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**Preventing maternal mortality
- Experiences from Tanzanian
maternal health care services.**

Maria Nyberg White

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Handledare: Annemie Svensson, Universitetsadjunkt

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Abstract

Background: Half a million women died during pregnancy or childbirth in 2005. Bleeding, infections, high blood pressure, obstructed labor, unsafe abortions, malaria and HIV/Aids were the main causes. Tanzania is a highly affected country with 460 maternal deaths per 100 000 live births. Nurses and midwives play an important role in preventing maternal mortality.

Purpose: The aim of this study was to explore and analyze nurses' and midwives' experiences of maternal mortality prevention on the Tanzanian island of Unguja.

Method: Interviews with nine nurses and midwives from four different hospitals and health care facilities were conducted with the assistance of an interpreter. A structural analysis designed by Ricoeur was undertaken.

Results: The findings suggest that family planning, a more accessible health care, referral of severe cases, medical interventions, health education, community resource persons and involving fathers in maternal health care are preventive strategies that can reduce maternal mortality.

Conclusion: To further improve the quality of maternal mortality prevention further knowledge about individual differences in learning from health education is needed. Involvement of all fathers in maternal health care should also be considered. Training of unskilled personnel is believed to improve early identification of life-threatening complications and thereby reduce maternal mortality.

Key words: Maternal mortality, Tanzania, maternal health services, prevention, health education.

Att arbeta mot mödradödlighet
- Upplevelser från tanzanisk mödrahälsovård.

Sammanfattning

Bakgrund: En halv miljon kvinnor i världen dog under graviditet eller förlossning under 2005. Huvudorsaker var blödningar, infektioner, högt blodtryck, långdragna förlossningar, osäkra aborter, malaria samt HIV/Aids. Tanzania är ett drabbat land med 460 fall av mödradödlighet per 100 000 levande födda barn. Sjuksköterskor och barnmorskor spelar en viktig roll i det preventiva arbetet mot mödradödlighet.

Syfte: Syftet med studien var att utforska och analysera sjuksköterskors och barnmorskors upplevelser och erfarenhet av arbetet mot mödradödlighet på ön Unguja, Tanzania.

Metod: Intervjuer med nio sjuksköterskor och barnmorskor från fyra olika sjukhus/hälsocentraler genomfördes med hjälp av en tolk. En strukturanalys utformad av Ricoeur genomfördes.

Resultat: Resultatet visar att familjeplanering, en mer tillgänglig hälso- och sjukvård, remitterande av patienter med allvarliga komplikationer, medicinska interventioner, hälsoutbildning, resurspersoner i samhället och att involvera pappor i mödrahälsovården var preventiva strategier som kan minska mödradödlighet.

Slutsats: För att ytterligare förbättra arbetet mot mödradödlighet tycks mer kunskap om individers förmåga att ta till sig hälsoutbildning behövas. Att i ännu större utsträckning även välkomna alla blivande pappor till mödrahälsovården föreslås också kunna fungera preventivt. Utbildning för utbildade kvinnor som hjälper till vid förlossningar (Traditional Birth Attendants) tros kunna förbättra tidig identifikation av livshotande komplikationer och därmed kunna minska mödradödligheten.

Nyckelord: Mödradödlighet, Tanzania, mödrahälsovård, prevention, hälsoupplysning

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1. Introduction

Half a million women, most of them in developing countries, died of complications during pregnancy or childbirth in 2005, according to the World Health Organization. 54 million women suffered from disease and complications during pregnancy and childbirth. Maternal mortality was highest in Africa with 900 maternal deaths per 100 000 live births, compared to 27 deaths in one hundred thousand European births. In fact, half of all maternal deaths occurred in the African continent, where less than 50 percent of women received skilled care during childbirth. Nurses and midwives play an important role in providing services that reduce maternal mortality (1).

Maternal mortality is targeted as one of the eight Millennium Development Goals (MDG's) that all 191 United Nation member states in the year of 2000 agreed to achieve by 2015. "MDG:5 – Improve maternal health" aims at reducing the global maternal mortality ratio by three quarters and achieve universal access to reproductive health service (2).

Globally, maternal health is improving. In Africa, the situation seems to have stagnated or even gotten worse over the last years. Tanzania is one of the highly affected countries on the continent with 460 reported cases of maternal deaths per 100 000 live births (3). The limited progress in meeting the fifth MDG necessitates further maternal mortality research in affected regions. An important task is therefore to identify the strategies that, despite lack of resources and skilled personnel, enable nurses and midwives in highly affected countries to prevent maternal mortality (2).

The idea for this study was born in the year of 2008 during an internship at the Ministry of Health and Social Welfare in Stone Town, Tanzania. The then observed work that medical staff put in to prevent maternal deaths is a good example of how small measures can create big differences in health. The knowledge and experience among professionals in an area like this need to be considered in order to create the scaled-up good examples needed to reach the MDG:5.

2. Purpose

The aim of this study was to explore and analyze nurses' and midwives' experiences of maternal mortality prevention on the Tanzanian island of Unguja, Zanzibar. This aim has been further specified in the following research questions:

- How do nurses and midwives in Unguja experience the maternal mortality situation on the island?
- What preventive strategies and working methods are experienced as effective in reducing maternal mortality in Unguja?
- What facilitators and/or barriers do the nurses and midwife experience in their maternal health work?

3. Background

3.1 Tanzania

3.3.1 Country facts

The Republic of Tanzania is the largest of the east-African countries. It borders Kenya and Uganda to the north, Rwanda, Burundi and Congo to the west and Mozambique, Malawi and Zambia to the south. The Tanzanian island of Unguja, which together with the smaller island of Pemba constitutes the Zanzibar archipelago, is situated 40 kilometers off the mainland of Tanzania in the Indian Ocean. The total population of Tanzania is 44.8 million according to WHO data from 2010 (4). About 1.2 million of these live on the island of Unguja, making it one of the most densely populated areas in Africa with about 350 people per square kilometer (5).

The official languages in Tanzania are Kiswahili and English, however Kiswahili is the national language spoken by the majority of the population. The use of English is not as widespread but can be found in higher education and official documents. The two main religious communities are the Christian and the Muslim, with the Muslim population concentrated in the coastal areas. The Zanzibar population is ninety-nine percent Muslim (6).

3.3.2 Health and health care

The current life expectancy rate in Tanzania is 58 years for women and 53 years for men (4). Corresponding data in Sweden are 83 years among women and 79 years among men (7). The average amount of nurses and midwives in Tanzania are 2.4 per 100 000 inhabitants and the under-five-mortality rate is 93 per every 1000 live births (4). In Sweden there are 118.6 nurses/midwives per every 100 000 inhabitants and the under-five mortality is 2 in every 1000 live births (7). The fertility rate in Tanzania was 5.5 in 2009, according to the United Nations Children's fund (UNICEF), who also states that fertile Swedish women had an average of 1.9 children the same year (8). The education for midwives in Tanzania consists of one year of midwifery in addition to the three year bachelor's degree in nursing (9). The United Nations Population Fund (UNFPA) suggests that there are major shortcomings in this education and that the workforce needs to be tripled to meet the needs (10).

3.2 Maternal mortality

Despite the fact that women across the world generally have a greater life expectancy, women still have a disadvantaged social status that lead to gender-specific health problems (11, 12). Women tend to suffer more from illnesses and physical disabilities than men. For fertile women in developing countries, a fifth of illness and mortality is pregnancy-related (11).

A maternal death is defined in the ICD-10 as ” *the death of a women while pregnant or within 42 days of 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” (13). Maternal mortality can both be caused directly by obstetric complications, or result from a previous existing disease being aggravated by physiologic effects by the pregnancy (11). Severe bleeding caused over a third of the maternal deaths in 2005. Other complications that cause maternal mortality are infections, high blood pressure (pre-eclampsia and eclampsia), obstructed labor and unsafe abortions. Indirect causes include malaria and HIV/Aids (1, 14) .

Maternal health is one of the health topics that differ the most between developing and industrialized countries (14, 11). The low priority given to women’s health, lack of maternal health facilities in some areas, home-births without skilled personnel and lack of money to pay for health care and transport to hospitals are some of the external factors that cause maternal deaths in developing countries (11).

3.3 Maternal mortality prevention

The hard work of strengthening women’s health and reducing maternal mortality has been ongoing for several years. Despite global initiatives such as ”Safe Motherhood Initiative” and “MDG 5 - Improve Maternal Health” many women around the world are still dying during pregnancy and labor (15). The “Safe Motherhood Initiative” was initiated by the World Bank, the World Health Organization, and the United Nations in 1987 as a call to reduce maternal mortality in developing countries by fifty percent in one decade. The strategy consists of four main focus areas, highlighting the need for adequate primary health care, universally available family planning and a good prenatal care with early detection and referral of those at high risk and need of assistance of a trained person at all births (16). The launching of the Millenium Development Goals (MDG’s) in 2000 further targeted maternal mortality as an important health issue by dedicating the fifth MDG to maternal health. Key areas in this work include strengthening health systems, promoting strategies that work, making best use of scarce resources and emphasizing maternal health as a human rights and equity issue (2).

During the last decades it has been shown that besides education, information, introduction of human rights and addressing of social issues maternal mortality can be reduced by properly making use of the medical competence that nurses and midwives possess. An analysis of causes of maternal mortality over a thirty-year period in Bangladesh states that investing in midwives and obstetric care have been important factors in reducing the death rate (15).

Previous research from Tanzania suggests that interventions at community-level are effective methods in the maternal health work. Local health facilitators, home visits and maternal education to both the mother and father were factors that in a Tanzanian study led to a better health seeking behavior and also an increase in giving birth at hospitals (17). To increase the health-seeking behavior and thereby reduce maternal mortality, it is proposed in another Tanzanian study that the health care loudly should inform parents-to-be about complications and warning signals during pregnancy as well as informing about the advantages of delivering the baby in hospital. Women that choose to visit health care facilities regularly are at lower risk of suffering from complications and deaths (18). Previous research on how to distribute health education suggests including culture and religion in this work.

Findings from an interview study from Tanzania's biggest city Dar es Salaam show the importance of informing parents in an informal matter and working in line with the local cultural and religious beliefs in order for them to follow recommendations aimed at preventing complications during pregnancy (19).

4. Method

4.1 Study design

To reach the aim of this study a qualitative research design was chosen. Qualitative research has been described as interpretation-oriented, with focus on understanding of the reality and how certain people experience it (20). This study was conducted according to a hermeneutic approach, a scientific method within the qualitative field that seeks to describe unique human facts, statements or actions in certain contexts, with a constant change in perspective between the individual parts and the whole. (21, 22, 23, 24) Hermeneutics is all about collecting and analyzing phenomena, in such a way that the result generates knowledge rather than random implications or prejudice (25).

4.2 Selection of informants

After months of planning and grant seeking a local contact person was engaged in the study in August 2011. The research plan was authorized by the revolutionary government of Zanzibar and thus granted a research permit (Appendix 1). This allowed for the work in Unguja to start. The local contact person, a statistician with experience from health care around the island assisted in contacting possible health care facilities where the interviews could be carried out. To explore experiences and understandings from midwives and nurses from across the island, two main hospitals and two smaller clinics were chosen. This was expected to increase the chances of collecting a diverse material. A letter of information (Appendix 2) was sent to these four health care facilities in September 2011, which all agreed to participate. In the weeks prior to the interviews the head nurses in charge of the maternity units were contacted by phone to schedule interviews with staff. Upon arrival at the different health care facilities two or three of the nurses and midwives on duty that particular day had been given information about the purpose of the study and were ready to participate in the interviews. This type of convenience sample (26) consisted of nine nurses who all had further education in midwifery or public health in addition to their nursing degree. They all worked in maternal health services in Unguja and their working experience varied between two and thirty-five years.

4.3 Data collection

Interviewing is an established method of gathering data from respondents (27). For this particular study, interviews were carried out with nine nurses and midwives from four health care facilities around Unguja Island in order to obtain their experiences of maternal mortality prevention. The interviews were conducted in December 2011. To overcome the language barrier in the process of conducting this study, an interpreter

was engaged in the research process. A pilot interview was conducted with the interpreter to test the validity of the interview guide. The interview guide was subsequently slightly adjusted by the author and translated into Kiswahili by the interpreter. The interviews were based on a semi structured interview guide (Appendix 3) with introductory questions and a list of topics and sub-queries. This made the interviews resemble an everyday conversation and gave the respondent a greater freedom to formulate responses as well as letting the interviewer adjust the conversation to the situation (27, 28). The interviews, including time for interpretation, all lasted 38 to 70 minutes. When conducting the interviews with the nurses and midwives the questions were asked in English whereupon the interpreter translated them into Kiswahili. The respondents who tried to speak both English and Kiswahili were encouraged to speak Kiswahili to prevent inhibition of their spoken narrative. The interviews were recorded on a digital recorder and transcribed immediately after the interview. The transcriptions, in total 43 pages, were compared to the original recordings before analysis was undertaken, all in order to increase the reliability of the findings (29, 30).

4.4 Analysis

A structural analysis designed by Ricoeur was finally carried out to identify the core meanings of the midwives' and nurses' experiences (31). In order to analyze the data, the recorded material was first transcribed to written text in direct connection to the interview, which is believed to have prevented misunderstandings from occurring. The transcribed material was then compared with the recordings to further secure its reliability (24). The analysis was initiated by reading all the interviews two times in order to establish a preliminary understanding of the whole material. Each transcribed interview was then divided into smaller pieces. These pieces could consist of one or two sentences which were coded in specific coded terms. The coded terms were cut out and joined together with other coded terms with similar meanings. According to Ricoeurs' design this part of the analysis is called segmentation. In this way, segments in the material were constructed and thereafter named (31).

Table 1. Example of pieces from transcript, coded terms and segments.

Piece from transcript	Coded term	Segment
"...Some mothers say they don't want to [deliver in hospital]."	Unreachable mothers	Barriers to the preventive work
"They don't want to come here to listen to health education"		
"...it's hard for them to follow our recommendation /.../ because of poverty"		
"...there is a shortage of staff..."	Lack of staff	
"...the students want to work in the private hospitals, in another country. That's a big problem. Some go to Uganda, Kenya..."		
"...equipment, it's not enough"	Lack of equipment, medicine and further education	
"... For emergency, we need a refresher course"		
"...some medicines like antibiotics is not enough..."		

4.5 Ethical considerations

Ethical issues such as informed consent and confidentiality have throughout this study been taken under consideration in line with good research practice (20, 32). When contacting the four health facilities by phone information about the purpose of the study was given. The respondents were not given money or gifts for their participation. Before the interviews started the respondents were once more informed about the purpose of the study and asked if they still wanted to participate in the interview, in line with informed consent (20, 30, 32). Any questions that they had were answered before the interview started. The interview material has thereafter been handled with confidentiality. Furthermore, the material will only be used for this study, according to the ethical requirements of scientific research (20, 33).

5. Findings

The findings are based on nine interviews with nurses and midwives (referred to as *Nurse A, B, C, D, E, F, G, H & I*) in four different health care facilities on the island of Unguja, Tanzania. The analysis of the interview data generated a total of sixteen categories, constructing four main segments that function as headings in this chapter; *Working in the maternity unit, Maternal mortality in Unguja, Maternal mortality prevention in Unguja, and Barriers to the preventive work.*

5.1 Working in the Maternity Unit

5.1.1 Responsibility and the own profession

A sense of wanting to help and serve the community was expressed by almost every one of the interviewed nurses and midwives. To some mothers the nurse becomes the only help available, especially in cases where the mother has been rejected from the family because of extramarital pregnancy or HIV.

...I want to help somebody that not have anyone else to help them /.../ I want to help the woman who has no else support. (Nurse E)

To help and serve the community was not always easy, according to some of the nurses. One respondent explained how she and her colleagues sometimes needed to invest more than their caring-skills and medicine in trying to avoid maternal deaths from occurring. As the patients in Tanzania paid for a lot of their own medicine, equipment and fluids themselves, arriving at the hospital without money or family to help could turn into a hazardous situation. One nurse mentioned how a severely ill woman started to deliver at home before being referred to hospital.

...so imagine, we can get a patient from home without any relative to accompany her. So no money. So what are we going to do? The patient is severe and bleeding. We use our money to pay for this mother so she can get maybe fluid. /.../ if all staff do this? Yes, everyone does. If we have something to help, we try to help./.../ Sometimes they pay us back. (Nurse B)

5.1.2 Dealing with maternal deaths

Among the type of work that the nurses and midwives said they appreciated the least was dealing with maternal and antenatal deaths. Even though all the interviewed nurses had experienced situations where a mother had died during or after labor it still seemed to make the staff emotionally involved.

...I feel sorry, very sad. It touches me and hurts me. (Nurse I)

At one of the health care facilities the staff had a way of evaluating a situation where a mother died.

...yes, I tell them to give a brief explanation of why it happened. How did it happen? What action did you take before that action before that death? So they tell how they did manage. If there were some mistakes then I tell them to do this and this next time. (Nurse I)

After having discussed the situation with the staff the nurse explained how she would tell the family of the woman who died. Nothing would be left out from this conversation to give the family understanding of what had happened.

5.2 Maternal mortality in Unguja

5.2.1 Causes

The nurses and midwives all recognized maternal mortality as a problem in Unguja, although they had seen the numbers decline in the last few years. According to the them, there were still several factors that could cause a mother in the local area to die during pregnancy or childbirth. Eclampsia, antepartum haemorrhage (APH; bleeding during pregnancy), post-partum haemorrhage (PPH; bleeding during and after labor), ruptured placenta, obstructed labor, delayed referral, anemia and obstructed labor were the complications mentioned.

...a lot of complications they have...eclampsia, APH, PPH, ruptured placenta, a lot of ruptured placentas. Also obstructed labor, complication with delayed referral. These are the causes. Almost all of them come late, too late referral. (Nurse A)

5.2.2 Home deliveries and Traditional Birth Attendants

One problematic situation in Unguja seemed to be that although more and more women delivered in hospital, there were still a lot of women who preferred to deliver at home. One respondent explained that many women were afraid of the hospital and medical staff, which kept them from attending the clinic. Another nurse explained that external factors and lack of resources also influenced the mothers' behavior.

...sometimes they don't have transport. They might not have the money to pay for it either. And some mothers they don't like the hospital. They feel like their own mother or women in the family can help at home, that they even sometimes do a better job than in the hospital. (Nurse D)

All the nurses and midwives recognized home delivery as a situation which when complications occurred, quickly could become unsafe for mother and baby. Mothers delivering at home were often assisted by a Traditional Birth Attendant (TBA). This

woman is often a relative or someone in the village who is used to assisting women during labor. One of the respondents explained this as a problem, because of the TBAs' lack of education and instruments.

...yes, because they don't have instrument, sterilization and they don't know how to handle complications. Then they refer to hospital. (Nurse H)

The TBAs also seemed to play a role in keeping the mothers from delivering in hospitals. One respondent mentioned that the pursuit of money was something that fueled this behavior among some of the TBAs.

...but there are some traditional births attendants, healers, TBAs who don't want the mothers to come to hospital because they are being paid 5000-10 000 Tsh/birth. So the TBAs encourage the mothers not to go until there is a problem, then the TBA would send the mother to hospital. (Nurse I)

5.2.3 Late health seeking and late referral

The nurses and midwives had all experienced that women sometimes came to their hospital or health care facilities late during the pregnancy. Women that were late health seekers consequently missed out on a lot of the maternal health services and health education that was offered during pregnancy. According to the nurses, the mothers were advised to come at around two months of pregnancy, but some mothers did not come until at the end of the pregnancy, if they came at all. Also, some women that might have intended to come seemed to have trouble to leave their morning chores at home to attend early morning meetings.

...every day in the morning they have a health education so if you can come early in the morning you can get knowledge about danger signs, health education about birth preparing, investigation and to deliver at hospital. Some of them come late, maybe twelve o'clock and then there's no education. They miss it. (Nurse B)

Late referral was mentioned especially by the nurses at the main hospital on the island, as these nurses take care of complicated cases referred from smaller clinics or transported from home. According to these nurses, a larger number of these patients could have been saved if they had been transferred earlier.

5.2.4 High-risk mothers

When asked about women that were at greater risk of developing complications during pregnancy and childbirth the respondents mentioned a few risk groups. Women delivering at home suffered more from complications, as did the late-health seekers, according to the nurses. One nurse mentioned young mothers as especially vulnerable when it came to delivering the baby.

...they [the young mothers] have trouble delivering the baby themselves. They often need caesarian sections because they are not fully matured. So it is extra important for them to come to hospital for delivery. (Nurse D)

A couple of the respondents also mentioned grand multipara; having many children and thus exposing the body to the tribulations of perhaps six or seven pregnancies or more, as another factor that in many cases lead to complications.

5.3 Maternal mortality prevention in Unguja

5.3.1 Family planning

Preventing women of having many children was one of the preventive strategies that the nurses identified as ongoing on the island. As the Islamic religion did not permit contraceptives the nurses explained other ways that they could help young women and mothers of many children not to fall pregnant.

...in gravida 6 (6 pregnancies) we give them advise, then she will have education to do BTL (Bilateral Tubal Ligation). She is given the chance to do BTL or [her husband] a vasectomy. (Nurse C)

Spacing, at least three years, was also recommended to the women in order to let the body recover between pregnancies, according to one respondent.

5.3.2 Making maternal health care more accessible

A nurse at one of the smaller health care facilities believed that the increased number of clinics able to take care of deliveries had been an important change in the preventive work. In 2006 the community had raised its voice which had led to similar changes around the island.

...we started to assist deliveries here in [name of clinic] 5 years ago /.../ There was a new strategy from the Ministry of Health that mothers could deliver in more rural health facilities. The community asked them to make this happen. (Nurse F)

This accessibility had increased the numbers of women delivering at hospital because of shorter distances and by removing the need to travel to the main hospital, according to one of the nurses. Improving the accessibility of transport had also made it easier for women to travel to the hospitals to give birth.

...sometimes they [the mothers] don't want to come here because they think they need to spend a lot of money on drugs and transport. But now there is there is a program in this area, they support transport from the village to the hospital. We think that that will be good for them, so that they can come. Then transport is not a problem. (Nurse I)

5.3.3 Referral of severe cases

Among the nurses and midwives working in the rural health care facilities, referral to the two bigger hospitals was cited as a widely used preventive strategy in severe cases. The smaller health facilities seemed to use this strategy when their own ability to take care of severely ill pregnant women in a proper way was limited.

...if the patient for example has post eclampsia we call a doctor, prescribe and then we administer the drugs and if it doesn't help we refer her to [the main hospital] in a hurry. (Nurse I)

5.3.4 Medical interventions

One respondent explained how the recent knowledge and accessibility to magnesium sulfate had worked effectively in preventing maternal mortality. The use of

magnesium to control eclampsia by relaxing the uterus was one of the factors that had made the maternal mortality rate decrease in Unguja, according to one of the nurses.

Anemia during pregnancy was prevented by regular testing of blood and administration of iron tablets and anti-worm medication, according to the nurses. In cases of severe bleeding during or after delivery the nurses stated the use of the uterus-contracting drug oxytocin as their main intervention, together with blood transfusions.

...when it [PPH] occur, I first try to find the cause. Then according to the anatomy of the uterus we give oxytocin to make the uterus contract. If it seized we take blood for grouping. If blood is below 7 mg [per dl] we give transfusion. (Nurse H)

How to remove the placenta after delivery was mentioned as a part of the refresher course LSS (Life Saving Skills) that most of the nurses and midwives had attended. Malaria control strategies on the island were also mentioned as having worked effectively to decrease the number of maternal deaths. Malaria prophylaxis was told to be administrated as a part of the maternal health services. HIV-treatment, which also increased the ability of infected mothers to handle the strain of a pregnancy, was available at the maternal health clinics, according to one of the respondents.

5.3.5 Health education

Health education was something that the nurses and midwives provided to the mothers both before and after delivery. At the antenatal clinic the pregnant women were being taught about malaria and HIV-treatment, and its preventive effect on complications during pregnancy. One nurse explained how she taught the women to look for signs of anemia, malnutrition, fever, high blood pressure and other signs of trouble. Another respondent stated that she often spoke to the mothers about good hygiene to prevent infection, and nutrition to prevent anemia.

...I think that maternal death occur when the mother don't have any knowledge about herself. There are many things I can tell them about diet/.../ also exercise is important because lack of exercise can lead to poor pushing during delivery. (Nurse E)

One part of the health education that all the nurses spoke about was the importance of attending the antenatal clinic during the whole pregnancy, and to give birth at a hospital rather than at home.

...best thing is to attend antenatal clinic very early during their pregnancy, and to follow the instructions that are given by midwives, and to attend the hospital during labor. Not to deliver at home. (Nurse C)

Another respondent had recognized a fear of delivering in hospital in many of the women. She explained that many women disliked the hospital and thought they would get bad treatment as a patient.

...I try to encourage them to come here [to the hospital], I say don't worry! (Nurse D).

5.3.6 Community resource persons (CORPS)

Some of the health education was communicated through the use of Community Resource Persons (CORPS), who organized meetings in the rural villages.

...we do it through CORPS, we use community resource persons to recommend them that they should come to the hospital. (Nurse H)

This strategy had been set up to reach both the women who normally did not attend the antenatal clinic themselves, but also to reach people in the villages who could benefit from knowing about danger signs, family planning, nutrition and benefits of delivering babies in hospital.

...outreach in the community we do every month in each village /.../ Because many people live far away from the health center. So we go there, give immunization, all health education. (Nurse G)

5.3.7 Involving the fathers

It seemed that most of the education was being given to the mother-to-be. Some of the nurses and midwives had observed positive effects from involving the fathers too. One respondent explained her view of the father's role in preventing complications and mortality;

...because if husband come together with wife he can listen and make some things better for her. The husband should know the advantages of delivering at hospital and the disadvantages of delivering at home. I think he can help her with learning the health education, to prepare transport and money. And the father should know about PPH, eclampsia, anemia for their wives, so that they know the signs. (Nurse B)

5.4 Barriers to the preventive work

5.4.1 Unreachable mothers

Some of the nurses and midwives were frustrated that some mothers did not attend the antenatal care, nor follow the recommendations given to them during health education meetings. This was experienced as one of the factors that functioned as a barrier to successfully carrying out the preventive work. One respondent clarified how she thought this could be helped if the women would only listen to the education.

...some mothers say they don't want to [deliver in hospital]. Me I think that would be because they didn't get enough knowledge. So when I can sit together with mother I can explain the advantages of delivering at the hospital and the disadvantages of home delivery. And she can agree. (Nurse B)

One respondent expressed an understanding of what could hinder the women of coming to the clinic. Chores and obligations at home seemed to function as an obstacle that many times kept the women from attending meetings in the antenatal care.

...they don't have time for health education. They have too many things do at home. /.../ They don't want to come here to listen to health education. They think they lose their time. (Nurse D)

Another respondent added that poverty often influenced to what extent the women were able to follow the recommendations about what food to eat during pregnancy. The maize based staple food of ugali was widely consumed but not always accompanied by the recommended intake of iron rich but expensive meat products.

...it's hard for them to follow our recommendation about nutrition sometimes because of poverty. They can't afford to buy the nutritious food that we recommend them to eat during pregnancy. (Nurse F)

5.4.2 Lack of staff

Some of the nurses and midwives expressed that there was a heavy work-load with many patients and few staff. Some days there could be fifty or sixty mothers under the responsibility of two or three nurses, according to one respondent.

...ah, first of all, shortage of health workers /.../ we get many patients from home or maybe other hospitals so it's difficult because maybe sometimes we are only two so it is difficult to manage those, all the many patients. (Nurse H)

One cause for the shortage of staff was explained by one of the nurses, who thought that the low salary made many of the local nursing students move to the mainland and bordering countries like Uganda and Kenya where salaries were higher.

5.4.3 Lack of equipment, medicine and further education

During the interviews many of the nurses expressed a need for instruments, equipment, more medicine and infusions to their clinics.

...equipment, it's not enough. And some medicines like antibiotics are not enough, oxytocin, antihypertensive. (Nurse A)

One respondent spoke about the need for more ambulances and how they could be used for the often critical late referrals to the main hospital. The lack of further training and education was mentioned by one of the nurses, who expressed how refresher courses and study tours would increase the quality of the maternal health care.

6. Discussion

6.1 Method

The purpose of the study was to explore and analyze experiences of maternal mortality prevention among nurses and midwives in the Tanzanian island of Unguja, Zanzibar. The study was conducted using a qualitative hermeneutic approach and analysed according to Ricouer's structural analysis as it responded well to the aim of this study (31). The method made it possible to deeply explore the midwives experiences and retrieve data that is thought to have been challenging to derive from other methods such as surveys or article analysis.

Using an interpreter was a vital part of conducting the interviews, as the interviewer spoke English and the informants spoke Kiswahili. To overcome the language barrier the assistance of an interpreter was required for this study to take place. The use of an interpreter may have caused certain limitations to this study. According to Pitchforth & van Teijlingen there is always an effect of the interpreter to the data collection (34). Some of the conversation or important information might therefore have been lost, or added in the process of interpretation. When working in a different culture with an interpreter a common problem mentioned by Krag Jacobsen is that the interpreter takes on the role of the interviewer (35). The author did not experience this as a problem in this study, as the interpreter was responsible for interpreting and didn't interfere in what course the interview would take.

Conducting the interviews at the hospitals was considered to make the nurses and midwives feel confident and at ease. This is thought to have facilitated the interviews and have made the nurses speak more easily about their experiences, something that is also suggested by Krag Jacobsen who claims that a relaxed interview setting can be created at the respondent's workplace, where they feel at home (35).

The use of a digital recorder and the immediate transcription of the interviews are believed to have minimized the risk of the findings not corresponding to what was actually said during the interview, which is important to the reliability of a study, according to Kvale & Brinkmann (33). The comparison of the transcriptions to the initial recordings in the analysis is further thought to have strengthened the reliability. Presenting a number of quotes in the findings, and an example of the analysis in Table 1 has strengthened the validity of this study (26).

Using a convenience sample where the most conveniently available nurses or midwives in the different health care facilities participated in the interviews was thought to have the smallest negative impact on the work at the clinics. This was based on the desire not to uphold any nurse or midwife that was needed by a patient. For that reason, one of the interviews was interrupted because the midwife needed to assist in a complicated birth at the clinic. One problem with convenience sampling is that the sample may be atypical of the population, something that may affect the reliability of this study (26). The interviewed nurses and midwives may have been chosen by the head nurse because of their specific attitudes and other nurses and midwives may have had different experiences on the subject. It is therefore difficult to repeat this study (external reliability) or to draw any generalized conclusions from the findings as they are built on qualitative interviews, thus subjective opinions

retrieved from a social environment in constant change (20). Despite this, topics discussed in the next chapter are believed to raise questions of interest that can be of value to further research in the area of maternal health.

6.2 Findings

The results of this study suggest that there was a consensus among the nurses and midwives of viewing maternal mortality as a major health problem in Unguja Island. The experienced causes of maternal mortality among the respondents correlates to the ones stated by the World Health Organization as the most common causes for maternal death around the world (1). Severe bleeding, infections, high blood pressure (pre-eclampsia and eclampsia), obstructed labor, malaria and HIV were all mentioned by the interviewed nurses and midwives. The reason for the otherwise common cause of maternal mortality unsafe abortion not to be mentioned by the nurses in Unguja is believed to be local religious laws that prohibit both abortion and the use of contraceptives to be used, or talked about.

Findings from this study suggest that despite a lack of resources there are successful working methods and strategies to prevent maternal mortality in an affected region like Tanzania. An important factor facilitating this work seems to be the sense of responsibility for the women in the community that many of the interviewed midwives and nurses seemed to possess.

When considering some of the findings from a societal perspective it is obvious that political strategies have enabled important changes in the nurses' and midwives' working conditions. The interviewed nurses and midwives told of experiences that include a malaria prevention strategy, a rural transport programme and a strategy from the Ministry of Health to enable maternal health care and delivery-assistance in the more rural health care facilities. Investing in midwives and obstetric care has also previously been proved to be important factors in reducing the death rate in maternal mortality-affected settings. A study from Bangladesh shows that if decision makers, in addition to enabling female education and poverty-reduction, properly make use of the medical competence that nurses and midwives possess maternal mortality can be reduced by up to sixty-eight percent over a thirty-year period (36).

One challenge that the nurses and midwives experienced in their work against maternal mortality was the widespread use of unskilled personnel. The Traditional Birth Attendants seemed to be perceived as a necessary evil, hard to phase out because of the important role that they play in the local way of life, according to the interviewed nurses. A study from India shows that the biggest problem with TBAs is their lack of competence when delivery complications occur (37). Similar experiences were found in the present study as the respondents expressed their frustration over the risks associated with home deliveries assisted by an unskilled TBA. According to data from the WHO births attended by skilled personnel vary between an average of 33 percent among the poorest and an average of 90 percent among the wealthiest in Tanzania (4). The UN has addressed access to professional health care and skilled birth attendants as the key indicator to achieve the MDG:5 (2). Even if the interviewed nurses and midwives lacked mandate to stop the TBAs from assisting births in their clinic's catchment area they spoke about their struggles to attract the pregnant women to the health care facilities instead. Enabling women to

participate in health care activities is believed to be an important prevention strategy as it has been shown in a Tanzanian study that pregnant women who choose to visit health care facilities regularly are at lower risk of suffering from complications and death. To motivate pregnant women to attend antenatal care and thereby reduce maternal mortality Mpembeni et al. propose that health care should improve the health education about complications and warning signs during pregnancy to the parents-to-be, as well as intensify the individual counseling of women on hospital delivery (18).

Another preventive strategy that the nurses and midwives in rural health care facilities in the present study used in cases where women had suffered complications during a home delivery, was referring these patients to the bigger hospitals in the island. This shows a realistic insight in the own clinic's limitations and an understanding of the patient having better chances to survive elsewhere, because of better accessibility to blood transfusions and other appropriate treatment. The ideal situation would be that all clinics could offer this sort of care.

Preventing women from having more children was one strategy that some of the nurses experienced as helpful for those high-risk mothers that already had a large number of children. Surgical interventions like bilateral tubal ligation (for women) or vasectomy (for men) was mentioned, as well as advice of at least three years spacing between pregnancies to reduce the strain to these women's bodies. Such strategies are believed to have been successful in preventing maternal mortality in Unguja as they correlate well with the local culture and religion and its prohibition of contraceptives. A previous interview study on nurses' and midwives' own understandings about supporting women in Tanzania's biggest city Dar es Salaam show a similar result. According to Lugina et al. the nurses and midwives in that study also had experienced the importance of informing parents in line with the local cultural and religious beliefs (19).

Health education was expressed by some of the respondents as one of their most important preventive strategies. Informing the mothers about HIV, high blood pressure, good hygiene, exercise and how to prevent anemia, malnutrition, infection and malaria was highlighted as major topics that were usually brought up during the health education meetings. Even if the meetings were open to all pregnant women, the nurses experienced that not all women would show up. Responsibilities and chores at home seemed to hinder women to prioritize these meetings. Previous research on patient education in developing countries suggests that well-planned patient education that takes the needs of patients into account can work better than regular education (38). One way that some of the interviewed nurses and midwives had considered the women's own needs was through the use of Community Resource Persons (CORPS). The respondents experienced this as a way of getting past the problem of women not attending the antenatal clinic themselves and as a mean of reaching out to rural women with their health education. The importance of such community-based interventions is being highlighted in the literature. Pender et al. suggest that the community plays a critical role in health promotion and prevention and that the best outcome is reached when the whole community participates in and agrees upon the health promoting activity (39). A previous study from a rural district in Tanzania also shows that local health facilitators and home visits led to a better health seeking behavior and also an increase in giving birth at hospitals (17).

Some respondents experienced that there were cases where the information was given to mothers, but the recommendations were not followed. According to Pender, Murdaugh & Parsons the ability to learn from health education varies from individual to individual. Personal values, beliefs, attitudes, lack of motivation and cognitive skills influence the individual's ability to absorb the information. To prevent such barriers from wasting the intentions of health promotion they need to be considered when planning and conducting specific interventions (39). One of the nurses expressed a wish to have the women only attend the meeting and listen to her education. If only the women would attend the meeting they could agree upon the information given and follow these recommendations, according to this nurse. This way of perceiving health education as something easily implemented within the individual is believed to function as a potential obstacle in the preventive work. The Health Belief Model, originally designed by Rosenstock and thereafter modified by Becker, implies that the individual needs to experience a perceived threat to their own health before changing any health behavior (40, 41). Becker suggests that individuals initially consider the risk for them to be affected by a disease, complication or injury and then assess the pros and cons associated with changing the specific health behavior (40). Such knowledge, on the individual's ability to absorb information, is therefore assumed to be very useful when educating the pregnant women. It could even at an early stage enable the nurses to tackle any negative feelings the women might express towards following their recommendations about diet, prophylaxis and so on. Improving the maternal health education in Unguja in such a way is therefore thought to potentially make the education fulfill its purpose to an even greater extent.

Involving the fathers in health education was believed to work preventive, according to one of the respondents. This is supported in another Tanzanian study which shows that male involvement in maternal health education both leads to a better health seeking behavior and an increase in the number of hospital births (17). It is also suggested that men's involvement in reproductive and child health programmes has the potential of improving family health after childbirth (42). There are therefore reasons to believe that involvement of the father could potentially benefit all mothers-to-be. One step in order to achieve this could be to educate all nurses and midwives of its positive implications in order for them to welcome the fathers into the maternal health education settings.

The findings suggest that there is a conflict between the ambition of many of the interviewed nurses and midwives and the working situation that they are in. They express a will to help the mothers and families in the community but are restrained in their work because of recognized barriers such as a heavy work load, brain drain and lack of staff, equipment, medicine and education. These structural problems to the preventive work are in great need of solving in order to create better working conditions for the health personnel and thus facilitating the continuing strive to reduce maternal mortality.

6.3 Conclusion

The findings of this study suggest that the interviewed nurses and midwives, despite the need of solving structural problems like poverty, gender inequality and poor resources within the health care sector, experience a number of methods and strategies that can decrease the number of women dying during pregnancy and childbirth. To further improve the quality of maternal mortality prevention, knowledge of individual differences in learning from health education is believed to benefit the compliance to recommendations given in the maternal health care. Welcoming the fathers to the maternal health care settings, and thereby increasing their knowledge about maternal health is also thought to decrease maternal mortality figures. According to the interviewed nurses and midwives enabling women to deliver in hospital assisted by skilled personnel is one of the most important targets in maternal mortality prevention. In the current situation with shortage of staff it is suggested to implement training of TBAs in recognizing early identification of life-threatening complications. Such training is thought to secure early referral to hospital by the TBAs.

6.4 Future research

Questions for future research in this field is suggested to focus on further investigation of factors that influence the mothers' health seeking behavior and ability to absorb recommendations given by maternal health care providers.

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Appendix 1

Research permit

REVOLUTIONARY GOVERNMENT OF ZANZIBAR –

SECRETARY
ZANZIBAR RESEARCH COMMITTEE
P. O Box 239
Tel: 2230806
FAX: 2233788



RESEARCH/FILMING PERMIT

(This Permit is only Applicable in
Zanzibar for a duration specified)

SECTION

Name: Ms. MARIA NYBERG WHITE

Date and Place of Birth 1983/09/22 ST: OLOV

Nationality: SWEDISH

Passport Number: 45739466

Date and Place of Issue 2004/11/10 OSTERGOTLANDS LAN

Date of arrival in Zanzibar 4TH DECEMBER .2011

Duration of stay: 7 WEEKS

Expected date of Departure: 20TH JANUARY, 2012

Research Tittles: "IMPROVING MATERNAL HEALTH AND
REDUCING MATERNAL MORTALITY-
NURSES AND MIDWIVES EXPERIENCES
FROM TANZANIA"

Full address of Sponsor: DIVISION OF NURSING SCIENCE,
FACULTY OF HEALTH SCIENCE
LINKOPING UNIVERSITY

This is to endorse that I have received and duly considered applicant's request I am satisfied with the descriptions outlined above.

Name of the authorizing officer: Mohamed H. Rajab

Signature and seal: 

Institution: Office of Chief Government Statistician

Address: P. O Box 2321
Zanzibar

Appendix 2

Letter of information

Annemie Svensson
Division of Nursing Science
Faculty of Health Sciences
Linköping University
e-mail: annemie.svensson@liu.se
Phone: +46:13286608



Linköping University
FACULTY OF HEALTH SCIENCES

To whom it may concern,

2011-09-23

This is to confirm that one of our Nursing students, Ms. Maria Nyberg White, would like to perform a field study by interviewing six nurses or midwives at hospitals in Tanzania to explore the experiences of maternal mortality prevention among nurses and midwives. The aim of this study is to identify and describe the nurses' and midwives' understandings and beliefs of what can be done to reduce maternal mortality and improve maternal health in pregnancy and time of childbirth. Ms. Maria Nyberg White will complete her thesis during 2012 and will thereafter proceed with her studies to obtain a Bachelor's Degree in Nursing Science in addition to her previous Master's Degree in Public Health.

The thesis requires an empirical study and Ms. Maria Nyberg White has chosen to write about experiences of what can be done to reduce maternal mortality and improve maternal health in highly affected areas. The interview questions will be based on a semi structured interview guide with introductory questions and a list of topics and sub queries. To be included in the study, the nurses should be able to understand and speak English and be working in the field of obstetric care and/or maternal health. Ms. Maria Nyberg White will be in Tanzania for seven weeks from December 2011 to January 2012 to perform these interviews.

I would be very grateful if You would grant her permission to conduct nurse or midwife interviews before or after a working shift at the hospital. The interview is voluntary and will not lead to any economic benefit or compensation apart from a cup of coffee or tea.

Yours sincerely,


Annemie Svensson

Appendix 3

Interview guide

1. How many years have you worked as a nurse/midwife?
2. Why did you choose to become a nurse/midwife?
 - Best thing with the job
 - Worst thing
3. Do you think maternal mortality a problem in Unguja?
 - Why is that?
 - In what way do you think nurses and midwives can prevent this?
4. What is the situation like (concerning maternal health) at your Health Care Facility?
5. What difficulties do you see in your work?
 - can you give an example?
6. What preventive methods do YOU use in your work?
 - Do you think they are effective?
7. What is the biggest problem pregnant mothers face here in Unguja?
 - In what way can you assist them in this problem/s?
8. What kind of recommendations do you give to mothers about health during pregnancy and delivery?
 - How do you do this? (folders, groups, individuals, couples?)
 - Do the mothers follow your recommendations?
9. From where do you get your information on what to recommend to the mothers?
 - What are these recommendations?
 - Are you able to follow these recommendations in your work? (why/why not?)
10. If you could make a wish or dream, what changes would you make in maternal health work here in Unguja?
 - What would you need for this to happen?
11. Is there something else you would like to highlight concerning prevention of maternal mortality?

Follow up-questions:

Can you explain more/can you give an example/how do you mean?