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Statistical Analysis of Determinants of Patient Satisfaction in Public Hospitals in Burundi

Raoul Nsengiyumva[1], Dieudonné Gahungu[2], Léandre Gbaguidi[3], Fleury Habonimana[4]

[1]Doctoral School of the University of Burundi, CURDES, and Lecturer at the Light University of Bujumbura, Bujumbura, Burundi
[2]Faculty of Economics and Management, CURDES, Bujumbura, Burundi
[3]Associate Professor of Management Sciences at the CAMES University and Member of the Economics and Management Research Laboratory, University of Parakou, Parakou, Benin
[4]Institute of Applied Statistics, University of Burundi, Bujumbura, Burundi
Email: raoulnsengi@yahoo.fr

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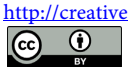

Abstract

This study investigates the determinants of patient satisfaction in Burundi's national reference public hospitals, with a specific focus on healthcare institutions in Bujumbura. The analysis aimed to identify key factors influencing patients' perceptions of care quality. Findings indicate that patients generally expressed satisfaction with various dimensions of service quality, including reliability, responsiveness, assurance, tangibility, and empathy. However, significant variations in satisfaction levels were observed concerning specific indicators. Notably, perceptions of the hospital atmosphere, the individualized attention provided by healthcare staff, the availability of treatment facilities, and staff politeness varied significantly based on patients' length of hospital stay, level of education, and gender (Fisher's exact test, $p < 0.05$). Moreover, 10.8% of respondents expressed dissatisfaction with the need to purchase medications from external pharmacies, highlighting systemic gaps in pharmaceutical service delivery. These findings underscore the need for targeted improvements in patient-centered care, and resource availability within public healthcare institutions.

Subject Areas

Economics

Keywords

Patients' Satisfaction, Health Care, Indicators of Satisfaction, Public Hospitals, Burundi

1. Introduction

Marketing, once focused primarily on tangible goods, has expanded to include

services, especially in vital sectors like healthcare [1]. Health services differ from material goods by their intangibility, variability, and complexity, requiring adapted marketing approaches [2]. As a result, public health institutions have increasingly adopted marketing principles to improve patient care and satisfaction [3] [4].

In Burundi, public hospitals face significant challenges: poor infrastructure, lack of hygiene, broken medical equipment, and overcrowding, all contributing to widespread patient dissatisfaction [5]. Despite government efforts, quality gaps remain, especially in the delivery and organization of services.

Patient satisfaction has emerged as a key performance indicator, reflecting the gap between expected and perceived service quality [6] [7]. It is influenced by multiple dimensions, including reliability, responsiveness, assurance, tangibility, and empathy [8] [9]. Studies show that factors such as hospital reputation, affordability, and patient-doctor interaction strongly shape satisfaction [9]-[11]. Furthermore, total quality management has proven beneficial in improving healthcare efficiency, though often lacking focus on human interactions [12].

In North and Central Africa, research on patient satisfaction remains scarce and fragmented [13]-[15]. Yet, the increasing demands of informed patients and health system reforms make it urgent to understand satisfaction drivers.

This study seeks to statistically analyze the determinants of patient satisfaction in Burundian public hospitals. It is based on two hypotheses:

1) The quality of healthcare services positively influences patient satisfaction.

2) Satisfaction levels vary across public health institutions.

By exploring these dimensions, this research contributes to the improvement of public hospital services through the integration of marketing strategies, with the ultimate goal of enhancing patient well-being and healthcare system performance [3] [16].

2. Objective of the Study

The objective of this study is to assess both overall and specific levels of patient satisfaction in public hospitals and to identify the key determinants influencing these satisfaction levels. Given that the ultimate goal of any healthcare service is to meet the needs and expectations of its users, and that patient perception is a critical dimension in evaluating service quality, it is essential to systematically gather and analyze patients' opinions regarding the care and services they receive. This study adopts a methodological framework to capture and interpret these perceptions through a structured survey of a representative sample of patients within public healthcare institutions.

3. Materials and Methods

3.1. Design and Type of Research

Due to the nature and particularity of the subject of our research on patient satisfaction in the public sector, this study deals with statistical analysis which includes descriptive and inferential analysis. Thus, the analysis focuses on the perception

and degree of patients' satisfaction with the health services obtained which they considered the most important part of the object of the study, in addition to the most important problems they face, and the extent of their desire to participate in the improvement of these services.

3.2. Sample Size

For an infinite target population such as ours, the determination of the sample size is done using the following relationship:

$$n = \frac{z_{\alpha}^{2} \times p(1-p)}{e^{2}} \quad [17]$$

with:

- Z is the confidence level statistic, which is equal to 1.96 when the accepted confidence level is 95%,
- p is the proportion of inpatients and we take $p = 50\%$,
- This is the margin of error that we are prepared to accept. We take 5%.

Taking into account a 10% non-response rate, this gives a sample size of 422.58, or approximately 423 inpatients for public hospitals.

Table 1 summarizes the weight and sample taken from three strata for the public hospitals after interviewing hospital officials about the number of hospital admissions. We assigned a weight to each hospital to determine the sample size to be taken from each.

Table 1. Distribution of samples by hospital.

Public hospitals	Weight	n
Prince Regent Charles	2	141
Military hospital of Kamenge	1.5	106
Prince Louis Rwagasore Clinic	2.5	176
Total	6	423

3.3. Instrument of the Research

To collect inpatients' perceptions health services in public hospitals, a questionnaire was distributed to a sample of 423 patients in three referral hospitals, which is the highest level of clinical care in the hierarchy of care and clinical service which enjoy administrative and financial management autonomy and which are essentially located in the Bujumbura town hall. Based on a list of patients offered by the hospital director on the day of the survey, a total of 423 were divided into 3 categories at the military hospital, CPLR, Prince Regent Charles (Health (standard for the implementation of the PNDS 2019-2023). We proceeded with a sample by the weight of frequentation according to these different hospitals but stratified according to the services in each hospital by using also the sick guards for the patients who cannot answer then a coefficient of weighting will be applied through the answers to discover the degree of satisfaction sought here as underlined by

[17].

The instrument used is the questionnaire, which was programmed in Kobocollect with strict controls to facilitate the auditing and cleaning of data, collected in real-time using smartphones.

The questionnaire is based on the perception of three dimensions of health service quality with 23 questions that reflect key indicators of each of these dimensions. These are reliability, helpfulness, assurance, tangibility, and courtesy. The questions were presented on a satisfaction scale from 0 to 3, representing the degree of dissatisfaction to very high satisfaction (See **Figure 1**).

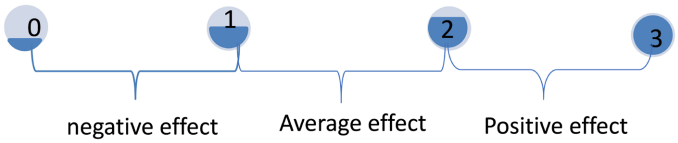

Figure 1. Lickert satisfaction scale.

3.4. Technique Analysis of Data

Data processing and analysis whereas carried out using Excel and Stata 14 software. After a descriptive analysis of each of the indicators, to determine the impact of the health care service on patient satisfaction, the approach used consists of calculating the arithmetic mean of each dimension and comparing it to the following decision criterion:

[0 - 0.99]: Quality of care service hurts patient satisfaction.

[1 - 1.99]: Quality of care service has a moderate effect on patient satisfaction.

[2 - 3]: Quality of care service has a positive effect on patient satisfaction.

This analysis will be complemented by the Chi-square or Fisher's exact test to determine satisfaction according to different patient groups including gender, age, education level, length of time in hospital (short, medium, long), patient status (inpatient, outpatient/ambulant) and possession of health insurance or free care (yes, no).

4. Results

Patients from three major public hospitals in Bujumbura were interviewed. 396 patients were interviewed, resulting in a non-response rate of 6.38% for our sample. As can be seen from the graph opposite, the Prince Louis Rwagasore clinic was the most represented with 176 patients, followed by the Prince Regent Charles Hospital, and in last place came the Kamenge military hospital with 94 patients (See **Figure 2**).

We met patients in four main departments in these hospitals, namely the surgical department with 34.62% of the patients interviewed, the maternity department with 23.85%, pediatrics with 20.51%, and internal medicine with 13.33%. The other departments were represented by 7.69%. Most of the patients who participated in the study were female, with 57.32% of them represented, compared to

42.68% of male patients. This superior representation of female patients is mainly because it is the latter who in most cases play the role of the sick guard when children or even their husbands are hospitalized. Most of the respondents are between 25 and 40 years old, followed by those under 25 years old, as can be seen in Figure 3.

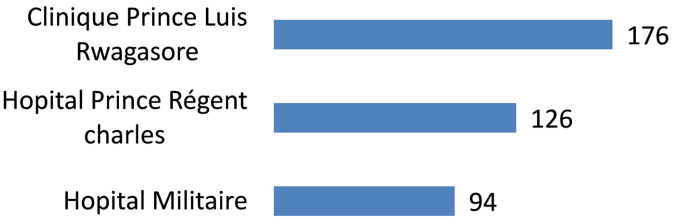

Figure 2. Distribution of respondents by hospital.

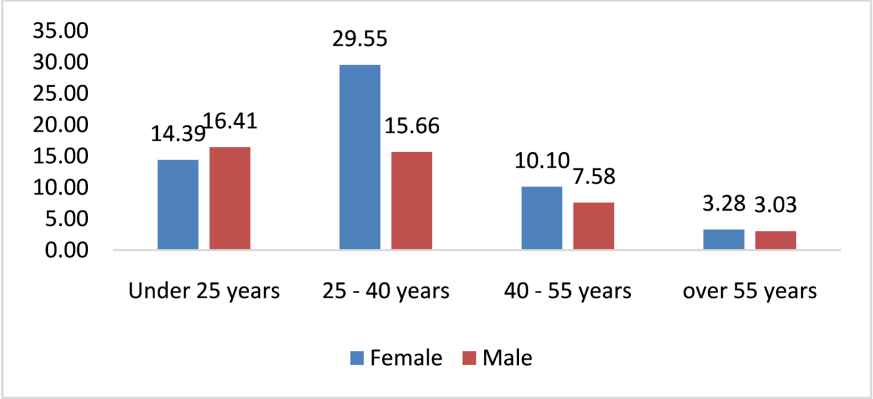

Figure 3. Distribution of respodents by gender and age.

Regarding educational level, the results show that 33.33% of the respondents have not studied; 36.36% have done basic education (from 1er to 9 years), 23.48% have post-basic education and 6.82% have university level.

4.1. Reliability

In this section, we will analyze patients' perceptions of the quality of health services provided by the public hospital. The following hypothesis will be tested: The quality of health services provided by the public hospital has a positive impact on patient satisfaction, in terms of reliability.

The reliability dimension assesses the quality of health services provided in public hospitals. In this section, therefore, we propose to study this dimension. We need to assess the hypothesis that "the quality of health services provided by the public hospital has a positive impact on patient satisfaction, in terms of reliability".

4.1.1. Home of the Administrative Service

The reception in public hospitals is generally well appreciated, as can be seen in the graph above, with 92.68% (38.89% very satisfied and 53.79% satisfied) satisfied

with the reception of the administrative service. It can be seen that most (53.79%) of the respondents mentioned being satisfied with the reception (See **Figure 4**). But it was mentioned that the orientation of patients on arrival is not observed. The Fisher exact statistic shows that at the 5% threshold, there is a statistically significant difference between satisfaction with the reception of the administrative service and the level of education. The same is true for the period spent in the hospital, but also according to gender, where satisfaction differs significantly (p-value < 0.05).

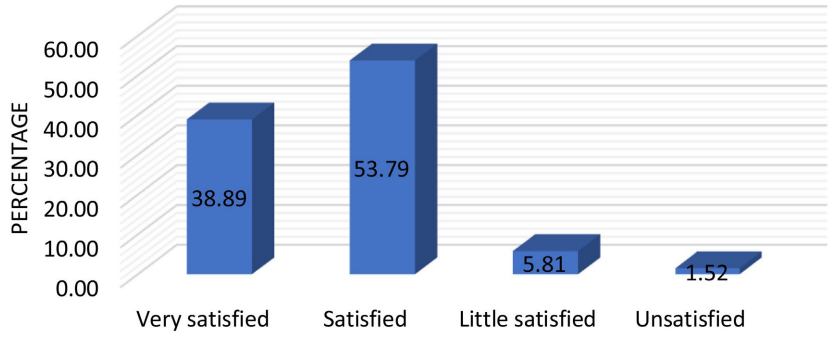

Figure 4. Respondents' perception of the administrative reception.

4.1.2. Accuracy of Diagnostic

As can be seen from the graph above, the accuracy of diagnosis is highly appreciated. Indeed, 93.29% of the patients interviewed are satisfied with the accuracy of diagnosis in public hospitals. It can also be seen that only 6.82% are dissatisfied. Using the Fisher exact test, we find that there is a statistically significant difference at the 5% level between the satisfaction scores for the accuracy of the diagnosis of patients according to their level of education. The same is true for the gender of the patient. Indeed, women are more likely to be satisfied than men are (See **Figure 5**).

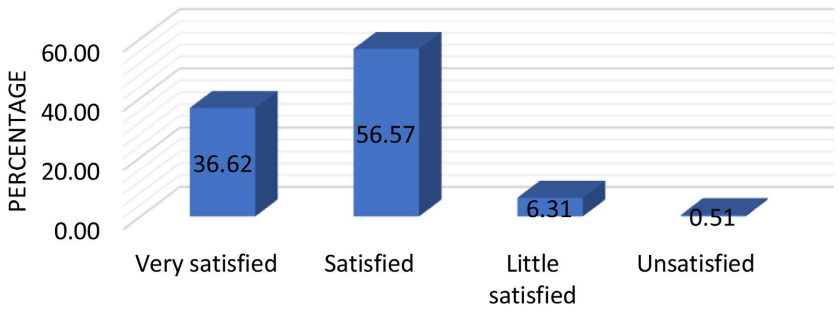

Figure 5. Patient satisfaction with diagnostic accuracy.

4.1.3. Respect for the Hours of Care and Doctor's Appointments

Respect for the timetable for the provision of care is appreciated by 92.43% of patients who say they are satisfied. Indeed, in the public hospitals visited, patients

state that there has been a strong improvement in respecting the timing of care for inpatients. Nevertheless, keeping appointments for outpatient consultations remains problematic. This is especially the case in the laboratory department. The Fisher exact test shows that satisfaction with the timeliness of care varies according to the time spent in the hospital (p-value = 001) (See Figure 6).

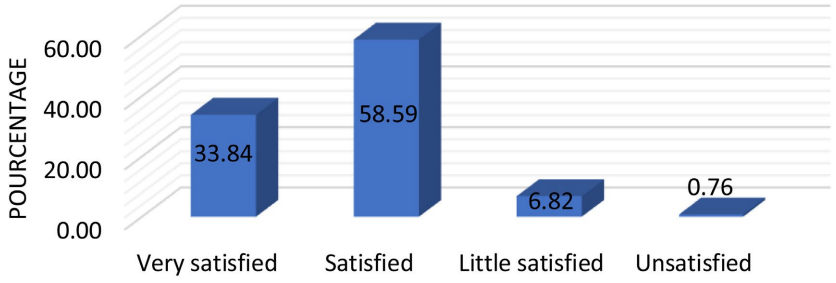

Figure 6. Distribution of satisfaction with the timeliness of care.

4.1.4. Reliability of Care Services

The majority of patients are satisfied with the reliability of the care services. The graph above shows that 93.94% of respondents are satisfied with the reliability of the services, of which 34.85% are very satisfied. This satisfaction varies according to the period spent in the hospitals. The Fisher exact test shows that satisfaction with the reliability of care varies according to the period of hospitalization and the sex of the patient (p-value < 0.05) (See Figure 7).

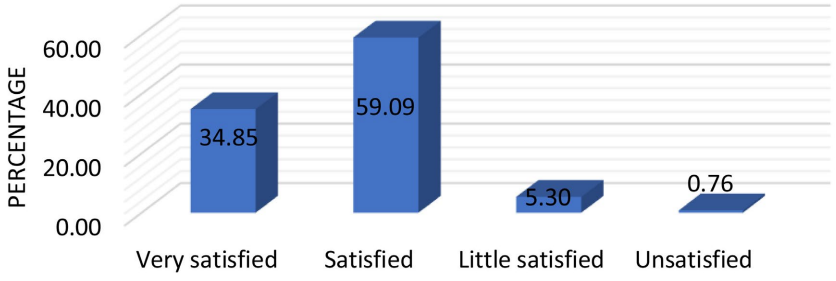

Figure 7. Distribution of perceived reliability of healthcare services.

4.1.5. Level of Reliability Services

The above indicators assess the reliability dimension, which determines the ability to perform the promised service confidently and accurately. Table 2 summarizes the results of the analysis of the effect of these indicators on the reliability dimension.

As can be seen from Table 2, the four indicators of the reliability dimension have a positive effect on patient satisfaction. Also, overall, the reliability dimension has a positive influence. We therefore conclude our hypothesis that the quality of health services provided by the public hospital has a positive impact on patient satisfaction, in terms of reliability.

Table 2. Assessment of service quality through the "Reliability" dimension.

Areas of assessment	Average	Standard deviation	Effect on satisfaction
The reception of the administrative service	2.3	0.65	Positive effect
Accuracy of diagnosis	2.29	0.60	Positive effect
Respecting the timetable for the provision of care and doctor's appointments	2.26	0.61	Positive effect
Reliability of care services	2.28	0.59	Positive effect
Reliability dimension	2.2825	0.61	Positive effect

4.2. Helpfulness (Speed)

Helpfulness is the willingness of healthcare staff to interact with patients and provide prompt service. In this section, we present the analysis of four indicators that encompass the dimension of helpfulness. The following hypothesis can be stated for verification: "The quality of health services in public hospitals has a positive impact on patient satisfaction in terms of helpfulness".

4.2.1. Waiting Times for Care

The graph above shows the perceived satisfaction of patients in public hospitals. It can be seen that 90.41% are satisfied with the waiting time for care. However, most of them deplore the waiting time in outpatient clinics, although they understand that in most cases this is due to the large number of patients in these hospitals. The same applies to the waiting time for beds and rooms for new patients. The waiting time is also deplored in the laboratory departments where patients spend a long time waiting for results (See **Figure 8**).

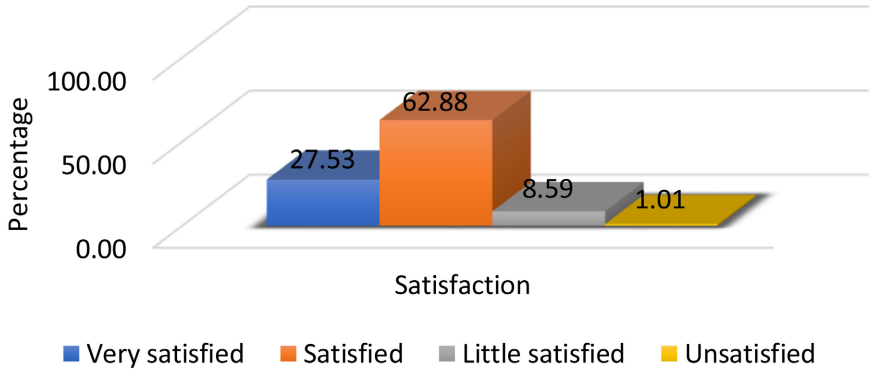

Figure 8. Distribution of satisfaction with waiting time for care in public hospitals.

We note that satisfaction with waiting time varies significantly according to period and gender, as the Fisher exact test shows that there is a statistically significant relationship between satisfaction with waiting time and gender (p-value < 0.05). Patients who spent a medium and long time in public hospitals are less likely to be satisfied with the waiting time for care than those who spent a short time there.

4.2.2. Response to Complaints and Requests

The feedback given to complaints and requests in hospitals is globally satisfactory. As can be seen from the graph above, 90.66% are satisfied with the response to complaints and requests. They mainly appreciate the fact that doctors give importance to their complaints when patients have had misunderstandings with some of the nurses. This satisfaction varies significantly according to period and gender (F-exact, p-value < 0.05) (See Figure 9).

Figure 9. Perceived satisfaction with responses to complaints in public hospitals.

4.2.3. Ability of Staff to Deliver Services

Patients are generally satisfied with the ability of public hospital staff. As can be seen from the graph above, 88.89% of the patients stated that they were satisfied with the staff's ability, of which 27.02% stated that they were very satisfied. However, 11.11% of the patients interviewed said they were not satisfied with the ability of the staff (See Figure 10).

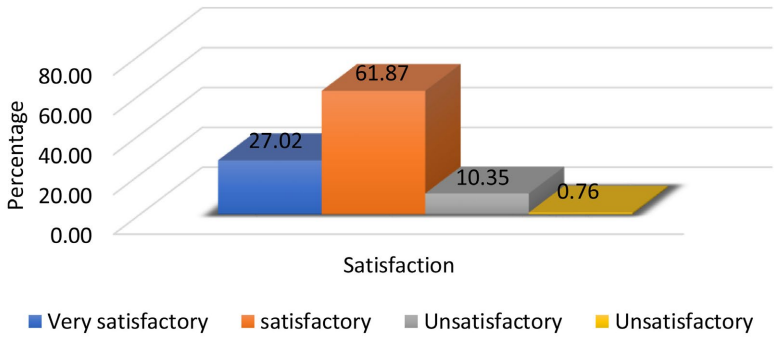

Figure 10. Distribution of satisfaction with staff fitness in public hospitals.

Indeed, a significant number of patients mainly deplore the behavior of some nurses who do not show a collaborative spirit with patients and have a coarse aptitude, but they claim that there is an overall improvement in the aptitude of most of the nursing staff compared to the past years. This satisfaction remains broadly the same across the different patient groups (F-exact, p-value < 0.05).

4.2.4. Simplicity of Care Procedures

The majority of respondents are satisfied with the care process in public hospitals.

The graph above shows that 61.87% of the patients say they are satisfied with the care process and 25.76% say they are very satisfied. However, 12.37% of the patients were dissatisfied with these procedures. The Fisher exact test at the 5% level shows that there is no significant difference in satisfaction with the care procedures between the different patient groups (See Figure 11).

Figure 11. Distribution of satisfaction with the simplicity of care procedures in public hospitals.

4.2.5. Level of Helpfulness

Table 3 summarizes the effect of four indicators of the helpfulness dimension (Timeliness). These check the satisfaction of the willingness to interact with patients for the health care staff.

Table 3. Summary of the assessment of service quality in public hospitals via the serviceability dimension.

	Average	Standard deviation	Effect on satisfaction
Waiting times for care	2.17	0.61	Positive effect
Responding to your complaints and requests	2.19	0.61	Positive effect
The ability of staff to deliver the services	2.15	0.62	Positive effect
The simplicity of care procedures	2.12	0.63	Positive effect
Serviceability dimension	2.1575	0.6175	Positive effect

It can be seen from this table that all indicators of helpfulness have a positive effect on patient satisfaction. We conclude that the dimension of helpfulness has a positive influence on patient satisfaction. This leads us to affirm the initial hypothesis on this dimension. The quality of health services provided by the public hospital has a positive impact on patient satisfaction, in terms of responsiveness.

4.3. Insurance

In this dimension, insurance is about the assurance, the security that the patient has of the health care services received in the health care setting. In this part, we will start from four indicators to elucidate the effect of assurance on patient satisfaction to evaluate the following hypothesis: "The quality of health services provided by the public hospital has a positive impact on patient satisfaction, in terms of assurance (safety)".

4.3.1. Competence of the Medical Profession

A large proportion of patients say that it is difficult for them to judge the competence of the medical staff, but they are generally satisfied with their perception of the medical staff. This can be seen in the graph above, where 94.19% say they are satisfied with the competence of the medical staff (See Figure 12).

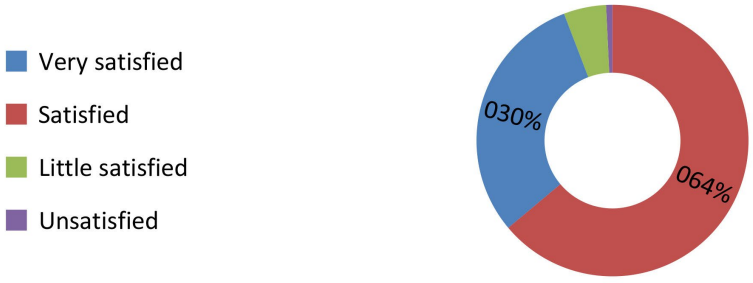

Figure 12. Distribution of satisfaction with the competence of the medical staff in public hospitals.

It is also found that this view varies significantly between different patient groups, but also changes for different hospitals (F-exact, p-value < 0.05).

4.3.2. Image and Place of the Institution in Society

The image of a hospital defines the trust that a patient can place in the services he/she can receive there. As can be seen from the graph above, the image of public hospitals is mainly satisfactory for 67.42% of the patients interviewed and very satisfactory for 25.76%. They state that the bad reputation of the old hospitals has changed a lot as there are important improvements in the organization of these hospitals. The image of the institution varies according to certain groups of patients. Using the Fisher exact test (p-value < 0.05), we find that this satisfaction differs significantly by gender and from one hospital to another (See Figure 13).

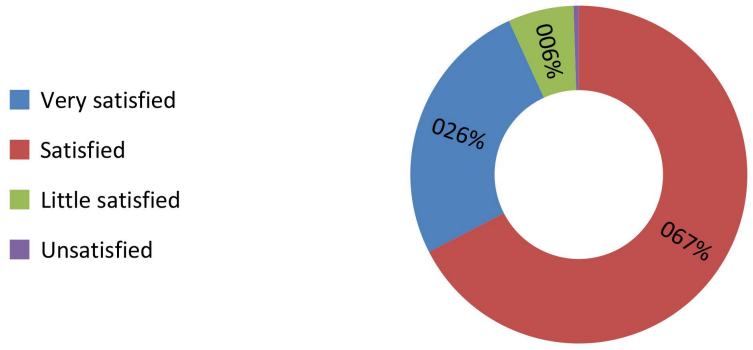

Figure 13. Distribution of satisfaction with the image of public hospitals in society.

4.3.3. Confidentiality of Information

The confidentiality of patient information is satisfactory in the public hospital environment. Indeed, 94.45% of patients are satisfied with the way their information is kept confidential (See Figure 14).

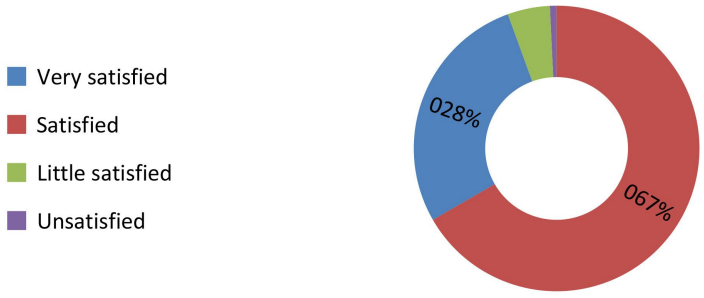

Figure 14. Satisfaction of confidentiality of information in public hospitals.

When assessing the perception of satisfaction with confidentiality with the different groups of patients, it is found by Fisher's exact test at the 5% level that this satisfaction varies according to the period and gender. Women are more likely to be satisfied than men. Patients who have spent a long time in these hospitals are less likely to be satisfied with confidentiality than those who have spent a short time there.

4.3.4. Communication with Cares

In general, communication with careers is appreciated. The graph above shows that 92.68% (64.14% and 28.54%) of the patients are satisfied with the communication of the care during the care. We can see that only 7.32% said they were not satisfied with the communication. They mainly deplore the case of some nurses who do not grant a collaborative spirit (See **Figure 15**).

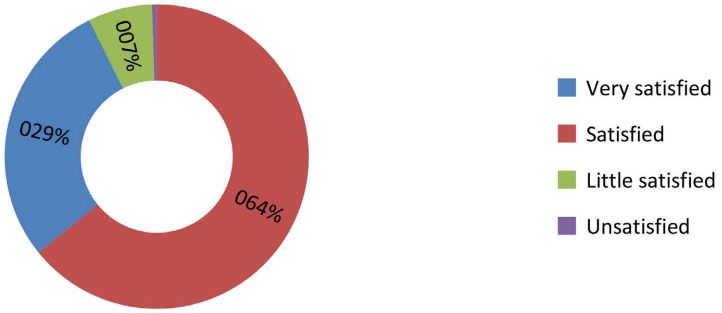

Figure 15. Distribution of satisfaction with communication with care in public hospitals.

It is noted that this satisfaction varies significantly according to the period of hospitalization as confirmed by the Fisher exact test (p-value < 0.05). Patients who have spent a long time in the hospital are less likely to be satisfied with communication with care.

4.3.5. Level of Insurance Services

The analysis of the indicators of the assurance dimension assessed in the above paragraphs shows the sense of security that patients have in public hospitals. **Table 4** summarizes the impact of satisfaction on patient assurance in the public hospital setting.

Table 4. Summary of the assessment of service quality via the Assurance dimension.

	Average	Standard deviation	Effect on satisfaction
The competence of the medical profession	2.24	0.57	Positive effect
The image and place of the institution in society	2.18	0.55	Positive effect
The confidentiality of your information	2.21	0.56	Positive effect
Communication with cares	2.21	0.58	Positive effect
Dimension insurance	2.21	0.565	Positive effect

All indicators of patient assurance in the hospital setting show that each of them has a positive effect on patient satisfaction. Each indicator is found to vary between 2.24 and 2.24, which proves the presence of a positive effect of the indicators. It is therefore concluded that insurance has a positive effect on satisfaction which leads us to confirm our hypothesis.

4.4. Tangibility

Tangibility includes all tangible things such as equipment, facilities, and equipment. It was found that in public hospitals the catering service is not provided by the hospitals. As a result, the indicator of meal satisfaction has been removed. It is therefore proposed to assess in this section the dimension of tangibility to study the following hypothesis: "The quality of health services provided by the public hospital has a positive impact on patient satisfaction, in terms of tangibility".

4.4.1. Comfort of the Rooms

The graph above shows the satisfaction of patients with the comfort of rooms (cleanliness of the premises, toilets and linen, heating, etc.) in public hospitals. It can be seen that 85.93% (64.45% satisfied and 21.48% very satisfied) of patients are satisfied with the comfort of their rooms. However, 14.07% said they were dissatisfied. In some hospitals, the main complaint was the poor cleanliness of the toilets. The study of satisfaction with comfort, using the Fisher exact test at the 5% threshold, shows that there is no significant difference between this satisfaction with the different patient groups (See Figure 16).

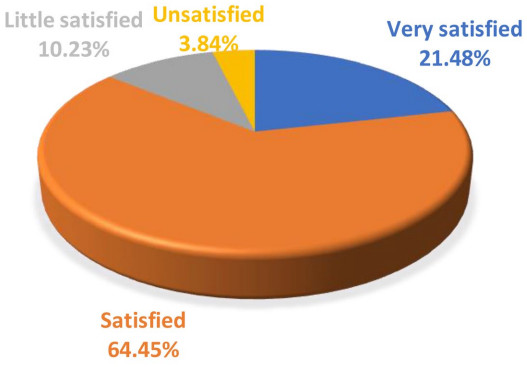

Figure 16. Distribution of satisfaction with room comfort in public hospitals.

4.4.2. General Atmosphere of the Service (Calm, Security, ...)

The atmosphere is generally appreciated by patients. Indeed, most patients (63.13%) say they are satisfied with the general atmosphere in public hospitals and 25.25% are very satisfied. However, 11.62% were dissatisfied with the atmosphere in these hospitals. This satisfaction differs significantly depending on the length of time the patient has been in hospital. Patients who have spent a long time in the hospital are likely to be dissatisfied with the general atmosphere of the hospital (See Figure 17).

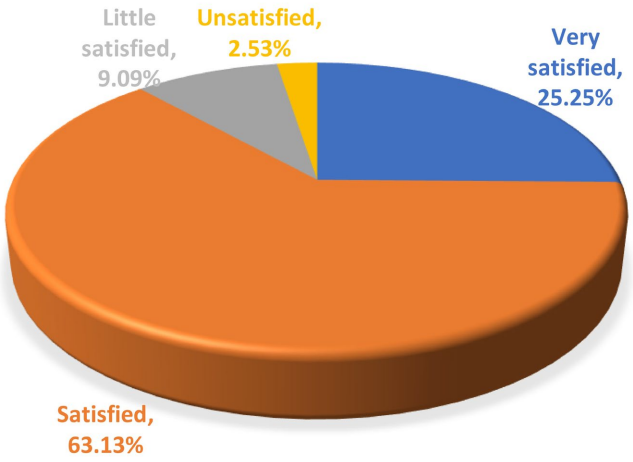

Figure 17. Distribution of satisfaction with the general atmosphere in public hospitals.

4.4.3. Availability of Equipment and Medicines

89.2% of the patients interviewed are satisfied with the availability of equipment in public hospitals. Most of them are satisfied with the fact that they do not have to resort to external laboratories for analyses. However, as 10.8% of the patients were dissatisfied, the main complaint was the use of external pharmacies for the purchase of medicines (See Figure 18).

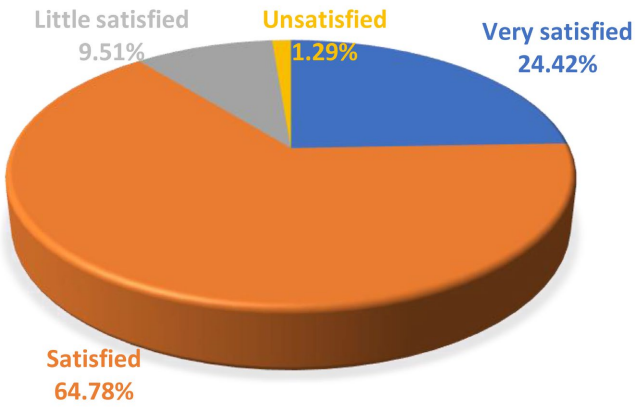

Figure 18. Distribution of satisfaction with the availability of medical equipment in public hospitals.

This satisfaction varies according to certain groups of patients. It was found to

differ significantly (p-value < 0.05) according to the patient's level of education and the length of hospitalization.

4.4.4. How to Visit

The visiting arrangements are highly appreciated in public hospitals. As can be seen from the graph above, 92.43% of patients are satisfied with the organization of visiting programs. It is noted that this satisfaction varies from one hospital to another and with the length of the patient's stay (p-value < 0.05) (See Figure 19).

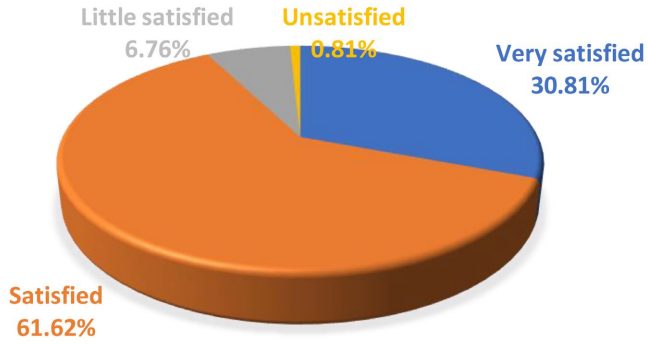

Figure 19. Breakdown of satisfaction with visiting arrangements.

4.4.5. Level of the Tangibility of Services

In this section, we have just presented the four indicators relating to the dimension of tangibility. Table 5 summarizes the analysis of the effect of each of the indicators on satisfaction.

Table 5. Summary of quality-of-service assessment via the Tangibility dimension.

	Average	Standard deviation	Effect on satisfaction
Room comfort	2.04	0.69	Positive effect
The general atmosphere of the service	2.11	0.66	Positive effect
Availability of equipment and medicines	2.12	0.61	Positive effect
How to visit	2.21	0.62	Positive effect
Dimension tangibility	**2.12**	**0.645**	**Positive effect**

The results in Table 5 show that each of the four-dimensional indicators of the tangibility dimension is in the positive effect range. This shows that the tangibility dimension positively affects patient satisfaction in the public hospital setting.

4.5. Empathy (Courtesy)

The behavior of the medical staff has a significant influence on the trust that the patient can have in the care services offered in a hospital. In this section, we propose to evaluate the dimension of courtesy, which consists of the evaluation of the attitude of the staff toward the patients. The hypothesis is that "the quality of health services provided by the private hospital has a positive impact on patient

satisfaction in terms of courtesy (empathy)".

4.5.1. Politeness and Friendliness of the Staff

The results of the graph show that most patients are satisfied with the politeness and friendliness of the staff in the hospital. It can be seen that 66.41% of the patients say they are satisfied and 26.52% can say they are very satisfied. Only 7.07% of the patients stated that they were not satisfied with the politeness and friendliness of some staff members. The Fisher exact test (p-value < 0.05) shows that satisfaction with politeness varies significantly according to the patient's level of education, the period of hospitalization, and the patient's sex. It is also found that the variation in satisfaction by the hospital is significant (See Figure 20).

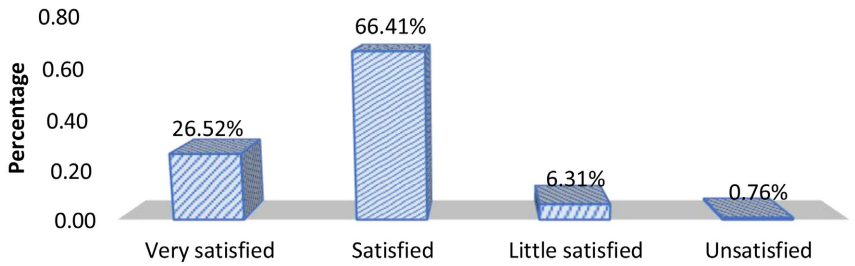

Figure 20. Distribution of satisfaction with the politeness of public hospital staff.

4.5.2. Availability and Attentiveness of the Staff

It can be seen from the above graph that a large proportion of the patients interviewed in public hospitals, including 64.65% of respondents, said they were satisfied with the availability and attentiveness of the staff. It can also be seen that 28.28% of respondents were very satisfied (See Figure 21). However, 7.07% said they were not satisfied with the availability of the medical staff. The analysis with the Fisher exact test reveals that this satisfaction varies significantly according to the length of the patient's stay in the hospital, but also according to gender, where women are more likely to be satisfied with the availability and attentiveness of the staff than male patients do.

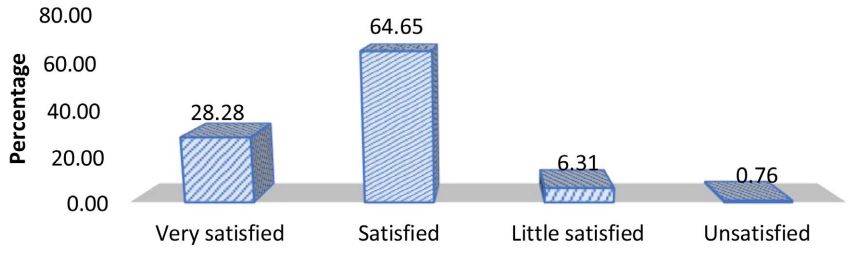

Figure 21. Distribution of satisfaction with staff availability.

4.5.3. Respect for Privacy

Overall, privacy is respected in public hospitals. As can be seen from the graph above, 93.43% of patients say they are satisfied with the way their privacy is respected, while 6.57% find it unsatisfactory (See Figure 22).

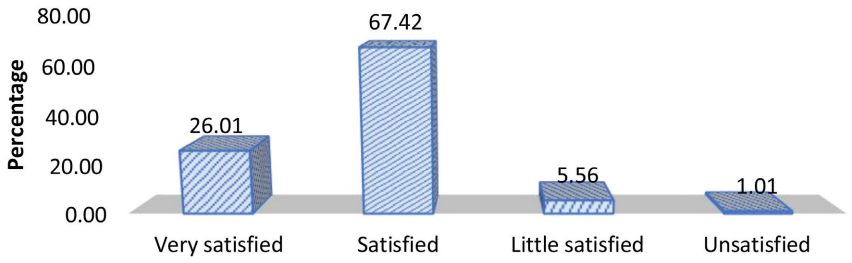

Figure 22. Distribution of satisfaction with privacy in public hospitals.

This satisfaction varies significantly between certain groups of patients. The Fisher exact test shows that the variation is significant according to the sex of the patient; the length of time spent in the hospital also varies from one hospital to another.

4.5.4. Individualized Interest and Attention of the Caregiver to Each Patient

The individualized interest that the career can give to each patient contributes enormously to the patient's good recovery and even to his or her satisfaction. The individualized attention given to each patient was found to be satisfactory. Indeed, 90.91% of the patients interviewed stated that they were satisfied with the interest given by the career to each patient, of which 26.77% were very satisfied. However, 9.09% of the patients stated that they were not satisfied (See **Figure 23**).

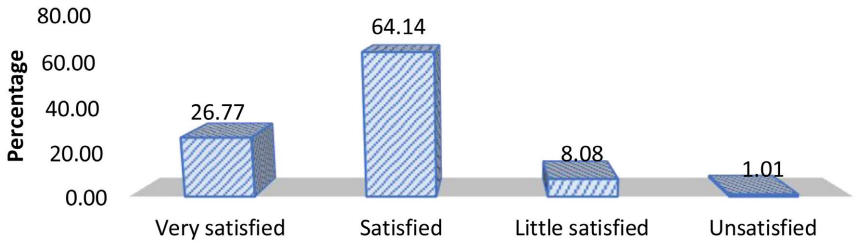

Figure 23. Distribution of the satisfaction of the attention to each patient.

This level of satisfaction differs from one patient to another. Indeed, it is noted that it varies significantly according to the length of hospitalization of the patient, and the gender of the latter (F-exact, p-value < 0.05). It is also noted that this difference varies from one hospital to another.

4.5.5. Level of Empathies

The previous paragraphs on the courtesy dimension show that for all indicators there is a feeling of patient satisfaction. **Table 6** summarizes the analysis of the effect of each of these indicators on patient satisfaction.

The results of **Table 6** show that each of the four indicators of courtesy in the hospital environment falls within the positive effect range. The same is true for the courtesy dimension. We conclude from these results that courtesy has a positive effect on patient satisfaction.

Table 6. Summary of the evaluation of service quality in hospitals via the courtesy dimension.

	Average	Standard deviation	Effect on satisfaction
Politeness and friendliness of the staff	2.19	0.57	Positive effect
The availability and attentiveness of the staff	2.2	0.58	Positive effect
Respect for your privacy	2.18	0.57	Positive effect
Individualized interest and attention of the caregiver to each patient	2.17	0.6	Positive effect
Dimension empathy	2.185	0.58	Positive effect

5. Result Discussion

This study aimed to identify the determinants of patient satisfaction in Burundi's national reference public hospitals, with particular emphasis on demographic, institutional, and service-related variables. The findings offer important insights into how various factors shape patients' perceptions of healthcare quality.

The analysis reveals that the patient sample comes from four public health facilities, with a predominance of women over men. This gender imbalance aligns with the findings of [18], who also observed a higher representation of female patients in their study. Most respondents were aged between 25 and 40, with a limited educational attainment, corroborating observations by both [18] [19] regarding the socio-demographic characteristics of public hospital patients in similar contexts.

In terms of satisfaction dimensions, patients generally expressed high appreciation for the hospital reception services. This result contrasts with [20], who reported lower satisfaction levels in this area. Similarly, [18] found that public sector patients were only moderately satisfied with reception services, reporting a satisfaction rate of 72.5%. The divergence may reflect contextual differences or recent improvements in hospital reception protocols in Burundi.

The Fisher exact test indicates statistically significant differences in satisfaction based on education level and gender. Notably, women reported higher satisfaction levels than men, which may point to gendered experiences in healthcare access and communication. This interpretation is consistent with [18] who identified communication gaps as a primary concern in public healthcare settings.

Concerning diagnostic accuracy, patients generally expressed confidence in the competence of medical professionals, confirming earlier findings by [21]. However, this result contrasts with [20], who noted dissatisfaction due to complications following medical interventions. This contradiction may suggest variability in provider performance across institutions or inconsistent care standards. Furthermore, satisfaction with diagnosis also varied significantly according to patient gender and education level.

Satisfaction with the timeliness of care was high overall, though challenges remain in outpatient scheduling. Differences in satisfaction with timeliness and re-

liability were influenced by both hospitalization duration and patient gender, in agreement with findings by [20]. Similarly, satisfaction with waiting times varied significantly by gender and length of stay. Patients hospitalized for longer periods tended to report lower satisfaction, confirming observations by [18], who identified delays in outpatient consultations and laboratory services as persistent issues.

The management of patient complaints and requests received generally favorable ratings, although the results varied significantly by gender and length of hospitalization (Fisher exact test, $p < 0.05$). This variation is echoed in [22], where patient-staff relationships were positively evaluated overall, yet nuanced by gender-specific experiences.

A substantial majority of patients (94.19%) expressed satisfaction with the competence of medical staff. However, this satisfaction was not uniformly distributed across all groups and hospitals. In particular, some patients denounced uncooperative or discourteous behavior by nurses, with this dissatisfaction being statistically significant (Fisher exact test, $p < 0.05$). These negative perceptions stand in contrast to the findings of [23], who reported generally positive staff attitudes.

Communication regarding patient information and confidentiality was well-rated by over 90% of respondents, reinforcing findings by [18] [24]. Nonetheless, a minority (7.32%) expressed concern over confidentiality practices, particularly among patients hospitalized for extended periods or those of a specific gender. These findings underscore ongoing concerns about trust and transparency in public hospitals. Moreover, variations in satisfaction across institutions and gender also reflect the broader dissatisfaction with hospitalization costs, as highlighted by [21].

Finally, regarding to comfort and hygiene, the Fisher exact test shows no significant difference in satisfaction between different patient groups, a finding consistent with [18] [20] [25]. However, several patients expressed concerns over cleanliness in hospital toilets and the poor condition of beds and mattresses, observations consistent with [22]. These issues detract from overall patient comfort and highlight an area in urgent need of infrastructural improvement.

6. Conclusion and Recommendations

This study investigated the determinants of patient satisfaction in Burundi's national reference public hospitals, with a specific focus on public hospitals in Bujumbura. The findings reveal that, while a majority of patients express general satisfaction with their hospital experience, satisfaction levels vary significantly depending on patient characteristics and institutional factors.

Notably, satisfaction with the hospital environment declines with longer stays, indicating a deterioration in perceived comfort or quality over time. While most patients are satisfied with treatment facilities, 10.8% express dissatisfaction, particularly due to the reliance on external pharmacies to obtain medication, an issue that disproportionately affects patients with lower education levels and those with extended hospitalizations.

Staff politeness is appreciated overall, yet perceptions vary based on patient gender, education level, and hospitalization duration. Similarly, although patients value the attentiveness and availability of staff, these perceptions also differ significantly by gender and length of stay—women generally reporting higher satisfaction. Privacy and individualized attention are also highly rated (over 90%), but variations persist across hospitals and demographic categories.

These disparities reveal **systemic issues** that, if addressed, could significantly enhance patient satisfaction across all public hospitals.

Actionable Strategies for Systemic Improvement

1) Strengthen Internal Pharmaceutical Supply Chains

- **Problem:** Patients are forced to buy medications from external pharmacies.
- **Strategy:** Improve inventory management and public procurement systems to ensure essential medications are available within hospital facilities.
- **Systemic Fix:** Implement centralized electronic stock management systems at the Ministry of Health level.

2) Enhance Hospital Infrastructure and Comfort

- **Problem:** Longer stays are associated with increased dissatisfaction with the hospital environment.
- **Strategy:** Upgrade ward facilities to include better bedding, ventilation, and sanitation.
- **Systemic Fix:** Establish a national facility maintenance fund and infrastructure standards with regular audits.

3) Institutionalize Continuous Staff Training in Patient Relations

- **Problem:** Perceptions of politeness and attentiveness vary with gender and patient education.
- **Strategy:** Provide mandatory training in communication and gender-sensitive care to all hospital staff.
- **Systemic Fix:** Make patient-centered care metrics part of performance evaluations and national accreditation criteria.

4) Standardize and Monitor Service Quality Across Hospitals

- **Problem:** Patient satisfaction varies significantly between hospitals.
- **Strategy:** Develop a national quality framework with standard service delivery protocols.
- **Systemic Fix:** Create a centralized health service quality oversight body under the Ministry of Health to conduct regular assessments and publish hospital scorecards.

5) Improve Patient Feedback Mechanisms

- **Problem:** Lack of structured feedback channels hinders real-time improvements.
- **Strategy:** Introduce anonymous patient satisfaction surveys and complaint management systems.
- **Systemic Fix:** Institutionalize a national patient satisfaction index, linked to hospital funding or managerial incentives.

6) Tailor Services to Patient Demographics

- **Problem:** Gender and education level influence satisfaction perceptions.
- **Strategy:** Develop more inclusive, patient-tailored communication strategies to address diverse expectations.
- **Systemic Fix:** Include demographic-sensitive policy guidelines in the national patient care charter.

Conflicts of Interest

The authors declare no conflicts of interest.

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