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Structure, Process, and Patient Satisfaction in Benin's District Hospitals: A Cross-Sectional Evaluation of Compliance with Care Standards, 2019

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Abstract

Introduction: Quality of care is a public health issue affecting all countries worldwide. To ensure it, compliance with standards for the structure and processes of care is essential. The objective of our study was to assess compliance with structural and care process standards in Benin and to describe beneficiaries' level of satisfaction. **Study Method:** It was a cross-sectional evaluative study examining adherence to structural and procedural standards of care in Benin. Data collection was conducted from April 29 to June 7, 2019, in twelve hospitals across Benin, covering the entire national territory. The study population comprised health facilities, equipment, healthcare providers, care recipients, and health services in the twelve (12) hospitals evaluated. The criteria were defined on the basis of normative documents published and validated by Benin. **Results:** In the hospitals evaluated, infrastructure construction standards were not met (34.22%). Materials and equipment were inadequate (33.86%), and human resources were insufficient across all occupational categories (32.14%). Normative documents were poorly known (21.82%) by the surveyed staff. Health care was only 25.11% accessible, although access was facilitated within hospitals (84.38%). The subcomponent assessing health status and patient needs was inadequate (36.35%). Few providers washed their hands with soap and water at all stages of care (14.17%). Patients were satisfied with their relationship with providers (81.42%) but were not satisfied with the

extent of their involvement in the care they received (21.02%). They were also not satisfied with comfort in hospital wards and meals (50.30%). However, overall care was considered acceptable (67.49%). **Conclusion:** This study should be extended to all health facilities to improve compliance with standards, address gaps in the adequacy of infrastructure, equipment, and human resources, and strengthen staff training to ensure adherence to standards.

Keywords

Quality of Care, Structure, Care Process, Satisfaction

1. Introduction

Quality of care is a major global public health issue, particularly in developing countries such as Benin, where it is a key determinant of health system performance [1]. Although this concept is not new (with the Hippocratic Oath and the medical code of ethics already laying its foundations), it has long been reduced to the quality of clinical practice alone, presumed to be ensured by the training and qualifications of health professionals [2].

This approach now appears insufficient to account for the complexity of healthcare quality. According to Avedis Donabedian, quality can be defined as "care that best ensures the patient's well-being, after the patient has been able to judge the relationship between the expected benefits and the risks inherent in the care itself" [3]. He proposes an analytical framework structured around three interdependent components: structure, process, and outcomes [4]. Structure refers to the human, material, and organizational resources available; process concerns professional practices and their compliance with standards; whereas outcomes reflect the effects of care on health status and patient satisfaction.

From this perspective, the quality of care cannot be assessed independently of the conditions under which care is delivered. It also encompasses dimensions such as geographic and financial accessibility, alignment with sociocultural realities, and the coordination and continuity of care [4].

In Benin, standards have been established to regulate the construction of health facilities, their staffing levels, the provision of equipment and supplies, and care delivery procedures. These standards aim to ensure the provision of high-quality care consistent with the requirements of the health system. However, despite the reforms undertaken, particularly in the context of promoting good governance, their effective implementation remains poorly documented.

Moreover, complaints and dissatisfaction among users of health facilities, frequently reported in public discourse, highlight persistent shortcomings related to technical capacity, human resources, and interactions among actors within the health system [5]. Organizational dysfunctions, particularly in resource management, are also reported and may affect the quality of care. These factors may un-

dermine patients' trust and alter their use of health services.

Therefore, compliance with structural standards alone cannot guarantee an effective improvement in the quality of care. Joint assessment of standards related to structures and care processes is essential to achieve a comprehensive understanding of the determinants of care quality within health facilities.

Despite the importance of this issue, few studies have comprehensively examined the use of structural and procedural standards of care, as well as their relationship to patient satisfaction and care quality outcomes.

In this context, the present study aims to assess compliance with structural and care process standards in district hospitals in Benin in 2019, alongside a descriptive assessment of beneficiaries' level of satisfaction with the care received.

2. Study Methods

Our study was conducted in district hospitals in general and, more specifically, in the departments of general medicine, pediatrics, obstetrics and gynecology, general surgery, radiology, central operating theatre, and laboratory services in twelve (12) district hospitals across Benin, *i.e.*, one per department, selected by random sampling from the functional district hospitals in each department.

2.1. Study Design

This was a cross-sectional evaluative study on the use of structural and procedural standards of care in Benin. Data collection was conducted from 29 April to 7 June 2019 in twelve (12) district hospitals in Benin distributed across the entire country.

2.2. Study Population

The study population comprised health infrastructures, equipment, healthcare providers, and recipients of healthcare and health services in the twelve (12) evaluated district hospitals.

2.2.1. Inclusion Criteria

The study included the infrastructure and equipment observed in public health facilities as well as in the selected private and faith-based facilities. It also included healthcare providers, namely physicians, midwives, and nurses working in the care facilities and their respective departments at the time of the survey. Finally, the beneficiaries of healthcare and health services comprised two distinct groups according to the component assessed. For the assessment of care processes, the beneficiaries included patients seen in outpatient consultations or inpatient wards in the departments of General Medicine, General Surgery, Obstetrics and Gynaecology, and Paediatrics during the survey period who provided verbal consent. For the patient satisfaction survey, only patients hospitalised in the Obstetrics and Gynaecology and Paediatrics departments were included, as these were the two inpatient departments in which the satisfaction survey could be conducted within the available resources and timeframe.

2.2.2. Non-Inclusion Criteria

The study did not include the infrastructure and equipment of other health facilities, the healthcare providers (including physicians, midwives, and nurses) working in these facilities, or the patients receiving care in these structures.

2.2.3. Exclusion Criteria

Excluded from the study were infrastructure and equipment not observed in the selected public health facilities and faith-based private facilities; healthcare providers—particularly physicians, midwives, and nurses—who were not present in the care facilities and their respective departments at the time of the survey for various reasons; patients not meeting the eligibility criteria for the relevant study component; and patients who did not provide verbal consent.

2.3. Method and Sampling Technique

The sampling strategy differed according to the target group.

- For hospital selection, simple random sampling was used. All functional district hospitals in Benin were first identified and assessed for operational status. One hospital was then randomly selected from the list of operational hospitals in each of the country's 12 departments, yielding a total of 12 hospitals covering the national territory. This probabilistic approach ensured geographic coverage across the country.
- Different non-probabilistic inclusion strategies were then applied depending on the target group. Within each selected hospital, all infrastructure and equipment present in the seven assessed departments—General Medicine, General Surgery, Obstetrics and Gynaecology, Paediatrics, Medical Laboratory, Medical Imaging, and the Central Surgical Unit—were systematically assessed.
- All healthcare providers present in those departments during the data collection period were invited to participate. Participation was voluntary, and only those who provided consent were included in the survey.
- For the assessment of care processes, five care episodes per clinical department were observed during routine service delivery in the four departments providing direct patient care (General Medicine, General Surgery, Obstetrics and Gynaecology, and Paediatrics), yielding a total of 240 observed care episodes. This fixed number of observations per department was defined pragmatically to ensure comparable assessment across hospitals within the available study resources.

For the patient satisfaction survey, all eligible patients hospitalised in the Obstetrics and Gynaecology and Paediatrics departments during the data collection period (29 April to 7 June 2019) were invited to participate. Participation was voluntary, and only patients who provided verbal consent were included, resulting in a total of 223 surveyed patients.

2.4. Data Collection

2.4.1. Data Collection Technique

Data collection techniques included a census of the actual number of health per-

sonnel by category obtained from the district hospital's administrative department; observation of the infrastructure and equipment in each department; observation of providers during consultations and patient management; and individual interviews with physicians, nurses, and midwives in the relevant departments, as well as with patients hospitalized in these departments.

2.4.2. Data Collection Tools

To conduct this study, four (04) data-collection instruments were developed and made available to different target groups. These are:

- An observation guide for the structure
- An observation guide for the care management procedure
- A questionnaire to assess knowledge of the supported structural and procedural standards
- A patient satisfaction questionnaire for hospitalized patients

The structural observation guide was a paper-based document for each hospital. Once completed, the information was entered into a database comprising 1530 parameters. The other data collection tools were configured on tablets connected to a central server.

2.4.3. Data Collection Procedure

Twelve teams, each comprising five investigators, were established to assess the twelve district hospitals. In each hospital, there was at least one investigator for each data collection instrument. The structural observation guide was completed by investigators with nursing qualifications and the requisite knowledge to identify the equipment. The observation guide for the patient management procedure, the questionnaire measuring knowledge of structural and procedural standards for patient management, and the inpatient satisfaction questionnaire were completed by investigators who were medical students, all of whom had passed the clinical examinations of the 6th year. In their work, they were often assisted by a local facilitator, who was the head nurse or his representative.

2.4.4. Scope of the Evaluation

The assessment of the twelve hospitals examined three components—structure, process, and outcome—based on the Donabedian model.

2.4.5. Variables

The variables examined were the primary variable, its components, and their subcomponents.

The main variable was "the use of standards". It resulted from three explanatory components: structure, process, and the ensuing outcome. Each explanatory component comprised subcomponents.

The "structure" component included the following subcomponents: the availability of adequate infrastructure, the availability of adequate and functional equipment, and the availability of human resources.

The "process" component comprised the following subcomponents: knowledge

of standards, accessibility of healthcare, ease of access to care services within the facility, assessment of the patient's health status and needs, and general precautions.

The "outcome" component comprised the following subcomponents: the patient's level of satisfaction with the caregiver-patient relationship; the patient's satisfaction with the information provided and their involvement in care; the patient's satisfaction with hospitalization comfort and meals; and the patient's overall satisfaction with care.

2.4.6. Operational Aspects of the Variables

1) Scoring procedure

For each criterion defined within each subcomponent (by department, staff category, or patient group), a value of 1 was assigned when the criterion was met, available, implemented, or observed, and 0 when it was not. The observed score was the sum of all "Yes (1)" responses, and the expected score was the total number of criteria assessed. The percentage for each subcomponent was calculated as follows: **Percentage = Observed score/Expected score × 100**.

These percentages were interpreted using the Varkevisser *et al.* measurement scale and assigned a corresponding rating:

- A rating of 3, corresponding to [80% - 100%], indicates good practice that meets standards or requires only minor improvements—equivalent to good quality.
- A rating of 2, corresponding to [60% - 80%[, indicates a need for improvements to meet standards—equivalent to average or acceptable quality.
- A rating of 1, corresponding to [0% - 60%[, indicates that standards are not met—equivalent to poor or very poor quality, reflecting an urgent need for improvement.

2) Aggregation of scores across subcomponents and components

At the subcomponent level, the observed score was the sum of all criteria scores within that subcomponent, and the expected score was the total number of criteria assessed. The subcomponent percentage was calculated using the formula above.

Subcomponent scores were then aggregated by simple summation to yield the component score for each of the three components—Structure, Process, and Outcome. The component percentage was calculated in the same way, with the observed score as the numerator and the expected score as the denominator. Finally, the three component scores were summed to produce the overall hospital-level score for the main variable (use of standards), and the overall percentage was calculated accordingly.

Because denominators varied across hospitals—reflecting differences in staffing levels, patient numbers, and the availability of certain departments—raw scores were not standardised across facilities. Cross-hospital comparisons were therefore based on percentages rather than absolute scores, which allows fair comparison regardless of hospital size or configuration. Each percentage was then interpreted

using the Varkevisser *et al.* scale described above.

2.5. Data Processing and Analysis

The collected data were entered into Excel 2013 and subsequently analyzed using the same software. For the descriptive component, we calculated proportions and means. For the analytical component, we computed scores to assess the level of implementation of structural and process standards in the hospitals included in our study.

2.6. Ethical Considerations

This study was conducted as part of a medical thesis submitted to the Faculty of Health Sciences (FSS) of the University of Abomey-Calavi, Benin.

This study was conducted in strict compliance with the ethical and professional standards of medical practice in the Republic of Benin. Following review of the research protocol by experts from the IRSP and the Research Directorate of the Ministry of Health, a recommendation letter from the Minister of Health (No. 1811/MS/DC/SGM/DRFMT/SRAO/SA) was issued to facilitate data collection. The study was carried out under conditions ensuring confidentiality and respect for privacy and human dignity; data anonymization and the respondents' informed consent were ensured. Participants were free to decline participation or withdraw from the study at any time without constraint or threat.

3. Results

The results were presented in light of the conceptual framework and following a description of the sample characteristics.

3.1. Sample Description

3.1.1. General Characteristics of Hospital Facilities

1) Distribution of hospital facilities by region of the country

Benin's twelve departments were subdivided into three regions: Northern Benin, comprising four departments (Alibori, Atacora, Borgou, and Donga); Central Benin, comprising two departments (Collines and Zou); and Southern Benin, comprising six departments (Atlantique, Couffo, Littoral, Mono, Ouémé, and Plateau). The surveyed district hospitals were distributed as follows: four of twelve (33.33%) in Northern Benin, two of twelve (16.67%) in Central Benin, and six of twelve (50.00%) in Southern Benin.

2) Distribution of hospital facilities by sector

According to Benin's health-care pyramid, all twelve targeted hospital facilities (100%) were first-level referral hospitals. Four of the twelve facilities (33.33%) were private faith-based institutions, and eight (66.67%) belonged to the public sector. Nearly all (91.67%) of the surveyed facilities had the targeted departments: internal medicine, surgery, pediatrics, obstetrics and gynecology, laboratory, medical imaging, and the operating theatre.

3.1.2. General Characteristics of Observations of the Patient Management Process

A total of 240 consultations and episodes of care were observed out of the 240 expected across the 12 hospitals, corresponding to 20 observations (8.33%) per hospital, in line with the predefined objective. Services that were not available were consistently covered by another department. Half of the observations (10 per hospital) were conducted in outpatient consultation rooms, and the other half in inpatient wards (10 per hospital). Table 1 presents the distribution of observed care procedures across the twelve district hospitals in 2019.

Table 1. Distribution of observations of the patient management procedure across the twelve district hospitals in 2019.

N°	Department	District hospitals	Expected sample size	Surveyed sample size	Percentage (%)
1	Alibori	Kandi-Gogounou-Ségbana	20	20	100
2	Atacora	Tanguiéta-Cobly-Matéri	20	20	100
3	Atlantique	Abomey-Calavi-Sô-Ava	20	20	100
4	Borgou	Parakou-N'dali	20	20	100
5	Collines	Dassa-Zoumé-Glazoué	20	20	100
6	Couffo	Aplahoué-Djakotome-Dogbo	20	20	100
7	Donga	Djougou-Copargo-Ouaké	20	20	100
8	Littoral	Cotonou V	20	20	100
9	Mono	Comé-Bopa-Houéyogbé-Grand-Popo	20	20	100
10	Oueme	Adjohoun-Bonou-Dangbo	20	20	100
11	Plateau	Sakété-Ifangni	20	20	100
12	Zou	Djidja-Abomey-Agbangnizoun	20	20	100
Total number of observations			240	240	100

3.1.3. General Characteristics of the Surveyed Staff

The highest survey acceptance rates were observed, in descending order, in the health districts of Djidja-Abomey-Agbangnizoun, Comé-Bopa-Houéyogbé-Grand-Popo, and Dassa-Zoumé-Glazoue. However, when considering the number of individuals surveyed, differences between hospitals were not substantial. Table 2 presents the distribution of staff who agreed to participate in individual interviews across the twelve health-district hospitals in 2019.

3.1.4. General Characteristics of the Surveyed Patients

A total of 223 patients participated in interviews regarding their satisfaction. The district hospitals with the largest numbers of surveyed patients, in descending order, were the district hospital of Adjohoun-Bonou-Dangbo, the district hospital of Parakou-N'dali, and the district hospital of Tanguiéta-Cobly-Matéri. Table 3 presents the distribution of surveyed patients across the twelve district hospitals in 2019.

Table 2. Distribution of staff who agreed to participate in individual interviews in the twelve district hospitals in 2019.

N°	Department	District hospitals	Available workforce	Surveyed sample size	Percentage (%)
1	Alibori	Kandi-Gogounou-Ségbana	39	19	48.72
2	Atacora	Tanguiéta-Cobly-Matéri	81	28	34.57
3	Atlantique	Abomey-Calavi-Sô-Ava	153	23	15.03
4	Borgou	Parakou-N'dali	50	20	40.00
5	Collines	Dassa-Zoumé-Glazoué	25	14	56.00
6	Couffo	Aplahoué-Djakotome-Dogbo	29	13	44.83
7	Donga	Djougou-Copargo-Ouaké	48	22	45.83
8	Littoral	Cotonou V	110	16	14.55
9	Mono	Comé-Bopa-Houéyogbé-Grand-Popo	22	17	77.27
10	Oueme	Adjohoun-Bonou-Dangbo	34	15	44.11
11	Plateau	Sakété-Ifangni	39	15	38.46
12	Zou	Djidja-Abomey-Agbangnizoun	20	16	80.00
	Total number of agents surveyed		650	218	33.54

Table 3. Distribution of surveyed patients across the twelve health-district hospitals in 2019.

	Department	District hospitals	Surveyed sample size	Percentage (%)
1	Alibori	Kandi-Gogounou-Ségbana	06	2.69
2	Atacora	Tanguiéta-Cobly-Matéri	25	11.21
3	Atlantique	Abomey-Calavi-Sô-Ava	17	7.62
4	Borgou	Parakou-N'dali	26	11.66
5	Collines	Dassa-Zoumé-Glazoué	14	6.28
6	Couffo	Aplahoué-Djakotome-Dogbo	15	6.73
7	Donga	Djougou-Copargo-Ouaké	24	10.76
8	Littoral	Cotonou V	14	6.28
9	Mono	Comé-Bopa-Houéyogbé-Grand-Popo	21	9.42
10	Oueme	Adjohoun-Bonou-Dangbo	28	12.56
11	Plateau	Sakété-Ifangni	15	6.73
12	Zou	Djidja-Abomey-Agbangnizoun	18	8.07
	Total number of patients surveyed		223	100

3.2. "Structure" Component

Three subcomponents were assessed within the "Structure" component, as described in the methodology. For each assessed subcomponent, we report the overall scores obtained by each district hospital relative to the expected scores, along with the percentage and the grade obtained.

3.2.1. Subcomponent "Availability of Adequate Infrastructure"

All twelve district hospitals obtained less than 60% of the expected score. Nevertheless, the three hospitals with the highest scores were: the district hospitals of Djidja-Abomey-Agbangnizoun, Djougou-Copargo-Ouaké, and Abomey-Calavi-Sô-ava. The three hospitals with the lowest scores were the district hospitals of Cotonou V, Adjohoun-Bonou-Dangbo, and Dassa-Zoume-Glazoue. The subcomponent "Availability of adequate infrastructure" received a score corresponding to poor adherence to standards (score 1), indicating an urgent need for improvements across all twelve hospitals. Table 4 presents a summary of scores by hospital according to the availability of adequate infrastructure in the twelve hospitals in 2019.

Table 4. Summary of scores by hospital according to the availability of adequate infrastructure in the twelve hospitals in 2019.

	District hospitals	Expected Score	Score Obtained	Percentage (%)	Rating
1	Kandi-Gogounou-Ségbana	745	207	27.79	1
2	Tanguiéta-Cobly-Matéri	745	271	36.38	1
3	Abomey-Calavi-Sô-Ava	745	329	44.16	1
4	Parakou-N'dali	745	322	43.22	1
5	Dassa-Zoumé-Glazoué	745	192	25.77	1
6	Aplahoué-Djakotome-Dogbo	745	234	31.41	1
7	Djougou-Copargo-Ouaké	745	362	48.59	1
8	Cotonou V	745	139	18.66	1
9	Comé-Bopa-Houéyogbé-Grand-Popo	745	247	33.15	1
10	Adjohoun-Bonou-Dangbo	745	143	19.19	1
11	Sakété-Ifangni	745	230	30.87	1
12	Djidja-Abomey-Agbangnizoun	745	383	51.41	1
	Total	8940	3059	34.22	1

3.2.2. Subcomponent "Availability of Adequate and Functional Equipment"

All twelve district hospitals obtained less than 60% of the expected score. Nevertheless, the three hospitals with the highest scores were: the district hospitals

of Djougou-Copargo-Ouaké, Parakou-N'dali, and Abomey-Calavi-Sô-ava. The three hospitals with the lowest scores were: the district hospitals of Adjohoun-Bonou-Dangbo, Cotonou V, and Sakété-Ifangni. The subcomponent "Availability of adequate and functional equipment" received a score corresponding to poor adherence to standards (score 1), indicating an urgent need for improvements in all twelve hospitals. Table 5 presents a summary of the scores by hospital according to the availability of adequate and functional equipment in the twelve hospitals in 2019.

Table 5. Summary of scores by hospital according to the availability of adequate and functional equipment in the twelve hospitals in 2019.

	District hospitals	Expected score	Score obtained	Percentage (%)	Rating
1	Kandi-Gogounou-Ségbana	771	272	35.28	1
2	Tanguiéta-Cobly-Matéri	771	297	38.52	1
3	Abomey-Calavi-Sô-Ava	771	318	41.25	1
4	Parakou-N'dali	771	337	43.71	1
5	Dassa-Zoumé-Glazoué	771	271	35.15	1
6	Aplahoué-Djakotome-Dogbo	771	259	33.59	1
7	Djougou-Copargo-Ouaké	771	364	47.21	1
8	Cotonou V	771	185	23.99	1
9	Comé-Bopa-Houéyogbé-Grand-Popo	771	258	33.46	1
10	Adjohoun-Bonou-Dangbo	771	169	21.92	1
11	Sakété-Ifangni	771	192	24.90	1
12	Djidja-Abomey-Agbangnizoun	771	211	27.37	1
	Total	9252	3133	33.86	1

3.2.3. Subcomponent "Availability of Human Resources for Health"

The three hospitals with the highest scores were: the district hospitals of Abomey-Calavi-Sô-ava, Cotonou V, and Tanguiéta-Cobly-Matéri. The three hospitals with the lowest scores were the district hospitals of Djidja-Abomey-Agbangnizoun, Dassa-Zoume-Glazoue, and Aplahoué-Djakotome-Dogbo. The subcomponent "Availability of human resources for health" received a score corresponding to poor compliance with standards (score 1), indicating an urgent need for improvement. However, the Cotonou V district hospital required necessary improvements, and the Abomey-Calavi-Sô-ava district hospital required minor improvements. Table 6 presents a summary of scores by hospital according to the availability of human resources for health across the twelve hospitals in 2019.

Table 6. Summary of scores by hospital according to the availability of human resources for health in the twelve hospitals in 2019.

	District hospitals	Expected score	Score obtained	Percentage (%)	Rating
1	Kandi-Gogounou-Segbana	14	5	35.71	1
2	Tanguiéta-Cobly-Matéri	14	7	50.00	1
3	Abomey-Calavi-Sô-Ava	14	12	85.71	3
4	Parakou-N'dali	14	3	21.43	1
5	Dassa-Zoumé-Glazoué	14	2	14.29	1
6	Aplahoué-Djakotome-Dogbo	14	2	14.29	1
7	Djougou-Copargo-Ouaké	14	3	21.43	1
8	Cotonou V	14	10	71.43	2
9	Comé-Bopa-Houéyogbé-Grand-Popo	14	5	35.71	1
10	Adjohoun-Bonou-Dangbo	14	2	14.29	1
11	Sakété-Ifangni	14	2	14.29	1
12	Djidja-Abomey-Agbangnizoun	14	1	7.14	1
	Total	168	54	32.14	1

3.2.4. Synthesis of the "Structure" Component

All twelve district hospitals obtained less than 60% of the expected score. Nevertheless, the three hospitals with the highest scores were the district hospitals of Djougou-Copargo-Ouaké, Parakou-N'dali, and Abomey-Calavi-Sô-ava. The three hospitals with the lowest scores were the district hospitals of Adjohoun-Bonou-Dangbo, Cotonou V, and Sakété-Ifangni. The "Structure" component obtained a score indicating poor use of standards (score 1), implying an urgent need for improvements in all twelve hospitals. Table 7 presents a summary of hospital scores for the "Structure" component.

Table 7. Summary of hospital-level scores for the "Structure" component across the twelve hospitals in 2019.

	District hospitals	Total expected scores	Total score obtained	Percentage (%)	Rating
1	Kandi-Gogounou-Ségbana	1530	484	31.63	1
2	Tanguiéta-Cobly-Matéri	1530	575	37.58	1
3	Abomey-Calavi-Sô-Ava	1530	659	43.07	1
4	Parakou-N'dali	1530	662	43.27	1
5	Dassa-Zoumé-Glazoué	1530	465	30.39	1

Continued

6	Aplahoué-Djakotome-Dogbo	1530	495	32.35	1
7	Djougou-Copargo-Ouaké	1530	729	47.65	1
8	Cotonou V	1530	334	21.83	1
9	Comé-Bopa-Houéyogbé-Grand-Popo	1530	510	33.33	1
10	Adjohoun-Bonou-Dangbo	1530	314	20.52	1
11	Sakété-Ifangni	1530	424	27.71	1
12	Djidja-Abomey-Agbangnizoun	1530	595	38.89	1
	Total	18,360	6246	34.02	1

3.3. "Process" Component

Five subcomponents were assessed within the "Process" component, as described in the methodology. For each subcomponent evaluated, we present the overall scores obtained by each district hospital relative to the expected scores, along with the percentage and the grade obtained.

3.3.1. Subcomponent "Knowledge of Regulatory Documents on Organizational Structure and Care Provision"

All twelve district hospitals obtained less than 60% of the expected score. Nevertheless, the three hospitals with the highest scores were the district hospitals of Adjohoun-Bonou-Dangbo, Sakété-Ifangni, and Djidja-Abomey-Agbangnizoun. The three hospitals with the lowest scores were the district hospitals of Dassa-zoumé-Glazoue, Abomey-calavi-Sô-ava, and Djougou-Copargo-Ouaké. The subcomponent "Knowledge of normative documents on structure and case management" obtained a score corresponding to poor use of standards (score 1), indicating an urgent need for improvements in all twelve hospitals. Table 8 presents a summary of scores by hospital according to knowledge of normative documents on structure and case management in the twelve hospitals in 2019.

3.3.2. Subcomponent "Access to Healthcare Services"

All twelve district hospitals obtained less than 60% of the expected score. Nevertheless, the three hospitals with the highest scores were: the district hospitals of Djougou-Copargo-Ouaké, Dassa-zoumé-Glazoue, and Comé-Bopa-Houéyogbé-Grand-Popo. The three hospitals with the lowest scores were: the district hospitals of Adjohoun-Bonou-Dangbo, Djidja-Abomey-Agbangnizoun, and Kandi-Gogounou-Ségbana. The subcomponent "Accessibility to health care" obtained a score corresponding to poor use of standards (score 1), indicating an urgent need for improvements across all twelve hospitals. Table 9 presents a summary of scores by hospital according to accessibility to health care in the twelve hospitals in 2019.

Table 8. Summary of scores by hospital as a function of knowledge of normative structural and care management documents in the twelve hospitals in 2019.

	District hospitals	Expected score	Score obtained	Percentage (%)	Rating
1	Kandi-Gogounou-Ségbana	266	71	26.69	1
2	Tanguiéta-Cobly-Matéri	392	87	22.19	1
3	Abomey-Calavi-Sô-Ava	322	48	14.91	1
4	Parakou-N'dali	280	67	23.93	1
5	Dassa-Zoumé-Glazoué	196	13	06.63	1
6	Aplahoué-Djakotome-Dogbo	182	36	19.78	1
7	Djougou-Copargo-Ouaké	308	56	18.18	1
8	Cotonou V	224	59	26.34	1
9	Comé-Bopa-Houéyogbé-Grand-Popo	238	46	19.33	1
10	Adjohoun-Bonou-Dangbo	210	62	29.52	1
11	Sakété-Ifangni	210	60	28.57	1
12	Djidja-Abomey-Agbangnizoun	224	61	27.23	1
	Total	3052	666	21.82	1

Table 9. Summary of scores by hospital according to access to health care in the twelve hospitals in 2019.

	District hospitals	Expected score	Score obtained	Percentage (%)	Rating
1	Kandi-Gogounou-Ségbana	18	3	16.67	1
2	Tanguiéta-Cobly-Matéri	75	20	26.67	1
3	Abomey-Calavi-Sô-Ava	51	9	17.65	1
4	Parakou-N'dali	78	15	19.23	1
5	Dassa-Zoumé-Glazoué	42	20	47.62	1
6	Aplahoué-Djakotome-Dogbo	45	13	28.89	1
7	Djougou-Copargo-Ouaké	72	37	51.39	1
8	Cotonou V	42	11	26.19	1
9	Comé-Bopa-Houéyogbé-Grand-Popo	63	20	31.75	1
10	Adjohoun-Bonou-Dangbo	84	3	03.57	1
11	Sakété-Ifangni	45	10	22.22	1
12	Djidja-Abomey-Agbangnizoun	54	7	12.96	1
	Total	669	168	25.11	1

3.3.3. Subcomponent "Ease of Access to Healthcare Services within the Facility"

All hospitals achieved more than 60% of the expected score. The three hospitals with the highest scores were the Kandi-Gogounou-Ségbana, Aplahoué-Djakotome-Dogbo, and Sakété-Ifangni district hospitals. The three hospitals with the lowest scores were the Tanguiéta-Cobly-Matéri, Djidja-Abomey-Agbangnizoun, and Abomey-Calavi-Sô-ava district hospitals. The subcomponent "Ease of access to care services within the facility" received a score corresponding to good adherence to standards (score 3), indicating a need for minor improvements across the twelve hospitals. However, the Tanguiéta-Cobly-Matéri, Djidja-Abomey-Agbangnizoun, Abomey-Calavi-Sô-ava, and Adjohoun-Bonou-Dangbo district hospitals required necessary improvements. Table 10 presents a summary of scores by hospital according to the ease of access to care services in the twelve hospitals in 2019.

Table 10. Summary of scores by hospital as a function of ease of access to care services in the twelve hospitals in 2019.

	District hospitals	Expected score	Score obtained	Percentage (%)	Rating
1	Kandi-Gogounou-Ségbana	36	36	100	3
2	Tanguiéta-Cobly-Matéri	150	91	60.67	2
3	Abomey-Calavi-Sô-Ava	102	69	67.65	2
4	Parakou-N'dali	156	147	94.23	3
5	Dassa-Zoumé-Glazoué	84	79	94.05	3
6	Aplahoué-Djakotome-Dogbo	90	90	100	3
7	Djougou-Copargo-Ouaké	144	138	95.83	3
8	Cotonou V	84	69	82.14	3
9	Comé-Bopa-Houéyogbé-Grand-Popo	126	121	96.03	3
10	Adjohoun-Bonou-Dangbo	168	134	79.76	2
11	Sakété-Ifangni	90	87	96.67	3
12	Djidja-Abomey-Agbangnizoun	108	68	62.96	2
	Total	1338	1129	84.38	3

3.3.4. Subcomponent "Assessment of the Patient's Health Status and Needs"

All twelve district hospitals achieved less than 60% of the expected score. Nevertheless, the three hospitals with the highest scores were: the district hospitals of Parakou-N'dali, Comé-Bopa-Houéyogbé-Grand-Popo, and Tanguiéta-Cobly-Matéri. The three hospitals with the lowest scores were: the district hospitals of Adjohoun-Bonou-Dangbo, Dassa-Zoumé-Glazoué, and Cotonou V. The subcomponent "Assessment of the patient's health status and needs" received a score corresponding to poor use of standards (score 1), indicating an urgent need for improvements in all twelve hospitals. Table 11 presents a summary of scores by

hospital for the assessment of the patient's health status and needs in the twelve hospitals in 2019.

Table 11. Summary of scores by hospital according to the assessment of patients' health status and needs across the twelve hospitals in 2019.

	District hospitals	Expected score	Score obtained	Percentage (%)	Rating
1	Kandi-Gogounou-Ségbana	605	191	31.57	1
2	Tanguiéta-Cobly-Matéri	605	262	43.31	1
3	Abomey-Calavi-Sô-Ava	605	234	38.68	1
4	Parakou-N'dali	605	286	47.27	1
5	Dassa-Zoumé-Glazoué	605	172	28.43	1
6	Aplahoué-Djakotome-Dogbo	605	230	38.02	1
7	Djougou-Copargo-Ouaké	605	246	40.66	1
8	Cotonou V	605	180	29.75	1
9	Comé-Bopa-Houéyogbé-Grand-Popo	605	270	44.63	1
10	Adjohoun-Bonou-Dangbo	605	110	18.18	1
11	Sakété-Ifangni	605	227	37.52	1
12	Djidja-Abomey-Agbangnizoun	605	231	38.18	1
	Total	7260	2639	36.35	1

3.3.5. Subcomponent "General Precautions"

All twelve district hospitals obtained less than 60% of the expected score. Nevertheless, the three hospitals with the highest scores were the district hospitals of Parakou-N'dali, Abomey-Calavi-Sô-Ava, and Djidja-Abomey-Agbangnizoun. The four hospitals with the lowest scores were the district hospitals of Tanguiéta-Cobly-Matéri, Djougou-Copargo-Ouaké, Cotonou V, and Comé-Bopa-Houéyogbé-Grand-Popo. The "General precautions" subcomponent obtained a score corresponding to poor adherence to standards (score 1), indicating an urgent need for improvements in all twelve hospitals. Table 12 presents a summary of scores by hospital for general precautions across the twelve hospitals in 2019.

3.3.6. Synthesis of the "Process" Component

All twelve district hospitals obtained less than 60% of the expected score. Nevertheless, the three hospitals with the highest scores were: the district hospitals of Parakou-N'dali, Comé-Bopa-Houéyogbé-Grand-Popo, and Djougou-Copargo-Ouaké. The three hospitals with the lowest scores were: the district hospitals of Adjohoun-Bonou-Dangbo, Dassa-Zoumé-Glazoue, and Kandi-Gogounou-Ségbana. The "Process" component received a score corresponding to poor use of standards (score 1), indicating an urgent need for improvements in all twelve hospitals. Table 13 presents a summary of scores by hospital for the "Process" component.

Table 12. Summary of hospital-level scores according to general precautions in the twelve hospitals in 2019.

	District hospitals	Expected score	Score obtained	Percentage (%)	Rating
1	Kandi-Gogounou-Ségbana	20	4	20.00	1
2	Tanguiéta-Cobly-Matéri	20	0	00.00	1
3	Abomey-Calavi-Sô-Ava	20	7	35.00	1
4	Parakou-N'dali	20	10	50.00	1
5	Dassa-Zoumé-Glazoué	20	1	05.00	1
6	Aplahoué-Djakotome-Dogbo	20	1	05.00	1
7	Djougou-Copargo-Ouaké	20	0	00.00	1
8	Cotonou V	20	0	00.00	1
9	Comé-Bopa-Houéyogbé-Grand-Popo	20	0	00.00	1
10	Adjohoun-Bonou-Dangbo	20	1	05.00	1
11	Sakété-Ifangni	20	4	20.00	1
12	Djidja-Abomey-Agbangnizoun	20	6	30.00	1
	Total	240	34	14.17	1

Table 13. Summary of hospital-level scores for the "Process" component across the twelve hospitals in 2019.

	District hospitals	Total expected scores	Total score obtained	Percentage (%)	Rating
1	Kandi-Gogounou-Ségbana	945	305	32.28	1
2	Tanguiéta-Cobly-Matéri	1242	460	37.04	1
3	Abomey-Calavi-Sô-Ava	1100	367	33.36	1
4	Parakou-N'dali	1139	525	46.09	1
5	Dassa-Zoumé-Glazoué	947	285	30.10	1
6	Aplahoué-Djakotome-Dogbo	942	370	39.28	1
7	Djougou-Copargo-Ouaké	1149	477	41.51	1
8	Cotonou V	975	319	32.72	1
9	Comé-Bopa-Houéyogbé-Grand-Popo	1052	457	43.44	1
10	Adjohoun-Bonou-Dangbo	1087	310	28.52	1
11	Sakété-Ifangni	970	388	40.00	1
12	Djidja-Abomey-Agbangnizoun	1011	373	36.89	1
	Total	12,559	4636	36.91	1

3.4. "Outcome" Component

As described in the methodology, four subcomponents were assessed within the "Outcome" component. For each assessed subcomponent, we report the overall scores obtained by each district hospital relative to the expected scores, as well as the percentage and the grade obtained.

3.4.1. Subcomponent "Patient Satisfaction with the Caregiver-Patient Relationship"

All hospitals achieved more than 60% of the expected score. The three hospitals with the highest scores were the district hospitals of Aplahoué-Djakotome-Dogbo, Adjohoun-Bonou-Dangbo, and Comé-Bopa-Houéyogbé-Grand-Popo. The three hospitals with the lowest scores were the district hospitals of Parakou-N'dali, Sakété-Ifangni, and Kandi-Gogounou-Ségbana. The sub-component "Patient satisfaction with the Caregiver-patient relationship" received a score corresponding to good quality of care and services (score 3), implying a need for minor improvements in all twelve hospitals. However, the district hospitals of Parakou-N'dali, Sakété-Ifangni, Kandi-Gogounou-Ségbana, and Abomey-Calavi-Sô-ava required necessary improvements. Table 14 presents a summary of scores by hospital according to patient satisfaction with the Caregiver-patient relationship in the twelve hospitals in 2019.

Table 14. Summary of scores by hospital according to patient satisfaction with the caregiver-patient relationship in the twelve hospitals in 2019.

	District hospitals	Expected score	Score obtained	Percentage (%)	Rating
1	Kandi-Gogounou-Segbana	42	28	66.67	2
2	Tanguiéta-Cobly-Matéri	175	145	82.86	3
3	Abomey-Calavi-Sô-Ava	119	83	69.75	2
4	Parakou-N'dali	182	117	64.29	2
5	Dassa-Zoumé-Glazoué	98	85	86.73	3
6	Aplahoué-Djakotome-Dogbo	105	103	98.10	3
7	Djougou-Copargo-Ouaké	168	147	87.50	3
8	Cotonou V	98	82	83.67	3
9	Comé-Bopa-Houéyogbé-Grand-Popo	147	131	89.12	3
10	Adjohoun-Bonou-Dangbo	196	176	89.80	3
11	Sakété-Ifangni	105	69	65.71	2
12	Djidja-Abomey-Agbangnizoun	126	105	83.33	3
	Total	1561	1271	81.42	3

3.4.2. Subcomponent "Patient Satisfaction with Their Level of Involvement in the Care Provided"

All twelve district hospitals achieved less than 60% of the expected score. Nevertheless, the three hospitals with the highest scores were Aplahoué-Djakotome-Dogbo, Adjohoun-Bonou-Dangbo, and Dassa-zoumé-Glazoue. The hospitals with the three lowest scores were the district hospitals of Parakou-N'dali, Sakété-Ifangni, and Tanguiéta-Cobly-Matéri. The subcomponent "Patient satisfaction with their level of involvement in the care provided" received a score corresponding to poor quality of care and services (score 1), indicating an urgent need for improvements across all twelve hospitals. Table 15 summarizes the scores by hospital according to patient satisfaction with their level of involvement in the care provided in the twelve hospitals in 2019.

Table 15. Summary of scores by hospital according to patient satisfaction with their level of involvement in the care provided across the twelve hospitals in 2019.

	District hospitals	Expected score	Score obtained	Percentage (%)	Rating
1	Kandi-Gogounou-Segbana	48	6	12.50	1
2	Tanguiéta-Cobly-Matéri	200	24	12.00	1
3	Abomey-Calavi-Sô-Ava	136	39	28.68	1
4	Parakou-N'dali	208	10	04.81	1
5	Dassa-Zoumé-Glazoué	112	33	29.46	1
6	Aplahoué-Djakotome-Dogbo	120	52	43.33	1
7	Djougou-Copargo-Ouaké	192	34	17.71	1
8	Cotonou V	112	30	26.79	1
9	Comé-Bopa-Houéyogbé-Grand-Popo	168	42	25.00	1
10	Adjohoun-Bonou-Dangbo	224	68	30.36	1
11	Sakété-Ifangni	120	8	06.67	1
12	Djidja-Abomey-Agbangnizoun	144	29	20.14	1
	Total	1784	375	21.02	1

3.4.3. Subcomponent "Patient Satisfaction with the Comfort of Hospitalization and Meals"

The three hospitals with the highest scores were the Tanguiéta-Cobly-Matéri district hospital, Kandi-Gogounou-Ségbana, and Djidja-Abomey-Agbangnizoun. The three hospitals with the lowest scores were the Cotonou V, Adjohoun-Bonou-Dangbo, and Abomey-Calavi-Sô-Ava district hospitals. The subcomponent "Patient satisfaction with inpatient comfort and meals" received a score corresponding to poor quality of care and services (score 1), indicating an urgent need for improvement. However, the Kandi-Gogounou-Ségbana and Djidja-

Abomey-Agbangnizoun district hospitals required necessary improvements. The Tanguiéta-Cobly-Matéri district hospital required minor improvements. Table 16 presents a summary of scores by hospital according to patient satisfaction with inpatient comfort and meals across the twelve hospitals in 2019.

Table 16. Summary of scores by hospital based on patient satisfaction with hospitalization comfort and meals in the twelve hospitals in 2019.

	District hospitals	Expected score	Score obtained	Percentage (%)	Rating
1	Kandi-Gogounou-Ségbana	36	23	63.89	2
2	Tanguiéta-Cobly-Matéri	150	120	80.00	3
3	Abomey-Calavi-Sô-Ava	102	36	35.29	1
4	Parakou-N'dali	156	83	53.21	1
5	Dassa-Zoumé-Glazoué	84	40	47.62	1
6	Aplahoué-Djakotome-Dogbo	90	50	55.56	1
7	Djougou-Copargo-Ouaké	144	82	56.94	1
8	Cotonou V	84	24	28.57	1
9	Comé-Bopa-Houéyogbé-Grand-Popo	126	54	42.86	1
10	Adjohoun-Bonou-Dangbo	168	54	32.14	1
11	Sakété-Ifangni	90	40	44.44	1
12	Djidja-Abomey-Agbangnizoun	108	67	62.04	2
	Total	1338	673	50.30	1

3.4.4. Subcomponent "Patient Satisfaction with Overall Care"

The three hospitals with the highest scores were: the district hospitals of Aplahoué-Djakotome-Dogbo, of Cotonou V, and of Djougou-Copargo-Ouaké. The three hospitals with the lowest scores were: the district hospitals of Djidja-Abomey-Agbangnizoun, of Tanguiéta-Cobly-Matéri, and of Kandi-Gogounou-Ségbana. The subcomponent "Patient satisfaction with overall care" received a score corresponding to acceptable quality of care and services (score 2), indicating a need for necessary improvements. However, the district hospitals of Djidja-Abomey-Agbangnizoun, of Tanguiéta-Cobly-Matéri, of Kandi-Gogounou-Ségbana, and of Parakou-N'dali required urgent improvements, and the district hospitals of Sakété-Ifangni and Adjohoun-Bonou-Dangbo required necessary improvements, whereas the district hospitals of Aplahoué-Djakotome-Dogbo, of Cotonou V, of Djougou-Copargo-Ouaké, of Abomey-calavi-Sô-ava, of Dassa-zoumé-Glazoue, and of Comé-Bopa-Houéyogbé-Grand-Popo required minor improvements.

Table 17 presents a summary of the scores by hospital according to patient satisfaction with overall care in the twelve hospitals in 2019.

Table 17. Summary of hospital-level scores according to patient satisfaction with overall care across the twelve hospitals in 2019.

	District hospitals	Expected score	Score obtained	Percentage (%)	Rating
1	Kandi-Gogounou-Ségbana	36	21	58.33	1
2	Tanguiéta-Cobly-Matéri	150	69	46.00	1
3	Abomey-Calavi-Sô-Ava	102	83	81.37	3
4	Parakou-N'dali	156	93	59.62	1
5	Dassa-Zoumé-Glazoué	84	68	80.95	3
6	Aplahoué-Djakotome-Dogbo	90	79	87.78	3
7	Djougou-Copargo-Ouaké	144	119	82.64	3
8	Cotonou V	84	70	83.33	3
9	Comé-Bopa-Houéyogbé-Grand-Popo	126	101	80.16	3
10	Adjohoun-Bonou-Dangbo	168	104	61.90	2
11	Sakété-Ifangni	90	54	60.00	2
12	Djidja-Abomey-Agbangnizoun	108	42	38.89	1
	Total	1338	903	67.49	2

Table 18. Summary of hospital-level scores for the "Outcome" component across the twelve hospitals in 2019.

	District hospitals	Total expected scores	Total score obtained	Percentage (%)	Rating
1	Kandi-Gogounou-Ségbana	162	78	48.15	1
2	Tanguiéta-Cobly-Matéri	675	358	53.04	1
3	Abomey-Calavi-Sô-Ava	459	241	52.51	1
4	Parakou-N'dali	702	303	43.16	1
5	Dassa-Zoumé-Glazoué	378	226	59.79	1
6	Aplahoué-Djakotome-Dogbo	405	284	70.12	2
7	Djougou-Copargo-Ouaké	648	382	58.95	1
8	Cotonou V	378	206	54.50	1
9	Comé-Bopa-Houéyogbé-Grand-Popo	567	328	57.85	1
10	Adjohoun-Bonou-Dangbo	756	402	53.17	1
11	Sakété-Ifangni	405	171	42.22	1
12	Djidja-Abomey-Agbangnizoun	486	243	50.00	1
	Total	6021	3222	53.51	1

3.4.5. Synthesis of the "Outcome" Component

The three hospitals with the highest scores were: the district hospitals of Aplahoue-Djakotome-Dogbo, Dassa-Zoumé-Glazoué, and Djougou-Copargo-Ouaké. The three hospitals with the lowest scores were the district hospitals of Sakété-Ifangni, Parakou-N'dali, and Kandi-Gogounou-Ségbana. The "Outcome" component received a score corresponding to poor quality of care and services (score 1), indicating an urgent need for improvement. However, the district hospital of Aplahoue-Djakotome-Dogbo required necessary improvements. Table 18 presents a summary of the scores by hospital for the "Outcome" component.

4. Discussion

The discussion of the results will be structured around four points: the extent to which the study objectives were achieved, the quality and validity of the results, the challenges and limitations of the study, and a comparison of our findings with those reported in the literature.

4.1. Achievement of the Study Objectives

The objective of this study was to assess compliance with structural and care process standards in Benin's district hospitals, alongside a descriptive assessment of beneficiaries' level of satisfaction with the care received. At the end of this study, we rate that combining the different techniques and tools used for data collection made it possible to obtain information on compliance with structural and care process standards in Benin's district hospitals, alongside a descriptive assessment of beneficiaries' level of satisfaction with the care received. All planned target groups were involved. In light of the results obtained, we can state that the objective of our study was broadly achieved.

4.2. Quality and Validity of the Results

The study was cross-sectional and evaluative. The method used was aligned with the study's specific objectives. Nevertheless, as in any study, we do not believe we are free from information bias. Data were collected through a structured interview and observation of workplaces and health workers while performing their tasks. To minimize these biases, data collection was conducted by experienced and well-trained interviewers. Participatory interviews were also used to minimize observation bias. The data collection tools were developed on the basis of various national and international standards, guidelines, and protocols, notably those of WHO and ISO quality assurance standards. Data collection was carried out by trained and supervised interviewers. The interviewers were trained on the tools, which enabled a better understanding of these assessment instruments. Overall, the data collection and analysis techniques enabled triangulation of the collected data to produce results considered valid. The study was conducted in twelve of the twenty-nine district hospitals, representing 41.38%. The results obtained may reflect the situation in district hospitals in Benin.

4.3. Study Challenges and Limitations

With respect to satisfaction with care and services, the number of beneficiaries surveyed appears insufficient in certain hospitals. Furthermore, the patient satisfaction survey was restricted to inpatients in two of the seven assessed departments—Obstetrics and Gynaecology, and Paediatrics—whereas the structural and process components were evaluated across all seven departments. These restrictions limit the generalisability of the satisfaction findings and make it difficult to extrapolate these results to the entire country.

4.4. Discussion of the Results

This discussion will be conducted for each component and subcomponent.

4.4.1. "Structure" Component

The structural component received a score indicating poor compliance with standards. Structure encompassed the availability of adequate infrastructure, the availability of appropriate and functional equipment, and the availability of human resources.

1) Subcomponent "Availability of adequate infrastructure"

Our study showed that no district hospital achieved a good level of compliance with standards regarding the availability of adequate infrastructure (34.22%). The hospitals most affected were the district hospitals of Cotonou V, Adjohoun-Bonou-Dangbo, and Dassa-Zoumé-Glazoué. The services most implicated were Pediatrics, General Medicine, and Obstetrics and Gynecology. The criteria most frequently unmet were appropriate wall covering, required floor area, and appropriate floor covering. Indeed, according to the standards, the walls were not adequately finished and the rooms were too cramped. Health personnel were sometimes forced to use certain inpatient rooms and consultation rooms as on-call rooms. Our results are consistent with those of Ezin Ayedegue S. [6], who concluded that the infrastructure was obsolete and did not comply with Benin's standards (56.25%), also citing inadequate floor area and the absence of certain rooms. The difference in percentages could be explained by the fact that Ezin Ayedegue S. assessed only one district hospital and considered only a few criteria related to maternity care (adequacy of the labor room, delivery room, postpartum room, operating theater, neonatal care unit, newborn corner, kangaroo corner, and antenatal consultation room), whereas our study considered, for seven services, all criteria listed in Benin's standards document. In 2016, Kenao T [7], through work on the quality of care for severe acute malnutrition at Centre Hospitalier Départemental (CHD) du Mono, reached the same conclusion. Specifically, the "care setting" subcomponent did not meet standards (25%). By contrast, our results contradict those of Montcho J. [8], who found in 2017 that infrastructure quality was fairly good (74%). This may be explained by the fact that Montcho J.'s study primarily assessed maternity and neonatology services and did not incorporate the construction standards for district hospitals. It considered only continuous

electricity availability, the availability of backup power in case of outages (e.g., a generator), continuous running water availability, the presence of a water tower or any other alternative water source to replace SONEB during outages, the presence of toilets and showers for patients, the availability of soap and/or disinfectant, the availability of a sharps container, the presence of a functioning refrigerator for medicines and blood products/vaccines, and the presence of a suggestion box within the hospital premises or a formal means by which patients can communicate with the hospital. Similarly, Ndikubagenzi *et al.* in Burundi and Boller *et al.* in Tanzania, who also conducted work on SMNI as Montcho J. did, appear to align with his findings. In Côte d'Ivoire, Kone F., in a 2018 study conducted in first-contact health facilities in the municipality of Yopougnon, also found—contrary to our study—that an appropriate care setting was available (18/18) [9]. However, the care-setting component considered only the existence of three rooms in cardiology services and did not take into account the required number of rooms, floor area, floor covering, or wall covering. Compliance with infrastructure standards is essential for any health facility that aspires to quality because it enables health workers to operate in a favorable, non-cramped environment, to provide faster patient care, to prevent occupational accidents and certain healthcare-associated infections, and thereby to ensure the quality of care and services. It is also recognized that patient recovery depends in part on the reception and environment offered by the care facility. More than any other type of building, hospitals must therefore provide a healthy, clean, and durable environment. Floor coverings play a major role in this regard. They must meet the specific requirements of these facilities: resistance to impact, wear (frequent passage of wheeled equipment), indentation, chemicals, and frequent and sometimes specialized maintenance operations, among others. They must be pleasant, comfortable, and quiet to support recovery and rest in older adults, and they must facilitate hygiene and maintenance. Additional requirements also apply regarding the safety of individuals, as these are public-access buildings. In France, for example, materials used in hospitals must have a fire reaction certificate (B-s2, d0 certificate).

2) Subcomponent "Availability of adequate and functional equipment"

Our study showed that no district hospital achieved a good level of compliance with standards regarding the availability of adequate and functional equipment (33.86%). The most affected were the district hospitals of Adjohoun-Bonou-Dangbo, Cotonou V, and Sakété-Ifangni. The services most frequently implicated were General Medicine, Pediatrics, and General Surgery. The criterion most affected was primarily the required number of items of equipment according to Beninese standards. Indeed, in these hospitals, not only was the required number of devices lacking, but the few available devices were moved from room to room, so that when needed, healthcare providers were compelled to waste time locating equipment that sometimes had not been sterilized after its last use. Our results are similar to those of the Evaluation of Benin's health system policy conducted by the Ministry of Health in 2013, which found that 89.30% of surveyed facilities had

insufficient equipment and that existing equipment was obsolete in 80% of cases [10]. Likewise, according to the 2013 Evaluation of the health system management policy in Benin by the General Directorate for Evaluation of the Ministry of Public Policies and Denationalization Programs, more than eight out of ten department heads surveyed believed that there was a shortage of adequate equipment and supplies (obsolete equipment and supplies are not replaced). Montcho J. also showed in his work that equipment was unavailable. Similarly, in his study, Ezin Ayedegue S. reported equipment that was obsolete and insufficient, or even nonexistent (63.15%). The differences observed in percentages could be explained by the limited number of services included and the restricted selection of criteria. The study by Kone F. conducted in 2018 in first-contact health facilities in the municipality of Yopougnon in Côte d'Ivoire also reported poor quality (52.68%) for the "medical-technical equipment" subcomponent.

Our findings diverge from those of the "Services Availability and Readiness Assessment" (SARA) survey (MoH/WHO) conducted in Benin in 2015, which reported that equipment was available in 86% of cases [11]. That study, carried out in 189 health facilities (including 26 public hospitals and 17 private hospitals), considered only six items deemed essential (thermometer, stethoscope, adult scale, blood pressure monitor, child scale, and light source). Our results also appear to contradict those of Atindehou C., conducted at the Ouidah district hospital. She reported good quality for the structural component and attributed it, among other factors, to the availability of medical-technical equipment [12]. It is important to note that Atindehou C.'s work not only focused on a single service (the operating theatre) but, above all, did not take into account all Beninese standards. Equipment plays an essential role in the functioning of a health system. Medical devices, in particular, are indispensable for disease prevention, diagnosis, and treatment, as well as for patient rehabilitation. In May 2007, recognizing the importance of health technologies, the World Health Assembly adopted resolution WHA60.29. This resolution addresses the problems posed by improper use of these technologies and the need to set priorities for the selection and management of health technologies, particularly medical devices. Adequate availability of the required medical-technical equipment in each treatment room not only ensures optimal, rapid, and comprehensive care for a larger number of patients, but also improves their comfort, avoids unnecessary referrals of severe cases due to lack of technical capacity, and saves valuable time for both the caregiver and the patient.

3) Subcomponent "Availability of human resources"

Our study showed that no district hospital had a good level of compliance with standards regarding the availability of qualified and specialized human resources (32.14%). The most affected were the district hospitals of Djidja-Abomey-Agbangnizoun, Dassa-Zoumé-Glazoue, and Aplahoué-Djakotome-Dogbo. According to the standards, the professional categories most implicated were specialist State-Registered Nurses (IDE), specialist physicians, and specialist State-Registered Midwives (SFE). The criterion most affected was the required staffing

level by professional category. The Ministry of Health's Strategic Plan for the Development of Human Resources in the Health Sector 2009-2018 [13] and the 2010 Evaluation of the Tokyo Vision Network for the development of health human resources in Francophone West African countries and the DRC in 2010 confirm our findings by estimating the unmet need for human resources at 8,610 and 8,626 staff members, respectively, across all categories [14]. Montcho J. also reported in his work that staff unavailability was felt most acutely on weekends. For Ezin Ayedegue S., overall staffing was indeed insufficient, but the professional category most implicated was midwives; in his view, standards were met for physicians. Indeed, Ezin Ayedegue S.'s work considered only the staffing level of the maternity service in a single hospital. By contrast, the 2012 evaluation of Benin's health system by USAID [15] estimates that, unlike Senegal (evaluation in 2009) and Guyana (evaluation in 2009), Benin complies with both WHO standards and national standards. In reality, this result, which is based on total staffing numbers, may mask the inequity observed in the distribution of health personnel across health facilities. The availability of qualified and specialized human resources is an essential component for the functioning of care facilities.

4.4.2. "Process" Component

The process component received a score indicating poor adherence to standards. The process assessment considered familiarity with normative documents, access to care, ease of access to healthcare services, assessment of the patient's health status and needs, and general precautions.

1) Subcomponent "Knowledge of normative documents on supported structure and procedure"

According to the results of our study, no district hospital achieved a good level of knowledge of the regulatory documents on structure and on care management procedures (21.82%). The most affected were the district hospitals of Dassa-zoumé-Glazoue, Abomey-calavi-Sô-ava, and Djougou-Copargo-Ouaké. The most frequently implicated criterion was knowledge of documents on equipment standards, standards for the geographic accessibility of a district hospital, and the attitude of granting the patient leave. The findings reported by Kenao T. are similar to ours. Specifically, Kenao T. showed that the management process for severe acute malnutrition in the pediatric department of CHD Mono was of poor quality. Among the criteria identified, providers' level of knowledge was foremost. In addition, for most of the providers interviewed, it was not their responsibility to know structural standards because they "are neither the architects who built the hospitals, nor the ministry that commissioned the construction work." This is not entirely incorrect. However, it is important to be aware of the existence of such documents in order to better ensure the quality of care and to intervene promptly to ensure compliance with standards.

2) Subcomponent "Access to healthcare services"

According to the results of our study, no district hospital achieved a good or acceptable level of compliance with standards for access to healthcare services

(25.11%). All twelve hospitals obtained a score corresponding to poor adherence to standards (score 1), indicating an urgent need for improvements. The most affected facilities were the Adjohoun-Bonou-Dangbo, Djidja-Abomey-Agbangnizoun, and Kandi-Gogounou-Ségbana district hospitals. Cultural accessibility was the most frequently observed problem, as it was considered in only 10.31% of respondents. The Ministry of Health's assessment of health system management policy in Benin in July 2014 also concluded that, with respect to access to care, services were not generally accessible. From the perspective of geographic accessibility, our findings are consistent with those of Ezin Ayedegue S., who reported that in 57.34% of cases, geographic accessibility was poor. In the same vein, Montcho J. found that most clients lived approximately 15 km from the hospital. In January 2013, the Institut de Recherche Empirique en Economie Politique (IREEP) estimated that geographic accessibility was more difficult in rural than in urban areas and that 4 out of 10 people did not have a health center within a reasonable walking distance. Regarding financial accessibility, 66.92% of patients in our study reported difficulty meeting hospitalization-related costs. These costs ranged from 6,000 to 400,000 CFA francs, with a mean of 55,963.10 CFA francs. These results are similar to those reported by the Institut de recherche empirique en économie politique (IREEP) in January 2013 and by the Directorate General for Evaluation of the Ministry of Public Policies and Denationalization Programs, which found that care was expensive, with an inability to pay, for 47% and 42.40% of users, respectively. This observation was described by Jaffré Y. and de Sardan J-P. O. [16]: «Les soignants confrontés à des situations d'urgence médicale concernant des indigents sont réduits à des réactions extrêmes: soit ils refusent de soigner, ce qui est contraire à la déontologie médicale, soit ils prennent en charge le malade avec leur argent personnel». By contrast, Ezin Ayedegue S. found that costs were more affordable (93.45%) in the maternity ward of the Lokossa-Athiémé district hospital, which could be explained by subsidies for certain services such as cesarean section in that hospital. With respect to cultural accessibility, respondents in our study reported that it was respected in 24.66% of cases.

3) Subcomponent "Ease of access to healthcare services within the facility"

According to the results of our study, hospitals overall achieved good compliance with standards for facilitating access to healthcare services (84.38%). Indeed, in almost all the health facilities surveyed, the required signage was in place. Reception services were continuous, and care was provided almost immediately in most hospitals. Waiting times ranged from 0 to 1,440 minutes, with a mean of 26 minutes. Ezin Ayedegue S. also found that, for the majority of clients (90.16%), the waiting time was acceptable.

4) Subcomponent "Assessment of the patient's health status and needs"

According to the results of our study, no district hospital achieved a good level of compliance with standards for assessing the patient's health status and needs (36.35%). The poorest-performing hospitals were the district hospitals of Adjohoun-Bonou-Dangbo, Dassa-Zoumé-Glazoue, and Cotonou V. Deficiencies were

observed in how patients were bid farewell, in physical examination, and in patient discharge procedures. Regarding the way patients were bid farewell, healthcare workers did not ask whether all concerns had been addressed and did not accompany the patient. During the physical examination, most healthcare workers did not make the effort to explain the course of the examination and obtain the patient's consent. They did not wash their hands with soap and water before the examination and failed to measure the respiratory rate. With respect to patient discharge, the discharge summary was often not written, and discharge treatment was insufficiently explained. Regarding the timing of partograph completion, it was recorded for thirty-two of sixty patients, *i.e.*, in 53.33% of cases. Of the thirty-two partographs, only fifteen (46.88%) were completed during labor.

5) Subcomponent "General precautions"

According to our study results, adherence to standard precautions is poor in hospitals (14.17%). The hospitals most affected were those in the Tanguiéta-Cobly-Matéri, Djougou-Copargo-Ouaké, Cotonou V, and Comé-Bopa-Houéyogbé-Grand-Popo health zones. Failure to wash hands with soap and water was the factor implicated at all stages of patient management.

The results of our study are not consistent with those of the "Services Availability and Readiness Assessment" (SARA) survey (MoH/WHO) conducted in 2015, which reported that standard precautions were implemented in 84% of cases. Specifically, the 2015 SARA survey considered many more parameters than our study, including latex gloves, disinfectants, single-use syringes, and appropriate storage of sharps waste.

4.4.3. "Outcome" Component

1) Subcomponent "Patient satisfaction with the caregiver-patient relationship"

According to the results of our study, hospitals overall achieved good quality of care and services in terms of patient satisfaction with the caregiver-patient relationship (81.42%). Indeed, in nearly all of the health facilities surveyed, the required criteria were met. However, patients generally reported difficulty identifying the roles (physician, nurse, nursing assistant, etc.) of the various service providers; failure by staff to respect privacy; insufficient assistance in meeting basic daily living needs (washing, dressing, eating, etc.); and the poor attitude of some providers.

These results are consistent with those of the E*valuation of the health system management policy in* Benin conducted by the Directorate General for Evaluation within the Ministry of Public Policy and Denationalization Programs, in which 71% of patients reported being satisfied with the reception by healthcare Providers. Ezin Ayedegue S, in his work, confirmed this satisfaction with the reception (100% of clients satisfied).

Our results are not consistent with those reported by Montcho J., who found that only 19.56% of women in labor were satisfied with the staff's attitude.

Similar observations have also been reported in gynecology by Jaffré Y. and de Sardan J-P. O. [16]: "When confronted with an anonymous woman in labor, particularly if she is a primipara suspected of not pushing enough, midwives most often adopt a series of stereotyped behaviors that are far removed from both a compassionate attitude and the official technical standards learned in professional school." These behaviors combine verbal abuse—"you were not so fussy when you got yourself pregnant"—with threats such as "if you do not push enough, we will tear you" and "if you do not push enough, we will send you to the central maternity hospital". Similarly, this poor attitude among certain Providers was reported by Zneidi S. *et al.* [17], who, to justify it, cited Heskett *et al.*: "satisfied internal customers would be more willing to deliver better service and to adopt a better attitude toward customers."

2) Subcomponent "Patient satisfaction with their level of involvement in the care provided"

Our study showed that no district hospital achieved a good level of quality of care and services in terms of patient satisfaction with their level of involvement in the care provided (21.02%). The hospitals most affected were the district hospitals of Parakou-N'dali, Sakété-Ifangni, and Tanguiéta-Cobly-Matéri. The main issues identified were inadequate communication about potential complications related to invasive examinations, inadequate communication about possible adverse effects of prescribed medications (other than the usual treatment), and inadequate communication about resuming activities after discharge.

These results are consistent with those reported by Ghidaoui *et al.* [18], who, in a study conducted in Tunis, found that the primary source of dissatisfaction among patients and their parents was the information provided regarding the potential side effects of treatment.

In his study, Montcho J. similarly reported complete dissatisfaction with the information provided regarding case management (the diagnosis made and the treatment received).

3) Subcomponent "Patient satisfaction with inpatient comfort and meals"

According to our study, the district hospitals exhibited a low level of quality of care and services with respect to patient satisfaction regarding hospitalization comfort and meals (50.30%). The most deficient facilities were: the district hospitals of Cotonou V, Adjohoun-Bonou-Dangbo, and Abomey-Calavi-Sô-Ava. Meals were primarily implicated. Indeed, in most of the health facilities visited, meals were not provided. Instead, patients obtained them from external vendors, and they were considered unsatisfactory in terms of quality and variety.

The evaluation of the health system management policy in Benin by the Directorate-General for Evaluation of the Ministry of Public Policy and Denationalization Programs, however, found that 23% of surveyed users were dissatisfied with hospitalization conditions, primarily citing inadequate patient follow-up.

In his work, Montcho J. reported that "Providers expressed dissatisfaction with the reception and inpatient ward for mothers, infants, and children…"

In the survey by Cissé *et al.* [19], patient dissatisfaction was mainly related to overheated temperatures in hospital wards and high daytime noise levels.

By contrast, in his work, Ezin Ayedegue S found that patients were satisfied with the setting, which was generally clean.

4) Subcomponent "Patient satisfaction with overall care"

According to the results of our study, district hospitals achieved an acceptable quality of care and services in terms of overall patient satisfaction (67.49%). Although the required criteria were met in most of the health facilities visited, patients nevertheless reported poor organization of discharge and inadequate management of other disease-related discomforts (nausea and dizziness).

Our results are broadly consistent with those reported by Kenao T., who showed in 2016 that patients in the pediatric department of the CHD Mono were satisfied with the care provided.

Similarly, Ezin Ayedegue S. found high levels of satisfaction among patients in the maternity ward of the Lokossa-Athiémè district hospital with respect to the care provided.

The Directorate-General for Evaluation within the Ministry of Public Policies and Denationalization Programs, in its assessment, assigned a relatively good quality rating to health care because 48% of users reported being satisfied with health care services.

However, Montcho J.'s findings contradict ours. Specifically, Montcho J. reported in his study that the beneficiaries had only moderate satisfaction with the general care received during outpatient consultations or in the emergency department.

The present study revealed substantial deficiencies across the twelve hospitals, which constitute the first level of care for medical emergencies. This finding corroborates the results of Fourn *et al.* [20], who reported that "quality assurance of care in district hospitals in Benin remains a matter of concern and suffers, among other factors, from inequity in the provision of care."

5. Conclusions

Our cross-sectional and evaluative study, which assessed compliance with structural and care process standards in district hospitals in Benin, alongside a descriptive assessment of patient satisfaction, showed that, across all dimensions, adherence to "Structure" and "Process" quality standards was poor, resulting in poor quality of care and services in terms of "Outcome".

Regarding structural capacity, among the twelve hospitals assessed, infrastructure construction standards were not met (34.22%). Materials and equipment were insufficient (33.86%), and human resources, across all professional categories, were inadequate (32.14%).

In terms of process, providers are unfamiliar with normative documents regarding the structure and procedures for care delivery, and users face difficulties accessing care, even though access to care services is facilitated within the hospital.

These structural and process deficiencies were observed alongside low patient satisfaction scores, suggesting that comprehensive and coordinated improvements across all three components—structure, process, and outcomes—are necessary to achieve meaningful progress in the quality of care delivered in Benin's district hospitals.

These results indicate that substantial efforts remain necessary to achieve a significant improvement in the quality of care across each component of patient management.

This study should be conducted in other healthcare facilities to address gaps in the availability of infrastructure, equipment, and human resources, to improve staff training on standards, and to enhance staff recognition and motivation to apply these standards.

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Conflicts of Interest

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

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