

Causes of maternal deaths in a tertiary hospital in Limpopo Province, South Africa: Healthcare professionals' perspective

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Abstract

Some women die as a result of pregnancy or childbirth complications which occur during pregnancy, childbirth or within two months after the birth or termination of a pregnancy. The general health status of pregnant women depends largely on the available quality ante-natal care services. The aim of the study was to determine the perceptions of healthcare professionals regarding the causes of maternal deaths in tertiary hospital in Limpopo province. A qualitative, descriptive and exploratory design was used. The population included all obstetricians and midwives working at the tertiary hospital in Limpopo province. A non-probability, purposive and convenient sampling method was used to select participants. Twelve participants who had three and more years experience in the obstetrical unit were included in the study. Data were collected through individual in-depth, unstructured interviews. Data were analysed qualitatively by means of the open-coding method. Findings revealed three themes with sub-themes, namely; HIV and AIDS associated with maternal death, risky diagnosis contributing to maternal death and pregnancy versus post-delivery complications. There is need to strengthen advocacy campaigns on the importance of early booking and regular antenatal care attendance, and strengthen integration of HIV and AIDS into the antenatal care services.

Keywords: Causes, maternal death, perceptions, health care professionals.

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Introduction

Maternal deaths are a global major public challenge. Reliable information about its rates and trends is crucial in order to mobilize resources, and for planning and assessment of the level of progress towards the achievement of the Millennium Development Goals (MDGs) (Hogan et al., 2010). The maternal mortality rate reflects the availability, accessibility and quality of antenatal care which is provided for pregnant women, during pregnancy, labour and puerperium which are evaluated against the norms and standards. The general health status of pregnant women depends largely on the quality of the antenatal care services available during pregnancy. Pregnancy tends to aggravate most potential diseases that can occur in women. South Africa aims to reduce maternal

mortality rate by three-quarters by 2015 in order to improve the care of the pregnant women until the puerperium stage (Hogan et al., 2010).

The two common indicators referred to when describing maternal deaths are the maternal mortality rate and maternal mortality ratio (Ganyaglo & Hill, 2011). The maternal mortality rate reports point that most women die as a result of maternal causes, that is, deaths that occur during pregnancy, childbirth or within two months after the birth or termination of a pregnancy, and which are due to pregnancy or childbirth complications. This is obtained by dividing the number of maternal deaths by the number of person-years of exposure to mortality risk. The maternal mortality ratio reports on the number of women who die as a result of maternal causes per 100,000 live births. The maternal mortality ratio is based on the South Africa Demographic and Health Survey (SADHS) data for the approximate period 1992 – 1998. African countries have a burden of maternal deaths; therefore, formulation of strategies that can curtail the problem is essential especially in the sub-Saharan Africa, which is hard hit because of its socio-economic, cultural and infra-structural barriers (Adamu, Salihu, Sathiakumar & Alexander, 2003).

However, the statistics for this category of maternal mortality in South Africa are incomplete and inadequate which is reflected in maternal mortality ratio where there is difficulty in obtaining the denominator data needed to accurately calculate this ratio. The statistics has indicated that in the KwaZulu-Natal province there were highest number of maternal deaths over a three-year period (1999 - 2001) compared to all other provinces with a total number of 243. The Northern Cape and Western Cape are the two provinces with the lowest number of maternal deaths with the total of 27 and 42, respectively in the same year (<http://www.childrencount.ci.org.za>:accesed 03 September 2008. on line).

Medical causes of maternal death are classified into two categories, direct causes and indirect causes. The main cause of maternal death was indicated as direct obstetric causes which were responsible for 77% and indirect causes being responsible for 20%. For 3% it was not possible to determine a cause of death. Hemorrhage before and after delivery was the leading direct cause of maternal death at 43%, hypertensive diseases amounted to 22%, whilst sepsis was 8%, ruptured uterus 8%, cesarean section 7% and obstructed labour 5% (Hogan et al., 2010).

In the light of this background, it is imperative to determine the causes of maternal death in the tertiary hospital in the Limpopo Province, as perceived by the health care professional. It is envisaged that findings from this present study would inform health policy on what causes maternal deaths. The health care professionals would be better informed in strengthening health education and awareness programmes with the focus on reducing maternal deaths.

Methodology

Qualitative, descriptive and explorative research design was used in order to gain more knowledge about the problem. Participants were given time to describe their perceptions whilst researchers asked clarity seeking questions where a need arose related to what they perceive to be the causes of maternal death (Botma, Greeff, Mulaudzi & Wright, 2011). The researchers were able to elicit more meaning and understanding about the problem in the context in which the action takes place at the obstetric unit of a tertiary hospital campus in Limpopo Province (Brink, 2006; Botma et al., 2011).

Population and sampling

The population for this study was all obstetricians and midwives in one tertiary hospital campus. Non-probability sampling was used to include twelve participants who had three and more years experience in the obstetrical unit as the researchers were satisfied that they based their selection on the participants' years of experience determine the experience one has in relation to the problem being studied (de Vos, Strydom, Fouché & Delpont, 2006; Brink, 2006). Sample size of 12 was determined by data saturation during the unstructured interview sessions.

Ethical considerations

Ethical clearance was obtained from University of Limpopo Medunsa Campus Research Ethics Committee (MREC) whilst permission to collect data in the Health care institution was obtained from Limpopo Province Department of Health Research Ethics Committee. Informed consent was obtained from all participants prior to the start of each unstructured interview session conducted. The aim and nature of the study were explained to the participants prior to data collection. The names of the participants were not used but numbers were allocated to each participant to ensure anonymity and confidentiality (Brink, 2006).

Data collection

Data were collected by unstructured interviews in the restroom which was judged to be a conducive environment. Interviews were done during the lunch breaks. Participants were encouraged to talk freely about the problem being explored. A voice recorder was utilized to capture all interview sessions. Field notes were written to supplement what was voice recorded (De Vos et al., 2006).

Data analysis

Tesch’s inductive, descriptive coding technique was used where the researchers obtained a sense of the whole problem by reading through the transcriptions carefully and jotting down the ideas which come to mind. The list was made of all the topics and similar topics were clustered together and formed into columns which were arranged into major topics, unique topics and leftovers. The most descriptive wording for the topics was grouped into themes and sub-themes (Botma et al., 2011; Creswell, 2009).

Trustworthiness

To ensure trustworthiness in the study, the following criteria were used as outlined by Botma et al. (2011); Babbie and Mouton (2009): Credibility was ensured by triangulating data collection methods where voice recorder was used to capture all interview session. Field notes supplemented the voice recorder where nonverbal communication was written. Transferability was ensured by utilizing purposive sampling to include the participants in the study and detailed description of the research method used which gives a chance to other researchers to conduct the same study in the different context. Conformability was maintained by collecting data from the participants who have experience on the problem studied until saturation (Babbie & Mouton, 2009).

Results

Themes and sub-themes which reflect the perspective of health care professionals on the causes of maternal death in a tertiary hospital are summarised in Table 1.

Table 1: Themes and sub-themes reflecting the causes of maternal death

Themes	Sub-themes
1. HIV and AIDS associated with maternal death	1.1 HIV infection leads to low levels of CD4 ⁺ T cells 1.2 Denial of HIV diagnosis leading to delay in taking antiretroviral therapy (ARVs).
2. Risky diagnosis contributing to maternal death	2.1 Eclampsia and HELLP Syndrome as contributors to maternal death 2.2 Bleeding related complications
3. Pregnancy versus post-delivery complications	3.1 Failure to meet physical demands of pregnancy. 3.2 Infection related to lack of adherence to aseptic technique and retained birth products

Discussion

Theme 1: HIV and AIDS associated with maternal death

The participants gave explanations which indicated that HIV and AIDS are associated with maternal death. The themes and sub-themes that emerged are

discussed and supported by the direct quotes of the participants written in italic. The findings of the study are similar to the systematic analysis of progress towards MDGs 5 conducted by Hogan et al. (2010) for 181 countries for the period 1980 – 2008 which revealed that increases in Maternal Mortality Rate (MMR) have been documented in countries with large HIV epidemics with South Africa inclusive.

Sub-theme 1.1: HIV infection leads to low levels of CD4⁺ T cells

This study revealed that HIV was the most underlying common cause of maternal death in the tertiary hospital. Participants' indicated that HIV and AIDS causes suppression of immunity, then the virus attacks the T-lymphocytes and this increases the risk of opportunistic infections such as pneumonia, pulmonary tuberculosis, and diarrhea; and consequently develops chronic illness. This was supported by the participant who said "*HIV/AIDS-related diseases such as pulmonary tuberculosis and pneumonia are the most leading opportunistic conditions that lead to maternal death in HIV-infected women*". Another participant said "*I am telling you almost all the maternal death that has occurred in this unit when investigations are taken all women tested positive and had some opportunistic infections that they have experienced during pregnancy*". van Dyk (2012) outlines that in case of HIV, the immune cells are damaged especially the CD4⁺T cells and decline in number as they are drained from the system and creating an entry for other opportunistic infections.

Sub-theme 1.2: Denial of HIV diagnosis leading to delay in taking ARV's

The findings of the study indicated that most women who are diagnosed with HIV and AIDS tend to deny the reality of their HIV positive status, which leads to delay of taking ARVs treatment which at a later stage result in maternal death. The consequences of not taking ARV treatment early increase the risk of maternal death. This was outlined by participant who said "*HIV and AIDS related diseases cause maternal death because women do not accept their condition and no treatment would be taken and complications will then arise*". One of the participant also indicated that "*Most of the women that take HIV test and find that they are positive; they turn to be in denial and they do not come here to the hospital or clinic any longer and what they do is to go to other places which they do not know. When they complicate is then that they come back and request for assistance and you find that by that time it will be too late. And most of such cases end up being maternal deaths*". van Dyk (2012) indicated that most HIV-infected people are observed undergoing the phase of denial which is believed to be reducing emotional stress but allowing in the chance of the virus to multiply and destroy the body's immunity.

Theme 2: Diagnosis contributing to maternal death

The findings of this present study demonstrated that the health care professionals have the perceptions regarding several conditions that the pregnant women develop which contribute towards occurrences of maternal deaths in the obstetrical unit. These emerged during data analysis and have been indicated in the sub-themes of this theme. Menezes, Yakoob, Soomro, Haws, Darmstadt and Bhutta (2009) outlined that maternal deaths and stillbirths result from poorly recognized, untreated or inadequately treated maternal infections such as syphilis, malaria, maternal conditions which include hypertensive disorders.

Sub-theme 2.1: Eclampsia and HELLP Syndrome as contributors to maternal death

It was highlighted that most women die from eclampsia which is an elevated uncontrolled blood pressure which leads to convulsions and may also develop to HELLP syndrome. This statement was confirmed by participant who said *“Eclampsia is one of the factors contributing to maternal death, is due to unbooking where the baseline blood pressure of the patient is not known and late booking where the blood pressure is already elevated but recognized late”*. Another participant explained by indicating that *“eclampsia is due to late referrals from local clinics and secondary hospitals; the patients are transferred when they are convulsing and the condition already worsen. This seems to be lack of health education to patients. In this case patients are not educated on how to control their elevated/high blood pressure, therefore the secondary hospitals must strengthen their efforts regarding health education given to pregnant women regarding pre-eclampsia”*. Menezes et al. (2009) indicated that in order to reduce the incidences of maternal death and stillbirths caused by maternal hypertension disorders which include HELLP syndrome. It is important that pregnant women increase dietary intake of calcium as it is observed to be effective in reducing hypertensive disorders among Mayan Indians.

Sub-theme 2.2: Bleeding related complications

The results of this study also indicated that some women die from bleeding during antenatal stage, during delivery or post delivery. This was confirmed by the participant who said *“Women may bleed ante-natally and hesitate to consult and this is due to lack of health education and fear of healthcare workers because of having negative attitudes”*. Another participant said *“Postpartum hemorrhage also causes maternal death and most women die from that”*.

Additionally, another participant stated that *“post partum bleeding might be caused by post-mismanagement by healthcare workers and due to deliveries at home wherein the woman bleeds and loses lots of blood, and sometimes may be*

due to failure of uterus to contract due to high parity or retained products and this causes a problem because the women come here while they are just about to die and you find that it is too late for medical interventions". Another participant indicated that *"most patients who were not booked have low hemoglobin which is recognized immediately after delivery and in some you find that they bleed more and giving blood does not assist in such cases and find that it ends up as maternal death while you have tried to resuscitate and have given a lot more blood"*. Alexander, Wildman, Zhang, Langer, Vutuc and Lindmark (2003) concur with the findings of this present study that the three most prevalent causes of maternal deaths include haemorrhage amongst other causes.

Theme 3: Pregnancy versus post-delivery complications

The participants' indicated that complications which occur after delivery causes maternal death. The study conducted by Ganyaglo and Hill (2011) in Eastern Hospital Koforia Ghana on maternal mortality revealed that the factors contributing to maternal death were postpartum haemorrhage (41%), hypertensive disorders in pregnancy (21.9%), abortion-related death (19.3%), anaemia (7.3%) and puerperal sepsis (8.9%).

Sub-theme 3.1: Failure to meet physical demands of pregnancy and delivery

The findings of the study revealed that post delivery complication often lead to failure of the women's body to cope with pregnancy which was confirmed by the following excerpts: *"Most of this pregnant women especially those who are HIV positive they tend to have several complications. Therefore you find the body is struggling to cope with pregnancy and there is an added issue of suppressed immune system by the HIV and this in itself results in several complications which sometimes lead to maternal death either during pregnancy or during delivery or after delivery"*. Another participant added by saying *"You know these women are so sick to an extent that you find someone who is pregnant coming here and you just notice when she enters the door that her body is not coping at all, and most of them are HIV positive and they are delivering for the second or third time while positive. And even when you advice them that they mustn't fall pregnant they keep on wasting their immune system, the end result is we have to resuscitate them, some survive some end up dying"*. Ganyaglo and Hill (2011) outlined that maternal death is caused by poor general health of women, risky reproductive characteristics of women, barriers to preventative health care and delays in accessing emergency obstetric care.

Sub-theme 3.2: Infection related to lack of adherence to aseptic technique and retained birth products

The findings of the study revealed that infection also causes maternal death especially if the patients do not come to the hospital as soon as possible to get help. This was evident from the description given by a participant who said “most patients with HIV are susceptible to septicaemia due to retained products (incomplete removal of placenta) and also in case of aseptic technique not being maintained during obstetric procedures”. Ganyaglo and Hill (2011) indicated that abortion also contributes to cases of sepsis which lead to maternal death. Alexander et al. (2003) concur with this finding that the leading causes of direct maternal deaths include sepsis, embolism, haemorrhage and pregnancy-induced hypertension.

Conclusion and recommendations

The findings of the present study indicate that HIV and AIDS is associated with maternal death, possibly due to late antenatal care attendance where early diagnosis of complications could be identified and treated. Therefore, it is recommended that advocacy campaigns to all community members be conducted through the involvement of community health care workers on the importance of antenatal care services. Also, there is a need to encourage early antenatal booking so that women can undergo various antenatal screening. More importantly, centers for HIV and AIDS should be increased and strengthened so that infected pregnant women can have access to information, treatment, care and support during pregnancy and postpartum period.

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