

Review of community based maternal deaths in Mangochi district

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Summary

Introduction

Besides information on maternal mortality, it is more important to have information on why women are dying. For some time confidential enquiry into maternal death has been used in order to identify avoidable factors and weaknesses in obstetric care, with the aim to modify them, to improve maternal health care and ultimately reduce maternal mortality. Avoidable factors at community level, which contribute to maternal death (MD), are equally important and can usually not be identified in this way.

Objectives

To identify causes and contributing factors of MD at community level.

Methodology

Longitudinal descriptive study of MD in Nankumba, Mangochi between 1998 and September 2001.

Findings

22 out of 43 reported MDs (51%) were investigated. 44% of deaths occurred at the district hospital, 30% at home, 12% at a health center, 7% with a TBA and 7% on the road. PPH, ruptured uterus, obstructed labour and complications of abortion were the leading causes, accounting for 79% of MDs. Puerperal sepsis accounted for 5%, but may have been the immediate cause of death in cases of obstructed labour. Usually more than one contributing factor played a role. Most common was delay to decide or refusal to seek professional assistance when a complication occurred (77%). In 41% there were difficulties, delay or failure to reach the referral hospital, in 18% there was inadequate case management by TBAs. Quality of obstetric care at the district hospital has not been assessed, but in 32% of cases no blood transfusion could be given because of lack of blood or donors.

Introduction

The last Malawi Demographic and Health Survey of 2000 reported a maternal mortality ratio of 1,120 maternal deaths per 100,000 live births¹, which was an unexpected increase compared with the figure of 620 as reported in 1992. This sparked a debate about the causes and possible underlying factors for this increase, which occurred despite the efforts of safe motherhood programmes. Besides measuring maternal mortality and focusing on its level, it is probably more important to understand the causes and contributing factors in order to come up with appropriate strategies for prevention.

Confidential enquiry into maternal deaths - also called confidential maternal death audit - has been used at national and regional level and in hospital settings, following the principles of clinical audit, in order to analyse and discuss at periodic intervals the maternal deaths^{2,3,4,5}. This is done to identify avoidable factors and weaknesses in obstetric care, with a view to modify them in order to improve maternal health care with the ultimate aim to reduce maternal mortality. Graham et al described criteria

for clinical audit of quality of hospital-based obstetric care, as were developed during research in Ghana and Jamaica⁶. A limitation of these institution-based maternal death reviews is that they do not shed light on the factors that play a role before women with obstetric complications reach a hospital for emergency obstetric care or even make them fail to reach a hospital. The Nankumba Safe Motherhood Project of the Community Health Department of the College of Medicine tries to overcome this shortcoming by using community-based maternal death reviews, which were introduced in 1997.

In this article we don't describe the methodology of these reviews nor present our practical experiences, but we show the results of 43 maternal deaths reviews as a contribution to the debate about the reasons for the high maternal mortality in Malawi and what has to be done to improve the situation.

In a community-based maternal death audit not only maternal deaths at health facilities are considered but also all maternal deaths in the community, irrespective of place of death and person who attended to the deceased woman. It includes maternal deaths, which occurred in women assisted by trained Traditional Birth Attendants (TBAs) or by any untrained attendants, maternal deaths, which occurred at home, at a TBAs home as well as those which happened on the way to a health facility. A community-based approach is adopted, which means that the community is fully involved in identifying maternal deaths, their follow up and analysis, as well as discussion of the problems and finding solutions for them.

The four main aims of a community based maternal death audit are:

- To get a better insight in the causes and underlying contributing factors of maternal mortality and their relative importance;
- To identify avoidable factors related to health care, which potentially can be remedied by improving health services and quality of obstetric care;
- To identify factors at the community level, which have prevented or delayed women to receive adequate care and which also in dialogue with the community can be addressed;
- To create more awareness at community level on maternal mortality and its contributing factors and to involve the community actively in reducing maternal mortality;

Objective of the research

To describe the causes and contributing factors of maternal deaths (MDs) in the area of T/A Nankumba, Mangochi district, Malawi over the years 1999 - 2001.

Methodology

Study design

This was a descriptive study of the causes and contributing fac-

tors for maternal deaths in the area of T/A Nankumba. The study was part of the operational research component of the project in which community-based maternal death reviews were introduced and data was collected on all maternal deaths of women residing in the project area.

Information was extracted from the maternal death audit forms, which were available from 22 MDs, and supplemented by health facility records. Detailed information on these maternal death audit forms is collected through individual or group interviews with relatives and/or guardians of the deceased women as well as people, who provided care prior to death.

Study population

The study population are 34 maternal deaths, which were reported between 1998 and the end of 2001 in the project area, which had a population of 62, 327 in 2000, which increased to 77,015 in 2001 with the addition of Nkope area.

Data collection

For information on maternal deaths, which occurred at health facilities, data is collected from the maternity registers in the health centres of the project area and reported monthly on special report forms. Another monthly report form is used at each health centre to record referrals to the district hospital and this form is used to trace the referred cases and their outcome from the registers at the district hospital. Information is also collected half yearly from health centres around the project area on pregnant women from the project area, who delivered there.

Data from trained TBAs is collected through pictorial report forms and the TBAs have simple exercise book registers, which are kept by illiterate TBAs with the help of a literate "secretary" in their neighbourhood. At the end of each month, the health surveillance assistants (HSAs) visit the trained TBAs in their villages and collect the report forms and confirm delivery outcomes with the VHC and chief.

HSAs visit the village headman and village health committee of each village and ask about any deliveries in the village and their outcome as well as any deaths during the past month. Then they ask about deaths of women in general and those of reproductive age in particular and the likely cause and symptoms prior to their death and whether the women who died were pregnant, whether the death occurred during or after delivery or after severe vaginal bleeding. The village headman usually knows of any death in the village, because for every funeral he is the person who grants permission for use of the graveyard. Village health committees are responsible for all health issues in the village and their members are actively involved in funerals. Members of all VHCs have been trained on safe motherhood issues. They keep record of any women dying in the reproductive age period. Any maternal death is reported to the HSA of the village and (s) he reports them to the nurse-midwife and/or the field co-ordinator of the project.

The actual detailed enquiry is usually done not earlier than 2 weeks but usually within 4 weeks after the funeral. As part of the enquiry, the relatives of the deceased woman are visited and interviewed about the circumstances of the death, as well as all persons who took care of the woman before her death, both at village level as well as at the health facility if applicable. In that case health facility records are reviewed and the nurse-midwife is interviewed as well. For the data collection a special form is used with closed and open-ended questions. The enquiry team

consists of:

- A representative from the T/A if possible;
- The village headman;
- The chair person of the VHC;
- The HSA, who takes care of the village;
- A nurse-midwife from the nearest health centre;
- The field co-ordinator of the project;

Results

During the period of this study from 22 out of 43 reported maternal deaths a detailed community-based maternal death enquiry had been carried out. However, in 42 cases the likely cause of death could be determined based on information from TBAs, members of VHCs, health centre staff or maternity register.

Table 1: Reported maternal deaths and maternal death enquiries per year

Year	No. of reported Maternal deaths	No. of enquiries
1998	3	3 (? %)
1999	20	5 (25%)
2000	12	7 (58%)
2001 (until Sept)	8	7 (88%)
Total:	43	22 (51%)

Table 1 shows the number of maternal deaths reported per year and the number for which information was available from maternal death reviews. For 1998 no data were available on total number of reported maternal deaths. From 1999 onwards, in 19 out of 40 reported maternal deaths (48%) a full enquiry has been done. Other maternal deaths were only followed up partly to ascertain the immediate cause. In three reported maternal deaths since the beginning of 1999 no enquiry could be carried out because the bereaved families had left the area for their ancestral homes. Difficulties to reach the place of death during rainy season were another reason why enquiries have not been carried out.

Table 2: Maternal deaths according to place of death

Place of death	Number
District hospital	19 (44%)
Home	13 (30%)
Health centre	5 (12%)
TBA	3 (7%)
On the road	3 (7%)
Total	43 (100%)

Place of maternal deaths

Table 2 shows the distribution of reported maternal deaths according to place of death. The figures show that if we would base the calculation of maternal mortality only on health facility records, we would exclude 44% of maternal deaths.

Maternal deaths in relation to parity

Table 3 shows the distribution of maternal death according to parity. The index pregnancy, which resulted in death, is not included in the figure for parity.

P.T.O. FOR TABLE 3.

Table 3: Maternal deaths in relation to parity

Parity	No. of maternal deaths
Primigravida	7 (16%)
Gravida 1-4	6 (14%)
Gravida => 5	12 (28%)
Parity unknown	18 (42%)
Total	43 (100%)

Causes of maternal death

From 42 out of 43 the likely cause of death could be determined. The different causes are presented in table 4.

Women who died undelivered at home or at a TBAs place after prolonged labour are classified as obstructed labour. Ruptured uterus and obstructed labour together accounted for 30% of maternal deaths.

Table 4: Causes of maternal deaths

Cause	No. of maternal deaths
Direct causes	86 %:
PPH	11 (26%)
Ruptured uterus	7 (16%)
Obstructed labour	6 (14%)
Complications of abortion	6 (14%)
Eclampsia	3 (7%)
APH	2 (4.5%)
Puerperal sepsis	2 (4.5%)
Indirect causes:	
Anaemia	3 (7%)
Fortuitous causes	
Meningitis in pregnancy	2 (4.5%)
Unknown	1 (2 %)
Total:	43 (100%)

Underlying contributing factors

When analysing the 22 maternal death enquiry reports for underlying contributing factors, often more than one factor played an important role and we usually see that a sequence of unfortunate events have ultimately resulted in maternal death.

The most common factor was delay to decide or refusal to seek professional assistance when a complication occurred (17/ 22 or 77% of investigated cases). Different reasons played a role in this, such as cultural beliefs, socio-economic factors, fear to go to the district hospital or no perceived benefits to go there. For example, in one case the bereaved relatives told us that the patient did not comply to the referral advice because she feared to die, which was a genuine feeling, moreover she actually did die, although not in the district hospital but at home. In 9 out of 22 maternal death enquiries (41%) there were difficulties, delay or failure to reach an emergency obstetric care facility in time due to long distance, difficult roads or lack of means of transport or communication. Inadequate case management by trained TBAs was observed in 4 cases (18%). Traditional medicine may have contributed to the death in 3 cases of obstructed labour.

Quality of care at the district hospital has not been assessed. This can better be done through a hospital-based confidential enquiry into maternal deaths. However, it was noticed that in 7 cases, which reached the district hospital (32%), blood transfusion was needed but no blood transfusion could be given because of lack of blood or blood donors.

Discussion

Before 1999, records of maternal deaths and maternal death enquiries are incomplete. No records could be traced from 1997. From 1998 information on 3 maternal deaths is available from maternal death reviews. After the project phased out in the Monkey Bay area in December 1998, the project did not collect or compile information on maternal deaths from this area anymore, but only from Nankumba, Malembo and Nankwali and - starting in 2001 - also Nkope.

The majority of deaths are direct MDs (86%). The most important direct causes are obstructed labour/ruptured uterus (30%), PPH (26%) and complications of abortion (14%). Together they account for 70% of all MDs. The high proportion of MDs as a result of obstructed labour are an indication of either poor accessibility of comprehensive emergency obstetric care services or delay to seek appropriate health care. This is supported by the low Caesarean section rate, which is observed in the district 7.

The indirect and fortuitous causes, which represent 11.5% of the total maternal deaths, include:

- Anaemia aggravated by persistent dysentery in a chronically sick woman who during hospital admission delivered prematurely without much blood loss (condition may have been HIV related);
- 2 cases of meningitis in pregnancy.
- 2 deaths as a result of severe anaemia in pregnancy, of which one shortly after a normal delivery with normal blood loss.

A higher percentage would be expected in view of the HIV/AIDS epidemic. Probably there is under reporting, because of some women who died it may not have been known or realised that they were pregnant.

In two of the maternal deaths as a result of PPH, there was pre-existing severe anaemia. In one of the indirect causes of maternal death, persistent bloody diarrhoea (dysentery) not responding to treatment, was the underlying contributing factor to the anaemia, which was the immediate cause of the maternal death. In one case of puerperal sepsis and at least one of the cases of ruptured uterus, which reached the district hospital, anaemia has also immediately contributed to the death.

A low number of maternal deaths are attributed to puerperal sepsis, but in addition to the two reported cases, in some of the deaths from ruptured uterus or obstructed labour this may have been the immediate cause of death.

Conclusions

Community based maternal death reviews are useful to get insight in the causes and contributing factors to maternal death and to identify weaknesses in the maternal health care system, from community level up to hospital level. It focuses on maternal care at community and health centre level and therefore goes beyond hospital-based audits of maternal death. Hospital-based maternal death audits and community-based maternal death reviews complement each other.

In this study, from 22 out of 43 reported MDs a detailed maternal death enquiry had been carried out, while from 42 MDs a likely cause of death could be established. Direct maternal deaths accounted for 86% of MDs. The leading causes of MD were obstructed labour, ruptured uterus, PPH, and complications of abortion. Indirect and fortuitous causes accounted for 12% of maternal deaths. From these figures, HIV infection does not seem to be a prominent feature, but its impact on maternal mortality needs further research. The most important contributing factors to maternal death were delay at the household level to decide to seek adequate health care or refusal of referral, delay to reach an emergency obstetric care facility and inadequate blood transfusion services at the district hospital.

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