

# **Maternal Mortality in the rural Gambia, a qualitative study on access to emergency obstetric care.**

Mamady Cham<sup>1\*</sup>, Johanne Sundby<sup>2\*§</sup> and Siri Vangen<sup>3</sup>

<sup>1</sup>Department of State for Health, Medical and Health Headquarters, Banjul, The Gambia.

<sup>2</sup>Institute of Community Medicine, Faculty of Medicine, University of Oslo, Norway.

<sup>3</sup>Norwegian Institute of Public Health, Oslo, Norway.

\*These authors contributed equally to this work

§Corresponding author

Email addresses:

MC: [mamady\\_cham@hotmail.com](mailto:mamady_cham@hotmail.com)

JS: [johanne.sundby@medisin.uio.no](mailto:johanne.sundby@medisin.uio.no)

SV: [siri.vangen@fhi.no](mailto:siri.vangen@fhi.no)

# **Abstract**

## **Background**

Maternal mortality is the vital indicator with the greatest disparity between developed and developing countries. The challenging nature of measuring maternal mortality has made it necessary to perform an action-oriented means of gathering information on where, how and why deaths are occurring; what kinds of action are needed and have been taken. A maternal death review is an in-depth investigation of the causes and circumstances surrounding maternal deaths. The objectives of the present study were to describe the socio-cultural and health service factors associated with maternal deaths in rural Gambia.

The standard WHO definition of maternal deaths is used in this study.

## **Methods**

A total of 42 maternal deaths that actually tried to reach or have reached health care services were reviewed. A verbal autopsy technique was applied for 32 of the women. Key people who had witnessed any stage in this process were interviewed. Health staffs who participated in the provision of care to the deceased were also interviewed, and all interviews were tape recorded and analysed with a grounded theory approach.

## **Results**

The length of time in delay within each phase of the model was estimated from the moment somebody, either the woman or her family or health staff realised that there was a complication until the decision to seeking or implementing care was made. These items evolved as important: Underestimation of the severity of the complication, bad experience with the health care system, delay in reaching an appropriate medical facility, lack of transportation, prolonged transportation, seeking care at more than one medical facility and delay in receiving prompt and appropriate care after reaching the hospital

## **Conclusions**

Many women do indeed seek to access care for obstetric emergencies, but because of a variety of problems encountered, these goals are not met. Disorganized health care

with lack of prompt response to emergencies is a major factor contributing to a continued high mortality rate.

## **Background**

Maternal mortality is the vital indicator with the greatest disparity between developed and developing countries [1,2]. Causes of maternal deaths are remarkably similar in these countries, however the distribution of causes differ somewhat from region to region [3].

Measuring maternal mortality is notoriously difficult for both conceptual and practical reasons. The currently available approaches are complex, resource intensive and imprecise; and the results they yield are often misleading [4]. The challenging nature of measuring maternal mortality has made it necessary to perform an action-oriented means of gathering information on where, how and why deaths are occurring; what kinds of action are needed and have been taken [5]. Reduction of mortality can only be achieved through knowing how and why women died, and assessing impact of the interventions demand exact knowledge about how many lives were saved. Often the answer to the “why” is not a simple one. The death may occur as a result of a series of interconnected events rather than one single factor. Answering the “why” questions thus requires a systematic review of each maternal death as it provides information on events surrounding the deaths. A maternal death review is an in-depth investigation of the causes and circumstances surrounding maternal deaths [6]. In this process, problems in accessing care, mismanagement and inadequate routines are identified and discussed, and ways to counter and correct them established.

Levels of maternal mortality in the Gambia are unacceptably high and are ranked among the highest in Africa, estimated at 1,050 per 100,000 live births [7]. It is higher in rural than in urban areas. Obstetric causes of maternal deaths in the Gambia are well documented [7-11], but little attention is paid to contributing factors. In order to reach the Millennium Development Goal of reducing maternal mortality, one issues is of utmost importance; namely women’s access to good quality health care embedded in a human rights framework. It is agreed upon internationally that access to emergency obstetric care and increased status of women in society are two elements that may contribute significantly towards this goal. Site-specific information may be a key to policy change and action, even if the general causes of continued high maternal

mortality rates are known to most people. The influence of a local maternal care access study on improving service delivery and organization has been demonstrated in Mali [12].

The objectives of the present study were to describe the socio-cultural and health service factors associated with maternal deaths in rural Gambia. We aimed at identifying factors that if avoided, may have prevented these deaths. A key focus of the study is to try to create an operative understanding of the concept of access. The study was carried out in Central and Upper River Divisions between January and September 2002. The main qualitative findings from verbal autopsies performed on 32 maternal deaths are presented here. The analysis of socio-demographic background, medical causes and management of cases is presented in another paper [13].

### **Study Area**

Central and Upper River Divisions are located at least 300 km away from the capital city, Banjul, and the roads are generally not very good. In 2002 the total population of the two divisions was estimated at 400,917 [14]. The inhabitants are mainly subsistence farmers, and they are generally poor.

There are seventeen medical facilities in the area including one referral hospital. This hospital is the only facility providing comprehensive emergency obstetric care (EOC) [15] to women with obstetric complications. The other health facilities provide some, but not all, of the basic EOC services functions. General access to basic health care facilities in the country is good, with over 85% of the population living within 3 km of a primary health care or outreach post and 97% within 5 km [16]. The distance from other health facilities in the area to the referral hospital ranges from 17 to 115 km. Antenatal care coverage in the country is exceptionally high, as 96% of pregnant women attend prenatal clinic at least once during pregnancy [17]. Levels of maternal mortality in this region are nevertheless among the highest in the country [7].

### **Model**

The standard WHO definition of maternal deaths is used in this study [18]. Like most health problems, causes of maternal death can be viewed either narrowly or broadly. A broad view would take into account both individual, community and health service factors that contributed to the deaths, not merely the medical cause. The “Three

phases of Delay Model” [19] was chosen to classify factors associated with the maternal deaths in the present study. The model is based on the fact that about 75% of maternal deaths are a result of direct causes – haemorrhage, obstructed labour, sepsis, eclampsia and abortion complications [4]. Almost all these deaths are amendable to prompt and adequate medical interventions. Therefore, delays in reaching this are prominent factors contributing to maternal deaths. Thaddeus and Maine [19] have argued that not getting adequate care in time is the overwhelming reason why women die in developing countries. Lack of care, they argued, can be related to three factors: a delay in making the decision to seek care when complication developed; a delay in reaching obstetric medical facility once the decision to seek care has been made; or delay in receiving adequate and appropriate care once a medical facility has been reached. Delay in the decision to seek medical care may be influenced by various factors such as actors involved in the decision-making process, illness characteristics, and experience with the health system or distance to the health facility. Delay in reaching an appropriate medical facility is affected by the distribution of health facilities, availability of transportation, road conditions or cost of transportation. Delay in receiving adequate and appropriate care once the facility is reached is mainly due to operational difficulties in the health care delivery system. Such inadequacies may be characterised by shortages in supplies, equipment, lack of trained personnel, incompetence of the available staff, or uncoordinated emergency preparedness. The delay model helps to identify community and health services factors contributing to maternal deaths and as such it is useful in devising interventions and strategies for preventive measures. The last delay is probably the one delay most responsible for lack of access to health care.

## **Methods**

### **Data Collection**

This study is one part of an in depth study on maternal mortality in this rural area. The main bulk of maternal mortality studies in the Gambia cover other areas (Farafenni, Banjul) [7-11]. Here we have, in the chosen time period, identified a total 42 maternal deaths, using a variety of community and health facility case finding strategies. The deaths identified are as complete as possible for women who actually tried to reach or

have reached health care services. Medical and social details about the fatal cases are published elsewhere (submitted). A verbal autopsy technique [20] was possible to perform on 32 of the women who died. We aimed at identifying the various circumstances that contributed to the deaths, often called the “road to death” [21,22]. This involved a visit to the home and village of the deceased and all health facilities where she sought care. Key people who had witnessed any stage in this process were interviewed.

In the community, interviews were performed with family members or other persons, usually those present during the time the deceased developed the illness; or those who accompanied her to the health facilities and was with her at the time of death. These were mainly in-laws, co-wives or the deceased’s husband. A WHO based, verbal autopsy questionnaire [10] was administered. An interview with the deceased’s relatives was performed in the deceased home at least one week, but not more than twenty-five weeks after the death.

We most often used a group interview, as the whole family would be very interested in narrating and revealing their versions of the context of the death, and to give a verbatim account on the deceased’s final illness up to her death. Specific issues such as the time taken to decide to seek care; places care was sought; financial constraints if any; cultural factors influencing care seeking process; means of transportation and time to reach a medical facility were explored and recorded.

Other people interviewed in the community were local taxi drivers and ferry captains. Health staffs who participated in the provision of care to the deceased were also interviewed, to illicit information on transport and health care operational factors that affected the provision of care in individual cases. The interviewees were nurses, midwives and doctors. Other health staffs interviewed were ambulance drivers, generator operators or laboratory personnel.

## **Analysis**

Interviews with staff were carried out independently and all interviews were tape recorded. Data generated through group and individual interviews were transcribed in full. The transcribed material were categorised and analysed in a relatively open way, using a *grounded theory* approach. Grounded theory is an analysis method often utilized in qualitative studies in the health sector, and is well described in a recent

book by Dahlgren et al. [23]. Interpretation of the findings with a view to provide possible and plausible explanations was then performed.

### **Ethical approval:**

The Ethical Review Committee in Norway and The Gambia Government/Medical Research Council Laboratories Joint Ethical Committee approved the study. Each respondent gave an oral consent according to their recommendations.

## **Results**

### **Delay in deciding to seek care**

The length of time in delay within this phase of the model was estimated from the moment somebody, either the woman or her family realised that there was a complication until the decision to seeking care was made. Seven of the 32 women delayed the process of seeking medical attention after recognition of the complication. The time delayed among the seven women ranged from two hours to five days. The average time in delay was 48 hours. The reasons mentioned for the delay were underestimation of the severity of the complication, cultural belief or previous unfavourable experience with the health system.

### **Underestimation of the severity of the complication**

Testimonies indicated that having previous problem-free pregnancies tended to be an inhibiting factor in the decision-making process. Women or their relatives tend to use previous pregnancies as a risk predicting tool. If the previous pregnancy or pregnancies were without incidents, subsequent ones are usually thought to be so too. A husband of a deceased woman narrated:

*“This was her ninth pregnancy. All previous pregnancies were delivered at home. She always gave birth without even calling for help from the traditional birth attendant. We thought she will deliver this time without a problem”.*

In another case a mother in-law narrated:

*“She swept the house and prepared breakfast. At midday she was lying in the room complaining of labour pains. We thought she will deliver without a problem as in her last pregnancy. It was after 2:00 pm she did not deliver then we decided to look for transport to take her to the health centre”.*

Thus it was not, from the family's point of view, that anything would likely happen this time. A "wait and see" approach delayed appropriate action.

### **Cultural belief**

In Gambian society pregnancy and childbirth are generally regarded entirely as women's entity. Furthermore, older women in their menopause are assumed to be experts on pregnancy and childbirth particularly in rural areas of the country. This is because these women have survived a number of pregnancies and childbirths. Some of them may act as traditional birth attendants. These women are consulted if a complication is noticed during pregnancy, labour or during the puerperium. When consulted, they usually decide what should be done and their advice is taken. Words of elders are hardly challenged in Gambian societies. In this study a step-mother looking after a woman with obstetric complication decided that the woman should wait until after the next Muslim praying time (three hours away) before going to seek medical attention. From the testimony, the rationale for the delay was that it is believed that progress in labour and childbirth is seen at specific times corresponding with the Muslim praying times. She narrated:

*"Labour and child birth takes place at certain times.....these times corresponds with the Muslim praying times. It was around midday and the next praying time was 2:00 pm so we thought she will deliver by then. It was after then when she did not deliver we decided to take her to the health centre".*

### **Experience with the health care system**

Other testimonies indicated that structural factors in the way maternal health care services is being provided, barred women from seeking care. In the Gambia prenatal care is held on specific days in specified communities. Prenatal care is also not held on weekends, particularly in the rural Gambia. This gives the impression that maternal health services are available only on the days when clinics are held. Family members of a deceased woman narrated that the woman stayed at home from Thursday up to Monday because the clinic day for their village is held on Mondays, and moreover, on weekends the clinic is closed. A mother in-law narrated:

*"On Thursday evening she complained of abdominal pains.....throughout the weekend she was with severe abdominal pain but we had to wait until the following Monday as it is the day on which pregnant women are attended to. The clinic is closed on Saturdays and Sundays".*

Another factor identified to have inhibited the decision-making process in this study, was poor provider attitude as a disincentive in the decision-making process. A co-wife narrated

*“She was vomiting throughout the night, the following morning the husband decided to take her to the health centre but she refused.....she has not yet get an antenatal care card. She feared the nurses because if she goes to complain about the vomiting she will be asked the card and without it they [nurses] will tell her all salty words. She may be insulted or may even not be given medicine”.*

Fear of punishment by health care providers, based on previous experiences or just gossip, is important to note. Health workers may not deliberately be rude to women, but the mothers may be very sensitive to the cultural conflicts between educated and less educated points of view. Information received from care providers that is not clearly understood, was identified as an inhibitor during the decision-making process to seek medical care. A lady with twin pregnancies was advised to deliver at the hospital. However the way and manner the information was provided resulted in it being misinterpreted. A mother in-law narrated:

*“She was told she had twin pregnancies by the nurse. She was told by the nurse to report to the hospital when in labour. When labour began we decided to go to the hospital. She was not told to report to the hospital before labour began”.*

Barriers to seeking care may not appear to care providers when they make recommendations. For the women these may be very real, but she may not see them as an issue, as she is not given room to discuss these with the nurse.

Lack of money and refusal to seek medical attention, however, were not identified as factors affecting health care seeking process. In twenty-two out of the thirty-two women, relatives mentioned that there were no funds at hand when the complication developed. In all these cases the woman was taken to a medical facility without money. A relative was left behind to borrow money in the community, and when acquired, he will meet them at the health facility. This may be a sign of increased

awareness on pregnancy complication on the side of family members. Another reason is the policy that patients should not be refused care for inability to pay user charges.

### **Delay in reaching an appropriate medical facility**

Once a decision to seek medical care has been made, other obstacles must be overcome in reaching a medical facility. Twenty-seven of the 32 women, (84%) had delay in reaching an appropriate medical facility. The reasons for this delay can be grouped into three subcategories: lack of transport, prolonged transportation and seeking care at more than one facility.

### **Lack of transportation**

Transportation difficulties, such as poor road conditions, lack of readily available transport and/or inadequate means of transportation were mentioned. The relatives' testimonies often expressed serious transportation obstacles. Lack of motorized transport forced some families to opt for alternative means of transportation such as using a cart (donkey, ox or horse) or in extreme instances they walked. The testimony below is an eloquent example illustrating this. A husband explained:

*“She started pouring blood late in the evening just after evening prayers [5:00 pm]....we took her to the main road [tarred road] to look for transport. We were there [main road] up to twelve midnight but couldn't get transport. All the vehicles that came were full. We went back home and woke up early morning the following day to catch the first transports”.*

Transportation difficulties were experienced even after reaching the first medical facility, which is supposed to have an ambulance for further referrals. Some of the health facilities are without an ambulance. If a facility has an ambulance it serves multiple purposes and may be unavailable at certain times. A midwife narrated how they struggled to get a transport to evacuate an obstetric emergency:

*“The patient came to the health centre at around 4:00 pm.....she cannot be managed here because she may need an operation [caesarean section]. We planned to evacuate her to the hospital but our ambulance had a breakdown a week ago. We looked for transport in the village throughout the night but could not get one. The following morning we went to the agricultural department to look for transport but their vehicle had already left for trek. It returned around 11:00 am and thereafter it came to transport the patient to the hospital”.*

Lack of fuel in the ambulance was also mentioned. In such occasions relatives or escorts met the fuel cost. A husband narrated:

*“I took my wife to the health centre.....two hours later the nurse told me that she [my wife] will be transferred to the hospital but that the ambulance had no fuel. I was asked to buy fuel for the ambulance to take my wife. I bought twenty litres of diesel”.*

Some communities in the Gambia have – with the assistance of the health authorities - tried to set up community based emergency transport systems, such as horse carts or bicycle ambulances, but it seems as if these systems fail to be sustainable.

### **Prolonged transportation**

Long distance, bad road condition, poor state of vehicle and visiting different health facilities all contribute to prolonged travelling time. Several testimonies highlighted this. A husband explained:

*“She was admitted in the hospital for two weeks and discharged on a Monday. On her return to our village [85 km away from the hospital] she felt down unconscious. We took her to the health centre in our village where she was transferred to another health centre [20 km]. She was again transferred to the hospital [60 km away]. She spent few hours at the hospital and died”.*

Distances in the Gambia may be too long for adequate emergency transport especially in the rainy season, unless you have a running motor vehicle, which is a rare commodity in most communities.

### **Seeking care at more than one medical facility**

Peripheral health facilities’ inability to provide comprehensive obstetrical services forces them to refer all women needing such services to the nearest hospital. Twenty-six of the 32 women visited more than one medical facility during the care seeking process. Eighteen of the 26 women visited two health facilities while the other eight women visited three different facilities. Thus, the women accessed a *health care facility*, but not appropriate *health care*. The husband of a deceased narrated:

*“We took her to the health centre in the village.....she was examined by the nurse who later transferred her to another health centre [44 km away]. There she spent the night and the following morning she was again transferred to the hospital [36 km away]. On our way to the hospital we had to cross the river at two different crossing points. Immediately after we reached the hospital she died”.*

In a way, this is a tragic paradox. The women are told to seek care at a facility, but the facility she goes to cannot provide the care she needs. Thus, seeking care at an inappropriate level of facility actually delays the medical intervention rather than being able to assist the women in getting prompt treatment. The women and her kin cannot be expected to know what type of care she will need. Lack of access to emergency obstetric care in some health facilities – but failure to administer immediate transfer, is a health systems planning weakness.

### **Delay in receiving prompt and appropriate care after reaching the hospital**

When women with obstetrical complication reach a medical facility, there may be other circumstances that threaten their chances of survival. Out of the 32 women, 31 experienced delay in receiving prompt and adequate obstetric care at the hospital level. Lack of blood was common in the testimonies. A mother-in-law explained:

*“When we reached the hospital, they [the doctor and the nurses] told us to find two bottles of blood for her [our patient]. We went to the laboratory but the man at the lab said there was no blood. I donated one bottle and bought another in the lab. After giving her [patient] the blood we were asked to get another two bottles. We went back to the lab but the man at the lab insisted there was no blood. I paid him D300.00 [equivalent to US\$12.00] before getting the two bottles of blood”.*

Lack of basic medical supplies also complicates the issue of blood transfusion, as shortage of blood bags made it impossible for transfusion services. One husband of a deceased narrated:

*“She was pouring blood at home so we took her to the health centre. There we were told she urgently needed blood but blood bags were not available. She was then transferred to the hospital [60 km away]. At the hospital blood bags were finished. She was in the hospital from mid-day up to the following day in the evening but had not received blood. Late at night she died”.*

Health care providers also gave an account of what they believe is the reason for blood shortage in the hospital. A laboratory officer narrated:

*“Here patients are escorted to the hospital by old women who are not fit to donate blood. In addition most men in this area are reluctant to donate blood and prefer to buy blood”.*

Delay in providing prompt and adequate care by the medical team was also highlighted in the testimonies. An eloquent example was an account by a midwife:

*“She was brought to the hospital on the 13<sup>th</sup> at around 9:00 am from another health centre. The doctor saw her and diagnosed hand-presentation. He [doctor] asked us [midwives] to observe her. No action was taken by the doctors up to the 15<sup>th</sup> late in the evening [48 hours later] when they took her to the theatre. He [doctor] first tried external cephalic version which failed before a caesarean section was performed. The patient was wheeled dead from the theatre”.*

Poor management of staff availability, particularly doctors, has been mentioned as a major factor contributing to poor care. A midwife narrated:

*“There use to be four doctors in the maternity unit but in July all three went on leave together. Now only one doctor is available for the unit. He does ward rounds, perform operations and run the out patients clinic. Even when there were four doctors we usually have problems with them [doctors] because there is no duty rooster for doctors in place. After normal working hours when there is an emergency it is always difficult to see them”.*

Of course, in order to have preparedness for emergency obstetric care, these services should be accessible without delay 24 hours every day. This also implies that hospital management should organize for an “on call” routine where the doctor in charge has to be within reach when there is a need.

## **Discussion**

Former studies of maternal deaths in the Gambia has identified that the number may be decreasing [10], but that there are still many women who die. The Gambia was the first country to implement a sisterhood approach to the measurement of the maternal mortality level [9]. Many factors in health care delivery could contribute to further improvement [16]. Substandard care as contributing factor to poor survival has been demonstrated as early as 1996 in the main referral hospital [8]. We do believe that we have captured most of the deaths that actually took place in the care facilities during

the time of the study. Using multiple sources of information, such as health workers identification, community leader's knowledge, hospital files and post partum follow up visits, it is possible to capture a large fraction.

This study does confirm previous findings [24-26] that a maternal death is the consequence of a long and complex chain of delays, and only in few cases can a death be attributed to a specific event. This study also affirms that any one delay could be fatal to the woman with obstetrical complication. The most striking feature of this study is indeed that contrary to the common belief, that women don't seek care and die in the community, it also shows that women who initially intended to deliver at home, did indeed try to get assistance once a complication occurred. The problems encountered in trying to do so, reveal major obstacles in access to appropriate care within an acceptable time.

### **Delay in deciding to seek medical care**

Delay in deciding to seek medical care on the part of the woman or her relative is usually regarded entirely as patient factor. First, the illness or complication must be recognised and classified as abnormal. Recognition of an illness may be influenced by factors such as the prevalence of the condition[27]. In Tanzania, rural women seem to avoid going to the hospital because of fear of discrimination, geographical and financial barriers and different interpretation of danger signs [28]. In a study among pregnant women in Senegal, 13% regarded fever, pallor and dizziness as normal signs of pregnancy because these conditions were common among pregnant women in that area [29]. One condition often encountered in the Gambia, is maternal anaemia. Most anaemic women do survive birth, but if a complication like haemorrhage arise, she is more likely to suffer a serious complication or death. Awareness of the extra risk for these women is a health education issue for both health workers and community. One role of appropriate antenatal care is to address these issues with pregnant women and their kin, and to offer care seeking solutions in advance, should a problem arise later. There is a health communication continuum between antenatal care and access to skilled delivery. Access to skilled attendance at childbirth includes improved technical skills as well as skills in attitude, communication, information and early advice on referral [30], but may be beyond reach for everyone in poor countries for many years still.

Brown [31] defined culture as a complex whole that refers to the learnt pattern of thoughts and behaviour characteristics of a social group. It involves religion, kinship, knowledge, belief, art, morals and child bearing practices. The tendency to act or not doing anything in the presence of a complication is also influenced by the interpretation supported by cultural beliefs. Several studies carried in Africa and elsewhere [24,32,33] have highlighted how culture influenced health care seeking process. Religious belief was mentioned to have influenced the care seeking process in this study. Jansen [34] asserted that religion, medicine and magic are closely interwoven. Interestingly, if the barriers to care are too overwhelming, a culturally based reassurance that “things most likely will go well” may cause a hesitation in recognizing alarm signals until it is very late, instead of acting on a minor sign or symptom of abnormality.

Health service related factors were mentioned to have constrained the decision-making process in this study as they acted as an impediment. A woman or a close relative’s previous encounter with the health system is a very important determinant in subsequent health care seeking process. Bad experience with the health system will mostly lead to reluctance or non-utilisation of health care services. Poor provider attitude towards patients has been identified as a major factor to low utilisation of services in Kigoma [21] and to low compliance to a referral hospital by high-risk pregnant women [28]. Here, too, the communication barriers between lay peoples concepts and those of professional care providers, may lead to serious misinterpretations, both of medical issues and of authority. Women in the Gambia often resort to home delivery assisted by a traditional birth attendant or a relative as their first option. Sundari [25] identified unfamiliar setting at the health facility, being attended to by strangers, lack of family support, attendant being a male care provider, reduced autonomy, lack of sympathy and understanding on the part of the health care personnel and not seeing the need for care are some of the factors contributing to non-utilisation of health services during labour and childbirth.

Underestimation of an obstetric complication by a woman or her relatives may arguably be a consequence of inadequate community based health education. To enhance prompt reporting and utilization of maternal care services when an obstetric complication occurs, the health system must effort to individually address access

issues. The development of plans for emergency attention if needed could be one such effort. Information received at a medical facility from care providers should be an enabling rather than a restrictive factor in care seeking process.

### **Delay in reaching an appropriate medical facility**

The accessibility of health services influenced by distance and availability of transportation is considered to play a dual role in the health care seeking process. On one hand it influences people's decision-making and on the other hand, it determines the time spent in reaching a facility after the decision to seek care has been made. Transportation difficulties experienced both at community and at health facility level showed the reality of the communication problems in the rural areas of the country. Lack of public transportation systems in rural areas requires that communities need to form partnership with the local commercial transport owners in addressing the transport problem. This strategy was adopted in North-western Nigeria [35] and had contributed to the reduction of maternal deaths. This strategy also contributed considerably to reduction in the cost of transportation.

Major health centres are strategically located in the Gambia, but accessing them does not necessarily mean that you get appropriate care. Sometimes using these sites as the entry point to health services, delay the further attempt of accessing correct care. Efforts should be made to transfer health centres into fully functional basic obstetric emergency units. This will not only reduce the delay caused by long transportation time currently experienced by women, but would certainly improve access to EOC services. The inadequacy in accessing transport in referral to higher level health facilities should be a cause for concern. The health system should provide ambulance of good road worthiness, assure reliable fuel supply and put in place mechanism to ensure that women with obstetric emergencies have access to these vehicles. As this study did not find that cost issues were identified as main obstacles, some form of cost sharing could be tried out. This is being practiced by NGO run health facilities (in the country) and it seems to be effective.

### **Delay in receiving prompt and appropriate care after reaching the hospital**

Delay in receiving care once an obstetric care facility is reached was a common factor identified. In a multi-centre study from three other West-African countries, it was

found that most of the women who were classified as “near misses” and reached hospital with a critical condition were referred from another facility [36], and a need to differentiate between those who arrive in a critical condition and those who develop one was identified. Prompt action is a must in both cases. Despite the fact that there is a wealth of information on what a well defined care package of Emergency Obstetric Care should be, operational difficulties in the health system were the main reason for maternal deaths. Delays in the delivery of care are symptomatic of the inadequacy in the health care delivery system. Inadequacy may be due to one or a chain of the following: shortage of medical supplies, lack of equipment, lack of trained personnel, and incompetence of the available staff. Health system failures have been identified as a major contributing factor to maternal deaths [8,10,21,37,38]. This highlights the inadequacy of the health care delivery system to address the obstetric care needs of women who urgently needed it. Addressing the operational problems at the obstetric referral hospital and ensuring that the services are of high quality could probably have saved the lives of some of those women. The hospital must be emergency-prepared which entails sharing of responsibilities, ensuring emergency stock of supplies, timely access to life saving interventions and above all dedication to mortality reduction.

## **Conclusions**

The failure to get adequate treatment in time may be seen in a “right to access health care” context. Women’s access to appropriate services is a concern in the Gambia. This study does reveal that women do try to reach adequate health services when an emergency occurs, but that there are many obstacles that delay this process. The study calls for an improvement in the services’ ability to respond to emergencies at all hours of the day. Improving accessibility and quality of EOC services in the area is necessary if maternal deaths are to be prevented

## **Competing interests**

There are no competing interests for this study. The study was partly financed by a Norwegian government quota grant for students from developing countries for higher studies in Norway. This project was also funded by the Participatory Health

Population and Nutrition Project (PHPNP) of the Department of State for Health of The Gambia.

## **Authors' contributions**

Mamady Cham is a Nurse-midwife with Public Health background. He is a Principal Nursing Officer at the Maternal and Child Health Programme, Medical Headquarters, Department of State for Health, Banjul, The Gambia, and did the data collection in the field, the main analysis, wrote the first draft of the paper and reviewed the final document.

Johanne Sundby is a specialist in obstetrics and gynaecology. She is Professor in Women's Health and Reproductive Health, Institute of Community Medicine, University of Oslo, Oslo, Norway. She has done clinical studies in the Gambia, planned the current study and introduced the methodology, and participated in the writing of the first draft, and wrote the final version of the document.

Siri Vangen is specialist obstetrics and gynaecologist and a researcher at the Division of Epidemiology, Norwegian Institute of Public Health, Oslo, Norway. She assisted in the analysis of data as the second reviewer of the text, contributed to the first writing of the paper and reviewed the final document.

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