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Impact of quality of care during childbirth on maternal and foetal morbidity and mortality in the Obstetrics and Gynecology Department of Coyah Prefectural Hospital, Guinea

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Abstract
Summary: In Africa, care during childbirth depends on routine practices to the detriment of quality. The aim of this study was to examine the quality of delivery care at the Coyah prefectural hospital.
Methods: The study was conducted at Coyah Prefectural Hospital. It was a cross-sectional, descriptive and analytical study lasting 6 months, from 1 May to 30 October 2020. Parturients whose term was ≥ 28 SA and who agreed to participate in the study were included. Data were entered, analysed and presented using Word. A Epi Info 7.2.2.6 software. Pearson's kh2 test with a significance level of 0.005 was used.
Results: The frequency of deliveries was 17.75%. The average age of parturients was 25.38 years. Most parturients (98.46%) were married, had no formal education (47.69%) and were self-employed (42.5%). Nulliparous women represented 30.6% of the sample and most parturients (60.38%) gave birth vaginally. The main complications observed in the mother were anaemia, trauma to the perineum and post-partum haemorrhage, while fetal complications were dominated by acute fetal distress (10.19%) and respiratory distress (2.5%). Maternal mortality was 11/1000 and neonatal mortality 12.3/100.
Conclusion: The outcome of childbirth is influenced by several factors, the correct management of which could improve maternal and neonatal prognosis.

Keywords: Follow-up, childbirth, quality, prognosis

Introduction

Childbirth is the set of physiological and mechanical phenomena that result in the exit of the foetus and its appendages from the maternal genital tract, once the pregnancy has reached the theoretical term of 22 week's gestation [1]. It is experienced as a happy event, but also as a source of anxiety, as the outcome, life or death, is unknown [2]. Medical monitoring of the pregnancy, known as antenatal consultations (ANC), enables any complications arising during the pregnancy to be detected and treated, and the route of delivery to be determined. During pregnancy or childbirth, women can risk their lives by exposing themselves to serious after-effects (vesico-vaginal fistulas, genital prolapse [1]. A world initiative on safe motherhood was launched in 1987 in Nairobi, with the aim of ensuring that all women have access to:
- A full range of high quality, affordable sexual and reproductive health services;
- Maternity care and treatment of obstetric emergencies to reduce death and injury [3].

Skilled attendance at birth is the process by which a woman receives adequate care during labour, birth and the post-partum period. It requires both a skilled attendant and a supportive environment [4]. Over the last 20 years, practitioners have made increasing use of interventions previously designed to avoid risks or treat complications, such as oxytocin infusion to speed up labour or caesarean sections [1]. Globally, from 1990 to 2014, a 12% increase in the proportion of births attended by skilled birth attendants was reported. However, in sub-Saharan Africa, according to the WHO Atlas 2022, around 390 women will die in childbirth for every 100,000 live births by 2030. This estimate is five times higher than the MDG target for 2030, which is to reduce the global maternal mortality ratio to below 70 deaths per 100,000 live births. It is also a long way from the average of 13 deaths per 100,000 live births observed in Europe in 2017 [5].

Sub-Saharan Africa and South Asia accounted for around 86% (254,000) of estimated maternal deaths worldwide in 2017; sub-Saharan Africa accounted for around 66% (196,000) and South Asia for almost 20% (58,000). South-East Asia accounts for more than 5% (16,000) of maternal deaths worldwide [6]. In Mali, according to the Demographic and Health Survey of Mali (EDSM-VI in 2018), the maternal mortality rate is 373 deaths per 100,000 live births [7]. In Guinea, HATEM.M *et al*, in 2018 reported 33% quality hospital deliveries at I Deen National Hospital [8]. Our objectives in carrying out this study were: to determine the proportion of deliveries in relation to other activities; to describe the sociodemographic profile of parturients; to describe the factors influencing their management; and to assess the impact of quality of care on maternal and foetal prognosis.

Methods

The study was conducted in the Gynecology-Obstetrics Department of the Coyah Prefectural Hospital, which is a level II referral hospital within the health pyramid in Guinea.

Type of study: This was a quantitative, descriptive and analytical study conducted over a period of 6 months, from 1 May to 30 October 2020.

Study variables: The variables were sociodemographic, obstetric, therapeutic and prognostic. Sociodemographic variables included age grouped into several categories, marital status (Married or single), occupation (housewives, students and employees), parity, therapeutic variables, birth attendant qualification, route of delivery, maternal prognosis, and fetal prognosis.

Inclusion criteria: The following were included
1. All parturient admitted to the delivery room
2. Those with a term ≥ 28 SA
3. Those who agreed to take part in the study.

Exclusion criteria: were not included
1. Those not in labour,
2. Those evacuated/referred to other services prior to delivery
3. Those who refused to take part in the study.

Sample size: this was calculated using the Lorenz formula: N = Za2PQ (where: N = acceptable sample size in each group [calculated value = 95.04]; a = statistical significance level D2; Za = normal distribution value = 1.96 for a = 0.05; P = prevalence of caesarean section in the department = 25.7%; Q = 1 - P; D = precision level = 10%). We therefore included 520 parturients in this study who met our inclusion criteria and agreed to take part in the study.

Data collection, analysis and presentation of results: data were collected by observation and interviews, using a questionnaire. The data were completed using obstetric records, delivery registers and operative reports. Data were entered and analyzed using EPI INFO version 6 software. Data were then transferred to SPSS 21.0 software for analysis.

Ethical considerations

Before carrying out the study, we obtained the agreement of the department's administrative authorities, the patients gave their consent to participate in the study, confidentiality was respected throughout the data collection procedure and the results were used for strictly scientific purposes.

Results

Text: Frequency

We recorded 520 deliveries out of a total of 2930 obstetric consultations carried out in the department, or a proportion of 17.75%.

Table 1: Socio-demographic characteristics

Variables	Effectif (N=520)	Percentage (%)
Age group (Years)		
≤20	98	18, 85
21-25	199	38, 27
26-30	120	23, 08
31-35	62	11, 92
>35	41	7, 88
Marital status		
Married	512	98, 46
Single	8	1, 52
Level of education		
No schooling	248	47, 69
Primary level	147	28, 27
Secondary	83	15, 96
Higher	42	8, 08
Profession		
House keeper	195	37, 5
Liberal	221	42, 5
Civil servant	30	5, 77
Pupil/Student	74	14, 23

Average age = 25,38 Extreme = 14 et 45 years.

Table 2: Distribution of patients according to parity

Parity	Work force	Pourcentage (%)
Nulliparous	159	30,63
Primiparous	112	21,58
Pauciparous	146	28,13
Multiparous	103	19,80
Total	520	100,00

Text II: Availability of products and equipment for childbirth.

In the current Guinean context, maternal and neonatal care is free. Products and consumables for childbirth must be available without a break in supply. However, during the course of the study, we noted shortages of products and consumables in 2.50% of cases. This increases the risk of morbidity and mortality for these parturient.

Table 3: Relationship between mode of delivery and risk of maternal death.

Mode of delivery	Maternal death		Total
	No	Yes	
Low Track	316 (60,39)	1 (16,67)	317 (59,82)
Cesarean section	208 (39,61)	5 (83,33)	213(40,18)
Total	524 (100)	6 (100)	530 (100)

P=0,003; RR-IC = 1,32 [0,59-2,92]

Table 4: Anténatal consultations and Maternal prognosis.

Number of PNCs	Maternal death		Proportion (%)
	No	Yes	
No ANC	17 (3, 30)	5 (83,33)	22 (4, 23)
1 – 3	307 (59, 72)	1 (16,66)	308 (59, 23)
≥4	190 (36, 96)	0	190 (36, 53)
Total	514 (100)	6 (100)	520 (100)

Average ANC = 3,24±1 CPN; Extreme = 1 et 5ANC. P= 0,006; RR-IC = 1,87 [0,71-1,75]

Table 5: Distribution of parturients according to maternal complications

Complications	Work force	Proportion (%)
Anemia	37	7,12
Perineal trauma	23	4,42
Immediate post-partum haemorrhage	22	4,23
Tear of the cervix	18	3,46
Infection of surgical wounds	15	2,88
Eclampsia	14	2,70
Peritonitis/Septicaemia	8	1,53
Uterine rupture	1	0,19

Sher GIIIB HRP: Sher Grade IIIB Retroplacental Haematoma

Table 6: Relationship between mode of delivery and risk of maternal complications.

Complications	Mode of delivery		Total
	Low track	Caesarean section	
No	238 (75, 07)	149 (69,96)	387 (73,01)
Yes	79 (24, 93)	64 (30,04)	143 (26,99)
Total	317 (100)	213 (100)	530 (100)

P=0,026; RR-IC= 1, 97 [1, 13-3, 29]

Text III

Distribution of patients according to maternal lethality After delivery, 98.87% of patients had a favourable outcome. However, we recorded 6 cases of death (1.13%).

Table 7: Distribution of parturients by cause of maternal death.

Cause of death	Effectifs	Proportion (%)
Anemia	1	16,66
Haemorrhage	3	50,00
Sepsis	1	16,66
Hypoglycaemia	1	16,66

Table 8: Relationship between mode of delivery and perinatal lethality.

Mode of delivery	State of the new born		Total
	Deceased new born	Living new born	
Cesarean section	33(47,14)	299 (65)	332 (62,64)
Low track	37 (52,85)	161 (35)	198 (37,35)
Total	70 (100)	460 (100)	530 (100)

p<0,0001; RR-IC = 2,58 [1,61-4,03]

Text IV

Distribution of newborns according to perinatal lethality

Most newborns (86.79%) were alive at birth. However, we recorded 70 cases of perinatal death (13.21%).

Table 9: Relationship between birth weight and fetal lethality

Birth weight in grams	Condition of the new born		Total
	Deceased	Living child	
<2500	32 (45,71)	40 (8,69)	72(13,6)
2500 - 3999	23 (32,85)	409 (89,91)	432 (81,50)
Pus 4000	15 (21,42)	11 (2,39)	26 (4,90)
Total	70 (13,21)	460 (86,79)	530 (100)

p=0,0014; RR-IC = 3,39 [0,76-17,50]

Table 10: Breakdown of newborn babies by time of death

Time of death	Number	Proportion (%)
Ant-partum	5	7,14
Per-partum	24	34,28
Post-partum	41	58,57

Table 11: Breakdown of newborn babies by cause of death

Cause of death	Number	Proportion (%)
Acute foetal distress	55	78,57
Maternal-foetal infection	10	14,28
Prematurity	4	5,71
Malformation	1	1,42

Discussions

1. Frequency

Our research has shown that childbirth represents 17.75% of the department's clinical activities.

I-Sociodemographic characteristics

Age: Our results showed that most of our patients were between 20 and 30 years of age, with 20–25-year-olds accounting for 38.27%. The mean age was 25.28 years. In a study carried out in Guadeloupe in 2013, J B. Butoria *et al* reported an average age of 30 years with extremes of 18 and 44 years [9]. This average age can be explained by the fact that this corresponds to a period of full genital activity, whatever the country.

Marital status: Almost all parturients (98.46%) were married. This result is comparable to that of Doucin H who reported that 54% of parturients were married [10]. This could be explained by the socio-cultural and religious requirements of our context, which make it difficult to conceive outside of marriage.

Level of education: the results showed that almost half of our patients (47.69%) did not attend school. This result is close to the 44% of uneducated women found in Côte d'Ivoire by Touré E *et al.* [11]. This result reflects the low level of literacy among girls/women in our context.

Profession: We found that 42.5% of our patients were self-employed. This could be explained by the fact that more and more women are trying to find an income-generating activity and reduce their dependence on their husbands and family.

II. Characteristics related to pregnancy and childbirth

1-Parité: 1-Parity: Nulliparous women made up almost a third of the sample (30.6%), followed by pauciparous women (28.13%). Our result differs from that of Diémé Faye M.E, *et al*. in Senegal in 2015, who reported that pauciparous women were in the majority in 73.7% of cases and that the average parity was 3. Multiparous women and large multiparous women represented 22.7% and 3.6% of the sample respectively [12]. In contrast, F. Millogo-Traore *et al.* in Burkina Faso in 2006 reported that primiparous women accounted for 46.70% of parturients, followed by pauciparous women with 37.88% of cases [13]. Efforts must be made by healthcare workers to minimise the risks faced by these women, especially given that multiparity is a major risk factor for maternal morbidity and mortality, as it is often accompanied by malpresentation, uterine rupture and delivery haemorrhage.

2. Distribution according to ANC

To ensure good protection of the pregnancy and reduce the risks associated with childbirth, particular emphasis should be placed on Antenatal Clinics, i.e. women should attend Antenatal Clinics frequently (At least four times during the pregnancy), but medical staff should also provide high-quality Antenatal Clinics. Above all, they must rely on the latest antenatal consultations, which are an opportunity to screen for risk factors related to childbirth and thus enable appropriate measures to be taken

during childbirth.

In our study, we found that more than half the respondents (59.23%) had attended between 1-3 antenatal clinics, followed by those who had attended 4 or more antenatal clinics (36.54%). However, we found 22 parturients who had not attended any antenatal clinic. Of the 6 maternal deaths that we recorded, 5 of them had not undergone any antenatal consultation, i.e. a proportion of 83.33%. We thus found that the risk of maternal death increased 2-fold in women who had not attended a prenatal consultation (P= 0.006; RR-IC = 1.87 [0.71-1.75]).

In a study carried out in Lumumbassi, Amani Maleya *et al*. [14] found that the proportion of maternal deaths was 0.12% in the group of women who had undergone ANC compared with 0.67% in the group of women who had not undergone ANC. The failure of some parturients to comply with prenatal consultation standards could be explained by the distance separating their homes from health facilities, the lack of sufficient information on the need to undergo ANC and the cost of pregnancy in rural areas, as well as their ignorance of the complications that can arise during pregnancy. 06.8.22

Mode of delivery Most of our parturients (59.82%) had vaginal deliveries, while a significant proportion (40.18%) had caesarean sections. This proportion of caesarean sections is above the national average, and is justified by the fact that our department is a referral service for the prefecture's basic health facilities. It should be noted that 1.13% of parturients died during childbirth. We found a statistically significant link between the world of delivery and maternal death. Caesarean section increased the risk of maternal death by a factor of 2 compared with vaginal delivery (P=0.026; RR-IC=1.97 [1.13-3.29]).

Coulm B in France in 2013 reported that only 10.9% of parturients had given birth by caesarean section, including 31.7% of primiparous women and 68.3% of multiparous women [15].

Maternal prognosis

Maternal morbidity: Anaemia and perineal trauma were the most common complications observed after childbirth, with proportions of 7.12% and 4.42% respectively. We found that 26.99% of women who had given birth developed complications, with a non-significant difference (p=0.026) and a relative risk of 1.97. Our result is contrary to that of Foumsou L. *et al*. [16] in Chad in 2017 who reported that 41.5% of parturients developed complications with a predominance of delivery haemorrhage with 20.7% of cases followed by cervical tear with 9.4% of cases. Diané. Faye M.E *et al*. [12] in Senegal reported that the most frequent maternal complication was post-partum haemorrhage, which accounted for thirteen of the twenty-three complications recorded, i.e. 56.6%.

Maternal mortality: After delivery, 98.87% of parturients had a favourable outcome. However, we recorded 6 cases of maternal death, i.e. 1.13% of maternal lethality. In Benin, LOKOSSOU M.S.H.S *et al* found a higher maternal mortality rate (3.8%) linked to the management of obstetric emergencies [17].

Cause of maternal death: The cause of half the deaths (50%) was post-partum haemorrhage. The other causes were infections, anaemia and hypoglycaemia in a poorly controlled diabetic patient. In a study carried out in France on maternal mortality and perinatal mortality in children born at term, Gilles. C *et al* found that post-partum haemorrhage remained the leading cause of maternal mortality, ahead of amniotic embolism. Next come hypertension, thromboembolic disease, infections and anaesthetic complications [18]. Maternal mortality can reach considerable levels in underdeveloped countries: between 1.6 and 2% in Sierra Leone, Afghanistan, Malawi and Niger. In India, maternal mortality is the same in one week as annual maternal mortality in Europe [19].

IV-Fetal prognosis

Birth weight and neonatal lethality: We found that 13.6% of newborns had a low birth weight (<2500 g) and 4.90% were macrosomic (≥4000 G). However, the vast majority of newborns (86.35%) had a normal birth weight (2500-4000 g). Perinatal mortality was 13.21%. We also found that 45.71% of the newborns who died had a low birth weight. This makes low birth weight a risk factor for perinatal mortality (p=0.0014, RR-IC= 3.39 [0.76-17.5]. It should be noted that more than half of the perinatal deaths (58.57%) occurred in the post-partum period. There was an increasing curve in the risk of perinatal mortality from the ante-partum period to the post-partum period. In a study carried out in Lumumbassi, Ntambue A.M *et al* reported a perinatal mortality rate of 18.20% at birth [20].

Causes of perinatal death: The results showed that the main cause of perinatal death in this study was acute fetal distress (55/70), i.e. 78.57%. The other deaths were due to maternal-fetal infections and prematurity. One of the newborn deaths was a polymal formed baby with hydrocephalus, spina bifida and polydactyly. However, in their research, Etienne M *et al*. report that prematurity was the main cause of perinatal deaths (22%) and that in 37.8% of cases, the cause was unknown [21].

Conclusion

It was found that childbirth was one of the department's main activities, accounting for 17.6%. Parturients were young women with an average age of 25.28%. Almost all (98.46%) were married, uneducated and self-employed. Most were poor. More than half of our parturients (59.82%) gave birth vaginally. Anaemia and perineal trauma were the most common complications observed after delivery. We recorded 6 cases of maternal death (1.13%) caused mainly by post-partum haemorrhage. The results showed that the main cause of perinatal death in this study was acute foetal distress (78.57%).

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Author's Contribution

Not available

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