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ABSTRACT

Objective: To explore maternal near miss and death after emergency cesarean delivery in Somaliland, including the impact of the prerequisite for family consent.

Methods: A facility-based, mixed-methods study was conducted to assess all maternal near misses and deaths recorded at a referral hospital that provided services to women from all regions of Somaliland. The data sources comprised a quantitative prospective cross-sectional study using the WHO near-miss tool (performed from August 1 to December 31, 2015) and qualitative interviews with 17 healthcare providers working at the referral hospital who were in direct contact with the women in labor (performed from January 15 to March 15, 2015).

Results: Of the 138 maternal near misses and deaths recorded, 50 (36%) were associated with emergency cesarean delivery. The most frequent maternal complication was severe pre-eclampsia (n=17; 34%), and the most frequent underlying causes were hypertensive disorders (n=31; 62%) and obstetric hemorrhage (n=15; 30%). Healthcare providers were often prevented from performing emergency cesarean delivery until the required consent had been received from the woman's extended family.

Conclusion: Maternity care in Somaliland must be improved, and the issue of legal authority for consent examined, to ensure both safe and timely provision of emergency cesarean delivery.

1 INTRODUCTION

According to WHO [1], it is a woman's right to give informed consent or to make an informed refusal of any reproductive care that she might be offered, including cesarean delivery. Nonetheless, this concept is not applied for cesarean delivery

worldwide. According to one paradigmatic model, women who are in need of a cesarean delivery should be offered this procedure only after giving informed consent as a result of assistance from a doctor who has used their expertise and experience to guide the decision [2]. This approach is considered to be the ethical way to deal with the partnership between a woman and a doctor in terms of medical-setting decisions.

In Somaliland—an autonomous region of Somalia since 1991—neither the pregnant woman nor her husband has the legal right to give informed consent to an emergency cesarean delivery without a male member of the woman's family also giving his consent. Furthermore, the attending clinician does not have any legal right to make decisions about a cesarean delivery. This situation often arises in countries with fragile constitutional and legal systems [3,4] that are struggling with women's rights [5–7]. To the best of our knowledge, no studies have yet been conducted to investigate the issue of consent from the extended family before a woman can undergo an emergency cesarean delivery.

The rate of cesarean delivery in Somaliland is 3% [1,8]. Within this region, cesarean delivery can be considered only when a maternal life-threatening condition is identified during the first or second stage of labor [9–13]. In 2015, use of the WHO near-miss approach [13,14] was piloted at a tertiary referral hospital in Somaliland. Timely management and safe procedures relating to the practice of consent from the woman's extended family could not be reflected in the quantitative figures. Therefore, a mixed-methods approach was used to explore maternal near miss and death after emergency cesarean delivery in Somaliland, and to describe the role of family consent.

2 MATERIALS AND METHODS

A facility-based, mixed-methods study was conducted that assessed both quantitative and qualitative data on maternal near-miss and death events following emergency caesarean delivery at Hargeisa Group Hospital, which is the main referral hospital in Somaliland. Ethical clearance was obtained from the University of Hargeisa Research Ethics Committee for both the qualitative and quantitative parts of the study.

The quantitative data were derived from a prospective cross-sectional study performed at Hargeisa Group Hospital from August 1 to December 31, 2015. Hargeisa Group Hospital handled approximately 2940 deliveries in 2014, with women being referred from all regions of Somaliland. All maternal near misses and all maternal deaths registered during that timeframe were included. Maternal near miss was defined as "a woman who nearly died but survived a complication that occurred during pregnancy, childbirth or within 42 days of termination of pregnancy" [14]. Maternal death was defined as "the death of a woman while pregnant or within 42 days of termination of pregnancy from any cause" [14]. The required sample size (n=52) was calculated using the WHO formula of expected number of severe maternal cases [9,14], and was based on the expected total number of deliveries recorded within a 5-month period.

Cases of maternal near miss and maternal death were identified by nurses, midwives, and doctors who worked in direct contact with pregnant women and women in labor; therefore, the healthcare providers also acted as data collectors. The data collectors were trained by the present study investigators on how to identify

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cases and fill in the structured data abstraction form (which was embedded within the patient's medical file) continuously during hospitalization. The WHO near-miss and quality-of-care tool [14] was used to gather the data. Reliability of the data were ensured by one investigator (JK) through daily visits to the labor ward, intensive care unit, operating rooms, and gynecology wards (n=2).

All women who were pregnant or in labor, or who had delivered or experienced spontaneous abortion within 42 days before arriving at the facility were potentially eligible for inclusion. Those with severe postpartum hemorrhage, severe pre-eclampsia, eclampsia, ruptured uterus/severe prepartum hemorrhage, and/or blood transfusion, laparotomy, admission to the intensive care unit, organ dysfunction (including cardiovascular, respiratory, renal, coagulation, hepatic, neurological, or uterine), or death during hospitalization or on arrival at the facility were included in the analysis. Women with conditions unrelated to pregnancy were excluded from the present study, as were those who did not undergo cesarean delivery. Informed consent was obtained from the participants enrolled in the quantitative part of the present study (or relatives when women were seriously ill).

The qualitative data were derived from interviews with healthcare providers (HCPs) that were conducted at Hargeisa Group Hospital from January 15 to March 15, 2015. Eligible participants were nurses, midwives, and doctors who worked in direct contact with women in labor. Participants enrolled in the qualitative part of the present study provided written consent before the interview.

A semi-structured interview guide [15] was used that comprised a set of open questions (in Somali) that covered areas related to decision-making for cesarean delivery. Data accuracy was ensured through pilot testing of the instrument and interview guide before the data-gathering period commenced. The individual interviews were conducted in a separate room at the workplace and were 30–45 minutes' duration. Interviews were audio-recorded, voluntary, and guaranteed to be confidential. The initial statement was “We would like to know your experience of decision-making in relation to cesarean delivery in Somali hospitals. Please tell us about your experiences.” The follow-up question was “Please tell me more about...” The audio recordings were transcribed verbatim. The investigators then translated each interview from Somali into English. The translated data were validated by comparison with the original transcripts in Somali, as previously described [15].

The data were analyzed using SPSS version 20 (IBM, Armonk, NY, USA). For the quantitative part of present study, the cohort of women who experienced near-miss events and survived a cesarean delivery or experienced near-miss events and died after a cesarean delivery (as per WHO criteria [14]) was assessed. Independent variables were pregnancy length, parity, pregnancy outcome, referral chain, maternal age, level of education, and geographic area. Descriptive statistics were used to express these findings. For the qualitative part of the present study, transcripts were assessed using content analysis based on step guidelines [16]. Statements directly related to the aim of the present study were identified, compiled, categorized, and organized by theme. These themes were compared with the original interviews conducted in Somali to limit any misinterpretation [17].

3 RESULTS

Deliveries and maternal complications recorded at the referral hospital during the present study period are shown in Figure 1. Of the 138 maternal near misses and deaths, 50 (36%) were associated with emergency cesarean delivery (46 [92%] near miss; 4 [8%] death).

The mean age of the 50 women who underwent emergency cesarean delivery was 27 ± 6.5 years. The women in this group came from either low-income families (n=33; 66%) or middle-income families (n=17; 34%). Most of the women (n=35; 70%) had no formal education. Seven (14%) women had attended primary school, 5 (10%) had attended Koran School, and 3 (6%) had attended intermediate school. In all, 39 (78%) women resided in rural areas, whereas 11 (22%) were from an urban area. Referral was either by the woman or her family among 27 (59%) of the 46 cases of maternal near miss and all of the cases of maternal death. Nine (20%) of the women with maternal near miss were referred from a traditional birth attendant, 9 (20%) were referrals from midwives, and 1 (2%) was a referral from a traditional birth attendant to a maternal and child health clinic.

The effect of parity is shown in Table 1. The leading parity for the women was one. By contrast, 2 (50%) of the women who died had a parity of seven or higher.

Table 2 outlines severe maternal complications among the 50 women who experienced near miss or death. The most frequent complication reported was severe pre-eclampsia.

Underlying causes and contributory conditions among the 50 women who experienced near miss or death are shown in Table 3. The most frequent underlying causes were hypertensive disorders and obstetric hemorrhage. The most frequent contributing causes were anemia and prolonged or obstructed labor.

Neonatal outcomes among the 50 women who experienced near miss or death are presented in Table 4. The most frequent neonatal outcome was preterm birth; however, more than one-quarter of the women experienced stillbirth and a similar proportion experienced perinatal death.

A total of 17 HCPs were enrolled in the qualitative part of the present study. This group comprised doctors (n=7), midwives (n=9), and nurses (n=1), each with different experiences regarding decision making in relation to cesarean delivery.

The first qualitative theme covered the perceived lack of benefit of cesarean delivery by families, people generally, and society as a whole. Children are important for Somali woman and their families for cultural and religious reasons. According to the HCPs, over the past two decades, the community has lost faith in doctors providing cesarean deliveries as they have seen what happened to the women who underwent this procedure. Midwife 8 stated: “Some die, some get stillborn babies, and some others do not get pregnant again after a hysterectomy or cesarean delivery without being informed about the sterilization.” This fear places the family in opposition to the HCPs about the need for emergency cesarean delivery (“people used to be born under trees and came to no harm”). Midwife 1 stated: “The women who need a cesarean delivery sometimes escape from the hospital in fear and this puts her in

great risk of major complications, after returning home and giving birth with traditional birth attendants, and sometimes coming back again beyond hope.” These statements indicated that community awareness and reliable information about cesarean delivery at all levels in the healthcare system can build trust in the procedure as a life-saving intervention.

The second theme covered the fact that the prerequisite of consent from the woman’s extended family to perform emergency cesarean delivery was a dilemma for HCPs. In any Somali community, the community shares decisions. Therefore, the rule at the study hospital is that both the woman’s partner and her father or brother should give their consent for the procedure. The HCPs often found themselves prevented from performing an emergency cesarean delivery in a life-threatening situation until such consent had been received. According to Midwife 7, “A woman may be in a fatal situation and in need of emergency surgery; however, the doctors are not able to proceed with the surgery until the woman’s husband and [father’s] consent is received. It is possible that the mother loses her life while consent is being sorted out.” The HCPs indicated that women who are educated and financially independent tend to be responsive to information about surgical intervention, often making the decision in a timely manner together with their partners and extended family. By contrast, women who are financially dependent have to rely on their family. In Somali culture, an HCP cannot perform a cesarean delivery without consent because any such action would result in litigation or worse. Doctor 4 commented: “[The husband] brought a gun and said if you touch my wife, I will kill you all. Therefore, as a doctor, I could not do anything for the patient.” Currently, there is no law in Somaliland that protects HCPs.

The third theme focused on the advantages and disadvantages of providing doctors with the legal authority to decide on emergency cesarean delivery on behalf of the extended family. Many of the respondents had dealt with cases when the family member and/or husband refused to provide consent for a cesarean delivery in situations when the lives of the woman and her offspring could have been saved. The HCPs believed that they should have the legal power to fulfill their obligations when the necessary consent was delayed. Doctor 5 said: “It would be so easy if the Ministry of Health could make a decision and ensure that a woman can make that decision with the guarantee that the medical staff will not risk any legal implications for any complications that may occur after surgery.” Nonetheless, the HCPs felt that an increase in the number of unnecessary cesarean deliveries might be a potential disadvantage of giving them the legal authority to decide on behalf of the family. Doctor 3 stated: “Sometimes doctors may perform a cesarean delivery without any specific emergency condition.” The respondents agreed, however, that HCPs in Somaliland have to deal with lack of consent for surgery on a daily basis. A debate in the parliament on this issue would, therefore, be welcomed.

4 DISCUSSION

The findings of the present study indicated that 36% of cases of maternal near miss and death were associated with emergency cesarean delivery. The high burden of maternal near miss and deaths recorded in Somaliland was linked to the family consent required before emergency cesarean delivery can be performed.

The present observations probably stem from a context of gender inequality. Legislation and decision making in Somaliland are male-dominated, as exemplified by the fact that male relatives must provide signed consent before a woman can undergo a life-saving cesarean delivery in hospital. Cesarean delivery, family issues, and human rights in Islam have been discussed by religious leaders at high levels and are generally respected [18–20]. Family involvement can be seen as a means to safeguard against unnecessary cesarean delivery, a problem faced by women in many countries owing to vague clinical guidelines and financial incentives [21]. In Somaliland, however, HCPs fear lawsuits if they provide care and surgery without permission from the extended family. This fear has hindered doctors from performing safe and timely cesarean deliveries to prevent maternal and/or neonatal mortality.

Family fear of cesarean delivery and delayed provision of consent threatens the life of the woman and her offspring. Lack of trust in HCPs coupled with a lack of awareness about the benefits and risks of cesarean delivery (as described in the qualitative component of the present study) add to the socioeconomic risk factors and severe maternal complications that cause maternal near miss and death after cesarean delivery (as explored in the quantitative component of the present study). Consequently, the requirement for family consent in Somaliland (as described in the qualitative component of the present study) might be interpreted as contributing to both delayed intervention in life-threatening situations and an increased national burden of adverse events (maternal near misses and deaths). This issue needs to be discussed by policymakers, hospital managers, and religious leaders. Indeed, a committee has been set up in Somaliland to move the discussion on legalization forward in parliament.

The quantitative component of the present study indicated that women with no formal education who came from low-income families living in rural areas were the most disadvantaged. Hence, socioeconomic factors—particularly women’s lack of education and economic independence [3,5]—seem to play a part before and during the pregnancy in maternal near-miss and death events. Maternity care is provided to all women in Somaliland to prevent anemia and pre-eclampsia. However, food and iron intake during pregnancy are deemed harmful in Somaliland and many other African countries, and hence also contribute to maternal near miss and death [10,13,22,23].

Limitations of the present study included poor documentation procedures and a poor patient filing system that made the collection of the quantitative data challenging, but this was remedied by the prospective data collection. Additionally, the present mixed-methods study reflects the situation at Hargeisa Group Hospital in Somaliland, and therefore might not reflect the situation in the population in general.

A strength of the present study was the mixed-methods design, which provided a richer dataset than the use of separate quantitative and qualitative datasets would allow. This approach also afforded reliability and credibility of the findings through analysis of different evidence sources (quantitative and qualitative). Consequently, generalization of the present study findings could be proposed [15].

In conclusion, safe and timely emergency cesarean delivery seemed to be hindered in Somaliland owing to the legal requirement for family consent, which in turn leads increases frequency of maternal near miss and death. Consequently, maternity care

in this setting must be improved and the issue of legal authority examined to ensure the appropriate response to life-threatening situations during labor.

Author contributions

All authors made substantial contributions to the design of the present study; acquisition, analysis, and interpretation of the data; and writing or revising the manuscript.

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Conflicts of interest

The authors have no conflicts of interest.

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Figure legend

Figure 1 Maternal near miss and deaths associated with cesarean delivery, and severe maternal complications.

Table 1 Parity of women who experienced near miss or death after emergency cesarean delivery (n=50).^a

Parity	Maternal near miss (n=46)	Maternal death (n=4)
1	20 (43)	0
2-4	15 (33)	1 (25)
5-6	2 (4)	1 (25)
≥7	9 (20)	2 (50)

^a Values are given as number (percentage).

Table 2 Severe complications among the women who experienced near miss or death after emergency cesarean delivery (n=50).^a

Complication	Total cohort (n=50)	Maternal near miss (n=46)	Maternal death (n=4)
Severe postpartum hemorrhage	7 (14)	5 (11)	2 (50)
Severe pre-eclampsia	17 (34)	17 (37)	0
Eclampsia	14 (28)	14 (30)	0
Sepsis or severe systemic infection	3 (6)	2 (4)	1 (25)
Ruptured uterus	3 (6)	3 (7)	0
Severe prepartum hemorrhage	6 (12)	5 (11)	1 (25)

^a Values are given as number (percentage).

Table 3 Underlying causes and contributing conditions among the women who experienced near miss or death after emergency cesarean delivery (n=50).^a

Characteristic	Total cohort (n=50)	Maternal near miss (n=46)	Maternal death (n=4)
Underlying causes ^b			
Spontaneous abortion	0	0	0
Obstetric hemorrhage	15 (30)	13 (28)	2 (50)
Hypertensive disorders	31 (62)	31 (67)	0
Pregnancy-related infection	3 (6)	2 (4)	1 (25)
Other obstetric disease or complication	1 (2)	0	1 (25)
Medical, surgical, or mental disease or related complication	1 (2)	1 (2)	0
Unanticipated complications of clinical management	1 (2)	0	1 (25)
Coincidental conditions	2 (4)	1 (2)	1 (25)
Contributing conditions			
Anemia	17 (34)	14 (30)	3 (75)
HIV infection	0	0	0
Previous cesarean delivery	2 (4)	1 (2)	1 (25)
Prolonged and/or obstructed labor	6 (12)	5 (11)	1 (25)

^a Values are given as number (percentage).

^b Some of the maternal near-miss and death events had more than one underlying cause.

Table 4 Neonatal outcomes among the women who experienced near miss or death after emergency cesarean delivery (n=50).^a

Outcome	Total cohort (n=50)	Maternal near miss (n=46)	Maternal death (n=4)
Live birth at term	2 (4)	2 (4)	0
Preterm birth	20 (40)	20 (43)	0
Stillbirth	14 (28)	12 (26)	2 (50)
Perinatal death	14 (28)	12 (26)	2 (50)

^a Values are given as number (percentage).

