any				
			One	Two	Three	Four and above	**Total**
Religion	**Christianity**	Count	41	55	42	75	238
		% within Religion	17.2%	23.1%	17.6%	31.5%	100.0%
		% of Total	13.7%	18.3%	14.0%	25.0%	79.3%
	Islam	Count	5	4	9	34	62
		% within Religion	8.1%	6.5%	14.5%	54.8%	100.0%
		% of Total	1.7%	1.3%	3.0%	11.3%	20.7%
Total		Count	46	59	51	109	300
		% within Religion	15.3%	19.7%	17.0%	36.3%	100.0%
		% of Total	15.3%	19.7%	17.0%	36.3%	100.0%

$X^2_c = 18.616$ Alpha level = .001 df = 4 $X^2_t = 18.465$

Key Findings

The first objective of the study was to investigate the practices of high-risk pregnancies in Plateau state and to that end findings revealed that women in Plateau state practice high-risk pregnancies especially through early pregnancies (below 18years), poor birth spacing, and continuous child bearing after having many children, and this puts them at risk of maternal mortality. In response to the question on family planning and giving birth to more children after having a large number of children, a discussant from FGD (woman within child bearing age) said:

> "I don't believe in family planning practice, I will keep bearing children until all the seeds God have put in me are born. Child birth comes with celebrations and I receive many gifts like wrappers, soaps, and ram is slaughtered to mark the naming ceremony, which makes the woman wealthier. To have many children is to have plenty respect and wealth and there is joy in being called a proud mother of many children and if a woman does not bear children, her husband is forced to marry another wife". (.

In responds to the question on the demand for a specific sex of child and high-risk pregnancies, a discussant from FGD (medical doctor from JUTH) said:

> "Many Africans believe that a woman must have a male child or else she is regarded as an unfortunate wife, because the man bears the family name and caries it on to the next generation. In most cases, the woman keeps on giving birth until she gets a male child, which may be risky to her health. Despite the risks involved in continuous child bearing, the woman would rather bear it all than lose her husband to another woman that can give him a male child".

In response to the question on age at marriage, a discussant from FGD (medical doctor from JUTH) said:

> "Most women marry between the ages of 15-30 years old, elderly *primi gravida* (first pregnancy at 34yrs and above) is not quite common in this part of the country"(Researcher's field work, 2013).

Also, a key informant from IDI (nurse from Solat Women Hospital) said:

> "I grew up in Jos North L.G.A of Plateau state, and have worked there for a long time as a nurse. I have observed that for the non-literate, early pregnancy (below the age of 18) is common among them, while for the literate they get pregnant mostly at age 20 and above and most of them marry at about that age".

Another discussant from FGD(a medical doctor from JUTH) said:

> "Age at marriage depends on the socio-economic status, religion and culture of the people. It has been observed that most Muslims especially the less educated ones marry much earlier than the educated ones and start child bearing before the age of 18 years, while most educated people marry in their twenties, they also delay child bearing to that age. The case is different in the Western and Southern part of the country, where people who marry at age 25 are considered to have married early..."(Researcher's field work, 2013).

In response to the question on whether becoming pregnant at an age below 18 is a high-risk pregnancy or not, a key informant from IDI (nurse from University of Jos Medical Centre) had this to say:

> "Below 18 years of age, females are not matured enough to carry pregnancy. In most cases they end up with septicemia or anemia, which could lead to death because the pelvis and the uterus are not yet ready to carry pregnancies, but in cases of occurrence, close medical attention and advice can help. There may be some difficulty in pushing since the bones around the pelvis are not well developed this may lead to obstructed labour…" (Researcher's field work, 2013).

In addition to this, a discussant from FGD (medical doctor from JUTH) said:

> "At the age of 34 and above the woman is getting closer to menopause and the hormones concerned with pregnancy may reduce. There is a risk of anxiety, abnormality and sterility;it is called elderly prime for those going in for the first time and grand multi-party for someone that have had children and is still giving birth at that age. They are more prone to polyhydraminios, a medical condition whereby there is excessive hypnotic fluid in the amniotic sac, which can compromise the life of the baby and they are also prone to having still births and malformed children…"(Researcher's field work, 2013).

Also, from the results of the FGD's, a discussant (nurse from Kauna Hospital) said:

> "Continuous child bearing after having a large number of children poses a big risk on the health of the mother. There is a tendency of having ruptured uterus, because the elasticity of the uterine wall is no longer there, also a tendency of having abnormal babies, post-partum haemorrhage and maternal mortality. It may lead to socio-economic crises as the woman may not be able to cater for her needs and that of her children. The cervix becomes

loosed; the uterus becomes weak as a result of giving birth to too many children, which may lead to maternal mortality. If Iron stores which are the back bone of cell formation are depleted, the uterus becomes a bit large, so there is a tendency for unstable lie and code prolapsed. Iron deficiency and anemia is higher with multiple pregnancies…" (Researcher's field work, 2013).

The second objective of the study was to explain the manifestations of maternal mortality in Plateau state and as suggested by previous research findings, it revealed that younger women tend to die mostly due to complications, and compared to single or divorced women, the married category are more at risk of mortality because there is a tendency of continuous child bearing among them. It is evident that poor women die most because they often cannot afford to pay their health bills.

The third objective explained the relationship between practices of high-risk pregnancies and perceptions of maternal mortality in Plateau state. Findings revealed that high-risk pregnancies are a major contributory factor to the high rate of maternal mortality in Plateau State. Every pregnancy was found to be associated with high-risk due to obstetric factors, medical conditions and unpredicted outcomes. Also, early pregnancies were more common as compared to late pregnancies in Plateau State. This suggests that most women marry early and give birth before age 34. Very young mothers experienced difficult pregnancies and delivery because of their physical immaturity. Older women also experienced age-related problems during pregnancy and delivery which can lead to maternal mortality.

Conclusion

High-risk pregnancies are therefore one of the major causes of maternal mortality in Plateau State, however since late pregnancy (34 years and above) is not commonly practiced it is evident that early pregnancy is most practiced. This is the thesis of this research. Abraham Lilienfeld (1980), a prominent epidemiologist, very appropriately remarked, "the better we know about the root cause of a problem, the better we are in a position to address the problem," and in his book, Foundations of Epidemiology, cites Benjamin Disraeli's, "The more extensive a man's knowledge of what has been done, the greater will be his power of knowing what to do".

Recommendations

i.Women within child bearing age should be educated by government of the country, medical personnel's, sociologists and social workers on reproductive health issues. Females should be advised by medical professionals, sociologists and social workers to delay marriage and child bearing until they are prepared for it physically, emotionally and financially.

ii. Men should be educated by medical personnel's, sociologists and social workers on how to help their wife's avoid high-risk pregnancies.

iii. Government should ensure that all women needs of access to antenatal care in pregnancy, skilled care during childbirth, and care and support in the weeks after childbirth are met. It is particularly important that all births are attended by skilled health professionals, as timely management and treatment can make the difference between life and death.

v. To avoid maternal deaths, it is also vital to prevent unwanted and too-early pregnancies. All women need access to family planning. In addition, women should be educated on the risk involved in continuous child bearing after having a large number of children. This can be done during their ante-natal clinics.

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