

Review of Maternal Deaths in Two Health Regions of Togo: About 69 Cases (Epidemiological and Sociodemographic Aspects)

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Abstract

Introduction: Maternal mortality is a public health problem. It is common in hospitals in Togo. From 401 per 100,000 live births in 2013, in 2017 we are 396 per 100,000 live births. Despite several programs ranging from subsidized caesarean section (CARMA) yezou (assistance for pregnant women), the establishment of maternal death reviews in maternity wards to compensate for avoidable causes; we are seeing preventable maternal and fetal deaths in our hospitals. No study on these reviews has been done since its establishment. The objective of our study was to determine the frequency of reviews of maternal deaths, the epidemiological, sociodemographic aspects and the causes of these reviewed maternal deaths. **Method:** This was a descriptive and cross-sectional, multicenter study lasting four and a half years, from the 1st of January 2018 to the 30th of June 2022, relating to the review of maternal deaths in three reference hospitals of two health regions of south Togo. Any maternal death occurring in one of these hospitals during the study period was included in this survey. The data collected using a collection sheet were analyzed using Epi Info version 7 software. **Results:** During the study period, the maternal mortality ratio in the three hospitals was 722.3 per 100,000 live births. Only 12.2% of maternal deaths were reviewed in the three hospitals. The patients were young with an average age of 29.9 years, housewives (71%), uneducated (21.7%). The causes of maternal deaths were dominated by direct obstetric causes (89.7%). The main cause was hemorrhage (72.5%), the main cause being immediate postpartum hemorrhage (50.7%). **Conclusion:** This study shows that the maternal mortality ratio still remains high in our country with a low frequency of maternal death reviews. Young, poor, uneducated

women are the most affected by these deaths, the main cause of which remains hemorrhage. Preventive measures deserve to be taken at all levels with a view to reducing maternal mortality.

Keywords

Maternal Death, Review, Cause, Togo

1. Introduction

The maternal mortality rate (MMR) remains high compared to the targets of the Sustainable Development Goals (SDGs). According to the World Health Organization (WHO), the global MMR in 2020 was 223 per 100,000 live births [1]. About 70% of these maternal deaths occurred in sub-Saharan Africa. In Togo, according to estimates from the United Nations system in 2017, the maternal mortality ratio was 396/100,000 live births [2]. The main causes of maternal death are known and more than 80% of these deaths could be prevented or avoided by actions which have already proven their effectiveness, and which are affordable even in the poorest countries in the world [3]. To this end, the WHO recommends reviewing maternal deaths in all maternity wards to improve the management of obstetric emergencies [4]. In Togo, the review of maternal and neonatal deaths was established in some regional hospitals in 2010 with a view to reducing maternal and neonatal mortality. The aim of this work was to determine the maternal mortality rate, the frequency of maternal death reviews, the sociodemographic profile of deceased women as well as the causes of these maternal deaths.

2. Patients and Method

This was a descriptive and cross-sectional study from the 1st of January 2018 to the 30th of June 2022, focusing on the review of maternal deaths. It was carried out in three centers namely: the Sylvanus Olympio university hospitals, the Tsévié regional hospital center and the Bé secondary hospital. These are public reference centers located in two health regions of southern Togo. The target population was maternal deaths recorded in these structures. The study population was the total cases of maternal deaths reviewed in the three centers.

All maternal deaths seen (69 cases) in these health structures were included. Cases of maternal death recorded but not reviewed and deaths not related to pregnancy were not included in the study.

The study variables were: the total number of maternal deaths reviewed, age, level of education, occupation, causes of maternal deaths.

The data was collected using a collection form, from the medical file, admission and delivery registers, maternal death notification forms and death records, maternal death review reports. The data were entered using Excel 2016 software and analyzed using Epi Info version 7 software.

3. Results

3.1. Epidemiological Aspects

During the study period, a total of 564 maternal deaths were recorded in the three maternity wards out of 78,081 live births, representing a maternal mortality ratio of 722.3 per 100,000 live births.

3.2. Maternal Deaths Reviewed

Of the 564 deaths recorded, only a total of 69 maternal deaths were reviewed, a frequency of 12.2%. Maternal deaths were most recorded at the Sylvanus Olympio University Hospital and at the Bè hospital with 515 deaths, or 91.3% of deaths. The CHR Tsévié was the structure which had proportionally more carried out maternal death reviews as illustrated in **Table 1**.

Table 1. Distribution according to the number of maternal deaths reviewed by hospital.

	Number of deaths	Deaths reviewed	Percentages (%)
CHU SO*	413	27	6.5
Bè Hospital	102	13	12.7
CHR T**	49	29	59.2
Total	564	69	12.2

*Sylvanus Olympio University Hospital Center, **Tsévié Regional Hospital Center.

3.3. Sociodemographic Characteristics

Table 2 describes the sociodemographic aspects of the deceased women.

The median age of the patients was 29.9 years (standard deviation \pm 6.61) with extreme ages of 16 and 45 years.

Table 2. Distribution of patients according to their sociodemographic characteristics.

	Effective	Percentage (%)
Age		
<20 years	10	14.5
[20 - 30 years]	39	56.5
[30 - 40 years]	13	18.8
\geq 40 years old	7	10.2
Educational level		
Uneducated	15	21.7
Primary	43	62.3
Secondary	5	7.2
Superior	2	3.0
Not specified	4	5.8

Continued

Occupation		
Pupil	5	7.2
Official	5	7.2
Household	49	71.1
Reseller	10	14.5
Marital status		
Cohabitation	57	82.6
Bride	7	10.2
Bachelor	5	7.2

3.4. Causes of Maternal Deaths

The causes of maternal deaths were dominated by direct obstetric causes with 62 cases out of 69% or 89.9%. The most reported direct obstetric cause was hemorrhage with 50 cases, or 72.5%. Indirect obstetric causes were dominated by anemia with 2 cases, or 3% as shown in **Table 3**.

Table 3. Distribution of patients according to the causes of maternal deaths.

	Effective	Percentage (%)
Direct obstetric causes		
Immediate <i>postpartum</i> hemorrhage	35	50.7
Preeclampsia/and complications*	18	26.1
Hemorrhagic abortion	3	4.3
Septic shock	3	4.3
Uterine rupture	2	3.0
Placenta previa	1	1.4
Indirect obstetric causes		
Anemia	2	3.0
Sickle cell disease	1	1.4
HIV	1	1.4
Anesthetic shock	1	1.4
Undetermined		
	2	3.0
Total		
	69	100.0

4. Discussion

4.1. Epidemiological Aspects

We reported a maternal mortality rate of 722.3/100,000 live births. This rate is lower than that of Aboubakari [5] who reported at the University Hospital of Kara (CHU Kara), a maternal mortality rate of 3600/100,000 NV over a period of 4 years from 2002 to 2005. Foumsou *et al.* [6] in Tchad reported 840.8 per

100,000 live births in four maternity wards. Our rate is higher than those reported by Mbeva [7] in the DRC and by Diassana [8] in Mali, respectively 106.9 deaths per 100,000 live births in six health zones in North Kivu and 850/100,000 live births in 2018 in Bamako. The very high rate in our study reflects the reality of the problem of maternal mortality in sub-Saharan Africa estimated at 542/100,000 live births, while the risk of maternal death during life is 1 in 37, compared to only 1 in 7800 in Australia and New Zealand [2]. This difference in the ratios observed in our regions compared to Western countries could be explained on the one hand by the low level of education which does not make it possible to understand the signs of danger during pregnancy, the absence or poor pregnancy monitoring; on the other hand, by attempts to deliver high-risk pregnancies by unqualified personnel, late referrals, insufficient qualified personnel and technical facilities for better management of obstetric emergencies [6].

4.2. Maternal Deaths Reviewed

Of all maternal deaths recorded in these health facilities, only 12.2% were reviewed. This result is much lower than those of Founsou *et al.* [6], which was 35.6%, Djiré [9] 49.3%, and Barro *et al.* [10] who reported 58.3% of revised maternal deaths. It is lower than the WHO standards which stipulate that 100% of maternal deaths occurring in health facilities should be reviewed [11]. This death review rate would negatively influence the quality of health care services and could not contribute to the reduction of maternal deaths according to the expectations of the international community and the country's political authorities. This low rate of review of maternal deaths in our regions could be explained by the very high number of maternal deaths, the overload of work in our maternity wards and the unavailability of members of the maternal death review committee [6]. It would be essential in the context of reducing the maternal mortality rate to reorganize the health system in the southern region of Togo.

4.3. Sociodemographic Profile

The most represented age group was 20 - 30 years old with 56.5%. Ajavon *et al.* [12] reported 46.4% in 2020 in northern Togo. However, Diassana [8] in 2018 in Mali reported 61.2% in the same age group. These are therefore women in a period of genital activity with a high frequency of pregnancies and childbirth. At this age group, the risk of maternal death increases by 1.9 [13]. Adolescent girls represented 14.5% in our study. Our result is similar to that reported in Senegal [14] among girls aged 15 to 19, 14.6% deaths. It is lower than the 27.1% reported in Niger in the same age group [14]. Adolescent girls under 15 have maternal mortality 7 times higher than women aged 20 to 40 [15]. Adolescent pregnancy is a high-risk pregnancy; due not only to its age (immature organism) but also to carelessness and special circumstances including the first pregnancy, low social status, low educational level, unwanted pregnancy. All these factors are at the

origin of the absence or poor monitoring of teenage pregnancies. The probability of an adolescent girl dying while giving birth during childbirth is 50% [15]. Therefore, early and late childbearing negatively influence maternal mortality.

In our study, 62.3% of the deceased had at most a primary education level with 21.7% uneducated. Housewives represented 71%, and it is in this population of women that we find 40.6% multiparous and large multiparous. Women with secondary education are 4 times more likely to use contraception than those who are not educated according to a study carried out by the WHO in Bangladesh, Kenya and Mexico [16]. This shows that women without any education are at greater risk than those who have it because education is of prime importance for women. These women are characterized by their ignorance of danger signs, preventive care, elements of good nutrition, family planning. The level of education largely determines knowledge, decision-making autonomy, openness to the outside world, and status in the home and in society [17] [18].

Most of the deceased women lived in cohabitation, *i.e.*, 82.6%. Unlike certain authors who find that celibacy could constitute a risk factor. But it must be recognized that many of these cohabiting women are in the most vulnerable social stratum with pregnancies that develop in difficult conditions given the lack of financial means.

4.4. Direct Obstetric Causes of Maternal Deaths

We reported 89.9% of deaths due to direct obstetric causes. According to the WHO, almost 80% of maternal deaths are due to direct obstetric causes and could be avoided if women had access to essential maternity services and basic health care, with appropriate response times [19]. Hemorrhage (72.6%) was the first direct obstetric cause of maternal death in our study. The leader was immediate postpartum hemorrhage (50.7%). Mbeva [7] reported 63.4% in six health zones in North Kivu, eastern DRC, 45% according to Ajavon *et al.* [12] in the Kara region in northern Togo. Hemorrhage is the main direct cause of maternal mortality in West Africa [20]. This could be explained on the one hand by inadequate obstetric care leading to haemorrhage, by the poor management of haemorrhagic emergencies (late referral, poor referral conditions, delay in treatment) and on the other hand by the unavailability of blood products at the blood bank level in our regions.

The main limitation of this study is the small number of cases reviewed involving several maternal deaths in these three health centers. Moreover, retrospective data collection can make someone's bias.

5. Conclusion

The frequency of reviews is very low. Many victims were between 20 and 30 years old and were housewives (71%), uneducated (21.7%). Most deaths were preventable and occurred in the immediate postpartum period (62.3%). The direct obstetric causes of death (89.9%) were: hemorrhages (72.6%), pre-eclampsia

and its complications (22.6%). To reduce this maternal mortality ratio, a review of all maternal deaths is essential to identify dysfunctions, formulate recommendations and ensure their execution. Reducing this ratio also requires awareness and the involvement of all social strata.

Conflicts of Interest

All authors declare no conflict of interest.

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