Scientific Research Publishing

Advances in Reproductive Sciences, 2026, 14(1), 7-17
https://www.scirp.org/journal/arsci
ISSN Online: 2330-0752
ISSN Print: 2330-0744

Quality of Maternal and Neonatal Care at the Bouake University Hospital

Lydie Estelle Djanhan[1,2], Dagbéssè Elysée Boko Dagoun[1,2*], Yaya Samaké[1,2], Benie Michelle Ménin-Messou[1,2], Clausen Georgie M'Broh[1,2], Kouadio Narcisse Kouadio[1,2]

[1]Department of Gynecology and Obstetrics, University Hospital of Bouaké, Bouaké, Ivory Coast
[2]Mother and Child Department, Alassane Ouattara University, Bouaké, Ivory Coast
Email: *bokodagoundagbesseelysee@gmail.com

How to cite this paper: Djanhan, L.E., Boko Dagoun, D.E., Samaké, Y., Ménin-Messou, B.M., M'Broh, C.G. and Kouadio, K.N. (2026) Quality of Maternal and Neonatal Care at the Bouake University Hospital. *Advances in Reproductive Sciences*, **14**, 7-17.
https://doi.org/10.4236/arsci.2026.141002

Received: November 8, 2025
Accepted: December 27, 2025
Published: December 30, 2025

Abstract

Introduction: Assessing the quality of maternal and newborn care contributes to the reduction of maternal and neonatal mortality. **Objective:** This study aimed to evaluate the quality of maternal and neonatal care at the University Hospital of Bouaké (Côte d'Ivoire). **Methods:** Using prospective cross-sectional descriptive studies and the WHO quality assessment tool over a period of 02 months (January 15 to March 14, 2023), the authors interviewed 403 women who had recently given birth. It included any woman who had given birth and had given her consent. **Results:** The average age of the women who have given birth was 27 years, they were housewives (25.80%), not in school (53.35%), in unstable relationships (57.3%), and nulliparous (40.2%). The hours at admission and at the first clinical examination represented 66.7% and 71.5% of cases. Installation on a mattress was 85.1%. Treatment durations of less than 30 minutes and waiting times of more than 1 hour for operations accounted for 98.8% and 42.5% of cases. Discharge after D3 post-caesarean section represented 49.3% of cases and 56.9% after vaginal delivery. The study found significant shortcomings: mean score WHO 2/5 (structure); 3/5 (maternal care); 3.5/5 (neonatal care), including equipment shortages and incomplete medical records. Despite this, patient satisfaction with the attitude of the staff remained high (98.01%). **Conclusion:** There was a considerable need to improve the care structures of the Gynecology-Obstetrics department of the Bouaké University Hospital.

Keywords

Quality, Maternal, Neonatal, Care-Bouaké

1. Introduction

Obstetric care encompasses all care provided to women during pregnancy, child-

birth, postpartum, and newborn care. Complications of pregnancy and its aftermath are a constant threat to the health of women of childbearing age. They are the world's leading cause of morbidity, disability and death among women of reproductive age, especially in developing countries [1]. Almost all maternal (99%) and infant (98%) deaths occur in low-income countries [2]. Maternal and newborn health intervention programmes must be based on four main pillars forming a continuum of obstetric care: prenatal, during childbirth, neonatal and postnatal according to WHO recommendations [3]. This includes routine emergency care during the follow-up of complicated or non-complicated pregnancies, labor of delivery, as well as essential care of the newborn at birth. Dugas M [4] in Canada's study on the advanced strategy of ANC, highlighted the role and importance of ANC in efforts to reduce maternal mortality. According to the 2018 Mali Demographic Health Survey, the rate of pregnant women who received antenatal care was 80% and those who made four antenatal visits accounted for 43% of cases [5]. In Côte d'Ivoire, the 2021 Demographic and Health Survey (EDSCI-III, 2021) showed that more than 94% of women presented for a first antenatal consultation, although the majority did not do so in the first trimester. With a view to achieving SDG targets 3.1 and 3.2 by 2030, which are to reduce maternal and neonatal mortality to below 70/100,000 and 12/1000 live births, respectively, the WHO [6] has developed a tool for assessing and improving the quality of integrated maternal and newborn care. There is no data on this subject in Bouaké. The objective of this work was to evaluate the quality of the care structure and the quality of maternal and neonatal care in the Gynecology-Obstetrics department of the Bouaké University Hospital.

2. Methods

This was a cross-sectional evaluation study with a descriptive purpose that took place from January 15, 2023 to March 14, 2023 (02 months). Our sampling was exhaustive during the study period and we included all the women who gave birth with their consent in the Gynecology-Obstetrics department of the Bouaké University Hospital. We did not include those who had not given birth in the department and those who refused to answer our questionnaire. To carry out this study, we used the WHO Integrated Maternal and Newborn Care Quality Assessment and Improvement Tool adopted by Côte d'Ivoire. Thus, we had evaluated the structures, the procedures of childbirth, and the opinions of the women who had given birth. The scale for evaluating the care structure comprises 5 levels, namely: V = good practice respecting the standards of care; IV = little need for improvement of care; III = certain need for improvement of care; II = considerable need for improvement; I = services not provided, inadequate management, or practices that pose a life-threatening risk. These grades are added together and an average is calculated for all sections. The 5-level quality of care rating scale, including V = average between 95% - 100%; IV = average between 75% - 94%; III = average between 55% - 74%; II = average between 45% - 54%; I = average less than 25%.

3. Results

Participation rate: Of the 757 births carried out during the survey, 403 parturients had agreed to answer the questionnaire, *i.e.*, a participation rate of 53.23%.

Socio-demographic characteristics of the patients: The mean age of the patients was 27.5 years with extremes of 15 and 40 years. The socio-demographic characteristics have been summarized in Table 1.

Table 1. Socio-demographic profile of patients.

Patient profile	Actual	Percentage (%)
Age range		
≤19	75	18.6
20 - 29	173	43
≥30	155	38.5
Profession		
Housewives	104	25.80
Students	82	20.3
Officials	56	14
Unemployed	100	24.81
Professions	61	15
Admission method		
Venues d'elle-memes	147	26.5
Evacuated	256	63.5
Level of education		
Not in school	215	53.35
Elementary level	70	17.37
High school level	68	16.87
Next Level	50	12.41
Marital status		
Bride	172	42.7
Unstable relationship	231	57.3
Parity		
Nulliparous	162	40.2
Primiparous	73	18.1
Paucipare	101	25.1
Multiparous	37	9.2
Large multiparous	30	7.4

Clinical data of patients received:

The times of admission and the first clinical examination, the patient's installation, the patient's time (for care, waiting for caesarean sections, discharge) of patients

on admission were mentioned in the medical file and summarized in Table 2.

Table 2. Clinical data from the obstetrical file.

Clinical data from the obstetric record	Actual	Percentage
Time of admission		
Mentioned	269	66.7
Not mentioned	134	33.3
Time of the 1st clinical examination		
Mentioned	288	71.5
Not mentioned	115	28.5
Patient Installation		
Bed	343	85.1
Ground	60	14.9
Intake time on admission		
≤30 minutes	398	98.8
>30 minutes	05	01.2
Waiting time for caesarean sections		
Between 1 and 2 hours	37	42.5
Less than an hour	366	57.5
Authorization for return home		
Low route ≤ 12 h	253	62.77
Caesarean section ≥ 72 hours	150	37.23

Evaluation of the quality of the department's healthcare structures:

The gynaecology and obstetrics department of the Bouaké University Hospital is an R + 1 building with an average capacity of 59 beds. It includes 10 units:

- ✓ The gynaecological emergencies and the delivery room are open 24 hours a day.
- ✓ A hospital room for pathological pregnancies.
- ✓ A resuscitation.
- ✓ Hospitalization (following complicated and post-caesarean sections, gynaecological pathologies).
- ✓ 03 consultation rooms (open from 8 a.m. to 4 p.m.).
- ✓ A family planning room (HIV prevention, PMTCT, cervical cancer screening, contraception).
- ✓ 02 operating theatres (1 functional most of the time).
- ✓ A dressing unit (can be opened every day).
- ✓ A unit for the care of patients suffering from a fistula.

A = IV; B = III; C = II; D = I **+**: denotes the quality level checked.

Analysis of the quality of care of our structure: a total average of **26/55 (2/5; WHO Level II/Assessment of healthcare structures)**. See Table 3 for evaluation of the quality of care facilities.

Table 3. Evaluation of the quality-of-care facilities.

STRUCTURES (n = 11)	Quality Level				NOTE/5	Observations
	A	B	C	D		
Architectural standard				+	1	Inadequacies: protection against dust and mosquitoes; waterproofing of roofs and windows.
Reception and orientation system			+		2	Existence: yes
Equipment				+	1	No ultrasound or cardiotocograph; cramped delivery room.
Operating theatre			+		2	1 Functional, presence of oxygen circuit, light bulb.
Pharmacy		+			3	Good protection against dust, complete operating kits are insufficient and in frequent breakage.
CHU analysis laboratory	+				4	Functional
Toilet			+		2	Unsatisfactory hygiene.
-Water supply -Waste disposal		+			3	-SODECI/CHU Reserve, -Garbage cans and safety boxes.
High-risk pregnancy and resuscitation			+		2	Insufficient oxygen cylinders and beds.
Hospitalization		+			3	Insufficient beds.
Prenatal consultation		+			3	Air conditioning is often faulty, only 1 blood pressure monitor, 1 person scale, and 1 examination lamp.
Total	**26/55 = 47.27% (2/5; WHO Level II)**					

Table 4. Evaluation of the quality of maternal care.

Data	Actual	Percentage (%)
Number of ANCs		
1	15	3.7
2	27	6.7
3	98	24.3
≥4	256	63.5
Not specified	7	18
Routes of delivery		
Bass	269	66.7
Caesarean section	134	33.3
Appointment for post-natal consultation		
Caesarean section	119	88.81
Low Lane	12	04.5
Family Planning Information		
Not	375	93.1
Yes	28	06.9
Total	403	100

Evaluation of the quality of maternal care:

Table 4 shows the aspects of the quality of maternal care. Patients had carried

out at least 04 prenatal consultations in 63.5% of cases. They had no postnatal appointments in 88.81% of cases and no information about family planning in 93.1% of cases. See Table 5 for maternel care outcomes who score.

Table 5. Maternal care outcomes: WHO score.

Maternal Care Settings (13 Settings)	Note (1/5)
Essential medicines	3
Materials and products	2
Prenatal consultation	5
Physical and psychological respect	4
Respect for privacy	2
Interrogation	2
General Review	3
Obstetrics	3
Monitoring of labour	3
Deliverance	5
Monitoring in the immediate postpartum.	3
Advice for women who have recently given birth.	3
Monitoring and control.	2
Average	**3.07 (40/13)**

Evaluation of the quality of neonatal care:

Patients had received no instruction on the care of the newborn in 60.3% of cases. Newborn hygiene management was provided by health personnel in 85.86% of cases. See Table 6 for care of newborns.

Table 6. Care of newborns.

Technical gestures for the care of newborns.	Actual	Percentage (%)
Instructions on the care of the newborn		
Not	243	60.3
Yes	160	39.7
Care of the newborn		
Hygiene by health personnel	346	85.86
Hygiene by parents	57	14.14
Showing the baby to its mother	403	100
Collect the baby in a clean cloth	403	100
Immediate care or resuscitation	403	100
Anthropometric parameters	403	100
Systematic clinical review	403	100
Health record	403	100
Total	403	100

Assessment according to the WHO scoring system for neonatal care parameters is presented in Table 7.

Table 7. Scoring according to the WHO score of neonatal care parameters.

Neonatal Care Settings	Notes (1 to 5)
Immediate care and/or resuscitation	4
Essential medicines	3
Materials and products	2
Management of newborns with neonatal suffering	5
Routine neonatal care	5
Postpartum appointment	2
Average	**3.5 (21/6)**

Opinion of the women who have given birth:

Aspects of the opinion of the newborns include the quality of care and the degree of satisfaction (in relation to the quality of care and the attitude of the staff). Table 8 presents the results.

Table 8. Opinion of the women who have recently given birth.

Opinion of the women who have given birth on the quality of the reception	Staff	Percentage
Opinion of women who have recently given birth on the quality of care.		
Good	287	71.21
Passable	111	27.50
Bad	05	01.20
On the degree of satisfaction of the women who have given birth with the attitude of the staff.		
Welcoming, polite	395	98.01%
Unwelcoming	5	01.24
Not welcoming	3	0.75
Privacy not guaranteed	397	98.51
On the degree of satisfaction of women who have given birth with the quality of care.		
Good	395	98.01
Passable	06	01.48
Bad	02	0.51

4. Discussion

Patient participation rate: of the 757 deliveries carried out during the survey period (02 months), 403 parturients met our selection criteria, *i.e.*, a rate of 53.23%. This relatively low rate can be explained, on the one hand, by the language barrier between some clients and gynaecologists requiring a translator, with the conse-

quent bias in the responses, and on the other hand by the non-use of files containing incomplete information. The low participation rate was an important limitation and was a potential selection bias in the event of a difference between participants and non-participants.

Socio-demographic profile of patients: the 20 to 29 age group was the most represented with extremes of 15 and 40 years old. This result was consistent with that of the EDSM-VI [5] (34.5 years) in a rural area in Mali and reflects our socio-economic and geographical context where women marry early. Housewives were in the majority in 25.80 per cent of cases, as were those who did not attend school (53.5 per cent), most of whom came from rural areas where the population attached less importance to girls' schooling, which had a negative impact on the quality of maternal and newborn care. Women in unstable relationships accounted for 57.3% of cases in our study, a situation that was a financial barrier to better care and improved quality of care. Nulliparous women were in the majority in 40.20% of cases, testifying to early marriage in our community.

Clinical data from the obstetrical file: the time of admission and the time of the first clinical examination were not mentioned in the files in 33.3% and 28.5% of cases, respectively. These incomplete medical records hinder patient follow-up with direct consequences for patient safety data and clinical decision-making. As such, it was important to further improve our record-keeping practices. In the medical file, the treatment was done within a period of between 0 - 30 minutes in 98.8% of cases. This is a reasonable period of time. The shorter the time taken to receive treatment, the better the maternal-fetal prognosis. The delay of more than thirty minutes was attributed to the temporary unavailability of equipment and personnel due to an overload of work. Indeed, the delivery room is sometimes overwhelmed, the operating theatres are occupied and the staff is insufficient. You then have to wait to make room and clean the surfaces according to standards before moving on to the next customer. The respondents in our study stated that in 13.9% and 1% of cases, they were installed in the obstetric emergency department on mattresses and on the loincloths lying on the floor. The capacity of the department was exceeded to receive and take care of all the patients; the midwives were sometimes forced to place some patients on mattresses on the floor. The department has only 04 beds for childbirth and 05 beds for postpartum while it is a tertiary level reference center. The waiting time for caesarean sections was between 1 and 2 hours in 42.5% and was not specified in 32.9% of cases. This delay is explained by the frequent shortages of operating kits. The time to discharge was between 48 hours and 72 hours in 32.8% and equal to 48 hours in 17.9% of cases. In caesarean section patients and in patients who gave birth vaginally, it was 12 hours in 56.9% of cases and 6 hours in 16% of cases. The normal time for discharge from a caesarean delivery is 4 - 6 days according to the WHO [6]. Due to a lack of places, patients were discharged within less than the recommended.

Evaluation of the quality of the department's healthcare structures: in Côte d'Ivoire, Privat *et al.* [7], in their study on the quality of care at the Treichville

University Hospital in 2016 awarded a score of 03/05 to the laboratory that did not provide on-call duty. In our study, the laboratory was functional and standard laboratory tests were feasible, giving our department a score of 4/5. Improving the quality of care requires the permanent availability of care services. The department has 07 hospitalization rooms on the first floor with 04 beds each and 04 hospitalization rooms for pathological pregnancies in the rhé de chaussé, a delivery room with 4 cubicles followed by gynaecological emergencies with inadequacies of architectural standards and equipment (boots, glasses, aprons, etc.). We had noted inadequacies in relation to the structure and equipment with an unsuitable and weak resuscitation unit in terms of technical platform, giving a score of 02/05. Our operating theatre is in full time and needs to be renovated. The pharmacy was well protected and the availability of products was acceptable despite the frequent shortages of essential emergency medicines, giving the maternity ward a score of 03/05. The electricity network, the drinking water supply and the waste disposal system were defective, giving a score of 03/05. A score of 03/05 was given to each of the units such as hospitalizations and prenatal consultation. In the analysis of the quality of the care structure, the gynaecological and obstetrics department of the Bouaké University Hospital had a total average of 26/55 (47.27%) or 2/5, with WHO Level II corresponding to a considerable need for improvement of health care structures. It was comparable to that of Fane *et al.* [8] in Mali (03.8/05) but lower than that of Keita [9] (4/5). According to Hatem [10], the overall quality of care offered by providers in Guinea is slow and in Togo district or private hospitals had the lowest overall quality level. The problems in our department remained with regard to the quality of care. Their improvement will have to be implemented through public policies that involve both the Ministries of Health but also the Ministries of Education, Finance, Planning, Gender (possibly) and any other institutions concerned [11]-[13].

Evaluation of the quality of maternal care: care was provided by qualified staff in 100% of cases. Patients had benefited from 4 or more prenatal consultations in 60%. In 48.6% of cases, patients had given birth in less than an hour. Half of their labor for those who had given birth vaginally was done at home under the pretext of not lasting at the health center. The caesarean section was free of charge but there is often a break in the incomplete kit. Technical gestures during labour and postpartum were respected in the majority of cases with an average of 83.1%. In total, a score of 03/5 was obtained, showing some need for improvement in the quality of maternal care, according to the WHO. During our survey, patients had no appointment for postpartum consultation in 95.5% of cases, so no information on family planning in 93.1% of cases. The postpartum consultation at 6 weeks is very important because it makes it possible to raise awareness among women who have given birth about family planning, which is one of the three pillars on which the strategy to reduce maternal mortality is based.

Evaluation of the quality of neonatal care: the patients in 59.1% of the cases had not received any instructions on breastfeeding their newborns. The majority

of their expectations were for health care to be provided by health personnel in 85.86% of cases. For 95.04% of them, the equipment should be provided by the CHU. The overall analysis had obtained an average of 03.5/5 (level III) indicating a certain need to improve the quality of neonatal care.

Opinion of the women who have given birth: the women who gave birth were satisfied with the quality of care in 98.7% of cases. This result was higher than that of some authors of the literature, Iheb B *et al.* [14] (51%) in Tunisia, Obossou A *et al.* [15] (47.32%) in Benin. Our observation was contrary to that of Jaffré [16] in Guinea, which noted that care recipients were dissatisfied with the reception given to them by the providers. The analysis of the significant gap between the objective findings of poor structural quality and the high rates of patient satisfaction in our study could be explained by several factors, including low patient expectations, a culture that favors interpersonal relationships among staff over technical quality, and the professionalism and competence of the human resource in our department.

5. Conclusion

This study showed that the architectural standards of the gynecology and obstetrics department of the Bouaké University Hospital were not suitable. There was incompleteness of information in medical records and insufficient awareness of family planning. However, the customers were generally satisfied with the welcome, the communication, and the intimacy. There is a considerable need for this to improve the quality of care (especially the needs of the mother and newborn, material resources and infrastructure) in order to comply with standards. We make some recommendations, such as setting up mandatory checklists for medical records or securing a stable supply chain for surgical kits. This improvement will enable the reduction of maternal and neonatal mortality in order to achieve the WHO's Sustainable Development Goals 3.1 and 3.2 (SDGs).

Authors' Contribution

All authors have read and approved the final version of this manuscript.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

[1] Say, L., Chou, D., Gemmill, A., Tunçalp, Ö., Moller, A., Daniels, J., *et al.* (2014) Global Causes of Maternal Death: A WHO Systematic Analysis. *The Lancet Global Health*, **2**, e323-e333. https://doi.org/10.1016/s2214-109x(14)70227-x

[2] Médecins sans frontières (Edition 2019) Soins obstétricaux et néonatals essentiels: Guide pratique à l'usage des sages-femmes, des médecins spécialisés en obstétrique et personnel de santé devant faire face à des urgences.

[3] World Health Organisation (2017) Standards for Improving Quality of Maternal and New-Born Care in Health Facilities. 84 p.

[4] Dugas, M. (2011) Donner aux populations vulnérables de l'Afrique subsaharienne un accès aux soins obstétricaux: Stratégie avancée de consultations prénatales. *Médecine Tropicale*, **71**, 526-528.

[5] Ministère de la santé (2014-2018) Enquête Démographique et de Santé Mali (EDSM-VI). 171 p.

[6] Prural, A., Bouvier-Colle, MH., De Bernis, L., Breart, G. and le groupe MOMA (2000) Morbidité maternelle grave par causes obstétricales directes en Afrique de l'ouest: Incidence et létalité. *Bulletin de l'OMS recueil d'articles*, No. 3, 129-137.

[7] Privat, G.Y., Cissé, L., Saki-Nekouressi, G. and Bueagu, M. (2016) Qualité des soins en SMN. Méthodologie de l'évaluation et mise en pratique en Afrique de l'ouest. À propos de l'expérience de la côte d'Ivoire. *Médecine et Santé Tropicales*, **26**, 357-362.

[8] Fane, S. (2022) Evaluation de la qualité de soins maternels et néonatals dans une structure de santé de première référence du Mali: Cas du district sanitaire de Fana. *Journal de la SAGO* (*Gynécologie-Obstétrique et Santé de la Reproduction*), **23**. https://jsago.org/index.php/sago/article/view/127

[9] Keita, S., Sylla, C., Samaké, Y., Traore, M., Traore, S., Guindo, G. and Traore, Y. (2023) Qualité des soins maternels et néonatals au Centre Hospitalier de Référence de Fana (Mali): Analyse selon l'échelle d'évaluation de l'OMS. *Health Sciences and Disease*, **24**, 52-57.

[10] Hatem, M., Halabi-Nassif, H. and Maroun, M. (2018) Évaluation de la qualité des services de santé maternelle et néonatale en Guinée-Conakry et au Togo. *Santé Publique*, **HS**, 101-111. https://doi.org/10.3917/spub.180.0101

[11] Hatem-Asmar, M., Fraser, W. and Blais, R. (2002) Trois paradigmes pour développer un programme de formations des professionnelsde la santé: Le cas de la formation des sage-femmes au Québec. *Ruptures*, **9**, 86-102.

[12] Lehmann, U., Dieleman, M. and Martineau, T. (2008) Staffing Remote Rural Areas in Middle- and Low-Income Countries: A Literature Review of Attraction and Retention. *BMC Health Services Research*, **8**, Article No. 19. https://doi.org/10.1186/1472-6963-8-19

[13] Organisation Mondiale de la Santé (2010) Stratégie mondiale pour la santé de la femme et de l'enfant. OMS.

[14] Bougmiza, I., EL Ghardallou, M., Zedini, C., Lahouimel, H., Nabli-Ajmi, T., Gataa, R., *et al.* (2011) Evaluation de la satisfaction des patientes hospitalisées au service de gynécologie obstétrique de Sousse, Tunisie. *Pan African Medical Journal*, **8**, Article No. 44. https://doi.org/10.4314/pamj.v8i1.71161

[15] Obossou, A.A.A., Hounkponou, N.F.M., Tonato Bagnan, A.J., Hounkpatin, B.I.B., Sidi, I.R., *et al.* (2016) Evaluation de la satisfaction des accouchées du service de Gynécologie-obstétrique du centre hospitalier départemental du Borgou de Parakou (Bénin). *Médecine d'Afrique Noire*, **63**, 559-572.

[16] Jaffré, Y. (2003) Le souci de l'autre: Audit, éthique professionnelleet réflexivité des soignants en Guinée. In: Bonnet, Ed., *L'éthique médicale dans les pays en développement*, Edition de l'Aube, IRD, 95-110.