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Patient Satisfaction In Dental Public Healthcare Centres In Mauritius

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Abstract

Aims and objectives: This study assessed the degree of patient satisfaction among the clinical and non-clinical dental services offered at dental centers in the public healthcare centers in Mauritius. Factors associated with the degree of overall satisfaction were investigated.

Methods: A random sample of 294 participants were recruited for this study. Each participant filled out a validated questionnaire Likert-type scale. SPSS IBM Statistics 26 and Microsoft Excel 2019 were used. The inferential analysis included the correlation analysis of research constructs, multiple regression analysis to test the main research hypotheses, and cross-sectional study.

Results: The respondents were generally satisfied, whereby they exhibited the highest satisfaction with the dentists' performance, followed by the dental assistants' services, and the lowest satisfaction with the center's physical appearance and accessibility. The coefficient of determination ($R2$) was 57.8 %. Regression coefficients show that *Satisfaction with Dentists' Performance* (β = .464, t = 7.482, p < .001) and *Satisfaction with Non-Clinical Dental Services* (β = .299, t = 5.242, p < .001) impacted significantly and positively on *Overall Satisfaction* at the 1% level. With a β-coefficient of higher magnitude (.464), *Satisfaction with Dentists' Performance* had a more significant impact on *Overall Satisfaction* for patients attending public health institutions. However, *Satisfaction with Dental Assistants* (β = .074, t = 1.100, p = .272) did not significantly impact *Overall Satisfaction* at the 5% level. Cross-sectional analysis revealed that *Overall Satisfaction* was only significantly associated with *the type of institution* (t = 2.171, p = 0.030) at the 5% level. No significant association was found in gender, age, and education level with patient satisfaction.

Conclusions: Patients attending specialized public institutions were more satisfied than their counterparts attending general public institutions. Hence, meeting patient expectations by taking time to understand and address their needs is associated with higher satisfaction.

Keywords: Patient satisfaction, dental, Mauritius

Introduction

Patients' Satisfaction and perception play a crucial role in assessing the quality of dental care provided in public dental healthcare centers. This may include patients' educational background, lifestyle, medical experience, and patients' expectations **[1]**. Decision-makers need to assess the degree of patients' Satisfaction with the provision of dental services in public dental healthcare centers so that quality can be improved and there is effective and efficient delivery of dental services to patients.

Satisfaction feedback from patients (including their perceptions and expectations) on the services they receive is essential for continuously enhancing and improving the delivery of dental healthcare services. It is necessary to effectively address patients' concerns in an era of sound clinical governance and the provision of high-quality oral health care **[2]**. Patient satisfaction in the dentistry industry can assist in identifying the strengths and weaknesses features in dental centers and, as a result, help elevate the quality of service and better future planning **[3]**.

Information gathered and analysed from such dental satisfaction surveys will help in identifying strengths and weaknesses in dental health care centers, taking corrective measures to meet patients; expectations, and will be beneficial in future planning, especially in Mauritius, which is a small island state working towards Universal Health Coverage(UHC).

Mauritius is a small island with 1.3 million inhabitants and is part of the sub-Saharan African Region. It is situated 2000km off the southeast coast of Africa. The country has an area of 2040 square kilometers and an exclusive economic zone (sea area of 2 million 300,000 km).

The healthcare system of Mauritius is well-developed compared to other countries in the Region. Public health is free and covers 73 % of the population's healthcare needs. The private sector caters to the remaining 27 %. In 2017, the Mauritius UHC Service Coverage index was 65 %. The monitoring Global Report 2021**[4]** places Mauritius third in the Region, placing it well above the Region's average (UHC Service Coverage Index), which stands at 42 %.

Mauritius's government developed a "National Action Plan for Oral Health (2022-2027) in May 2022, providing a multidirectional approach to improving the Oral Health status of the population.

Patients' satisfaction surveys done on a regular service will provide valuable insights to improve the oral health of people, especially in public dental healthcare centers in Mauritius.

In light of the above, this study has been conducted to determine the degree of patient satisfaction in Mauritian public dental healthcare centers. Data was collected through a survey to understand better the factors associated with Mauritian patient satisfaction in public dental healthcare centers nationwide. The different dimensions of patient satisfaction in general dental health care centers were then evaluated.

Aim and Objectives

This study aims to study patient satisfaction in dental public healthcare centers in Mauritius.

The objectives of the study are:

1. To measure the degree of patient satisfaction among the clinical dental services offered at dental centers in the public healthcare centers in Mauritius.
2. To measure the degree of patient satisfaction among the non-clinical dental services offered at dental centers in the public healthcare centers in Mauritius.
3. Compare the degree of patient satisfaction among the clinical and non-clinical dental services offered at dental centers in the public healthcare centers in Mauritius.
4. To explore the factors associated with the degree of overall Satisfaction.

Materials and Methodology

A random sample of 294 participants from public dental Healthcare centers was considered for this study from November 22 to December 22. A validated predesigned questionnaire (See appendix) with a standard five-point Likert-type scale was used. The range was used from; strongly satisfied (5) to strongly dissatisfied (1). The participants completed a self-administered questionnaire, which consisted of four research constructs:

1. The clinical dental services construct, which focused on the dentist's performance, included inquiries about the accessibility of dentists as well as questions about the dentist's communication abilities, which were shown by their ability to attend to patients and give them proper explanations before and after treatment.
2. Questions on the accessibility of dental assistants and their responsiveness to patients' demands made up the clinical dental services construct about the dental assistant domain.
3. There were three components to the non-clinical services construct:

Part 1: The availability of dental care was assessed, including the ease of securing convenient appointment times, appointment wait times, and the time spent waiting before seeing the dentist.

Part 2: The adequacy of the interior design and the seat availability in the waiting room were considered when evaluating the reception's physical appearance.

Part 3: To assess the receptionists' performance, questions were asked on how effectively patients are welcomed, how simple it is to get suitable days and times for appointments, and how quickly and accurately data is entered.

4. The questionnaire also asked about the patient's general Satisfaction with the treatment outcomes, the speed with which they were seen, and the infection-control and sterilizing procedures. Gender, age, and educational level were sociodemographic factors that were also taken into account.

Research protocol

1. All patients who attended the clinics during the study period were briefed about the aim of the study. A consent form was given to each patient.
2. Only those willing to participate filled in the questionnaire.
3. Subjects were informed that participating or not participating had no adverse consequence on the treatment they would receive on that day or any other day after that.
4. Every participant was assured of the confidentiality of the information given and that the information will be used for scientific purposes only
5. Inclusion: All patients willing to participate in the survey
6. Exclusion: Patients not willing to participate

Statistical analysis

For data analysis, this study used both IBM SPSS Statistics 26 and Microsoft Excel 2019. Data from the survey was first entered on an Excel spreadsheet, cleaned up, and then exported to SPSS. Excel was used to illustrate results on charts. IBM SPSS Statistics 26 was utilized for processing the data, creating tables of frequencies and percentages, and testing hypotheses. Cross-sectional analysis, multiple regression testing of the primary research hypotheses, and correlation analysis of research constructs were all examples of inferential analysis. It is to be noted that information was gathered from public dental healthcare centers in Mauritius.

Results and Discussion

Data Testing

To bring more credibility and trustworthiness to the results of the analysis and research findings, data were tested for reliability, construct validity, and sample adequacy in SPSS, even though statistically, a large sample of 294 was obtained from public Healthcare centers.

Reliability

Reliability, according to Wiener *et al*.**[5]** is "the degree to which the items assessing a concept demonstrate internal consistency." For this reason, the reliability of the replies to the four sets of statements under "Satisfaction with Dentists' Performance," "Satisfaction with Dental Assistants," "Satisfaction with Non-Clinical Dental Services," and

"Overall Satisfaction" was examined. When a measuring tool includes multiple statements of the Likert kind, Cronbach's Alpha is the most acceptable internal consistency metric, according to Laerd Statistics.

According to earlier studies, dependability coefficients should have a lower bound of 0.6 **[6]** and an upper bound **[7]** of 0.95 for satisfactory internal consistency. The survey questionnaire was declared internally consistent because all four reliability coefficients fell within these two ranges.

Construct Validity and Sample Adequacy

According to Wiener et al., validity relates to the extent to which a measure is considered reflective of, or theoretically connected to, some construct of interest. The validity construct of the survey was evaluated using SPSS using factor validity. The significance of Bartlett's test of sphericity was examined using a principal component analysis of the replies to each of the four sets of Likert-type statements. Additionally, SPSS assessed the Kaiser Meyer Olkin (KMO) statistic to determine the appropriateness of the sample.

Salient Demographic Figures

It is noted that the composition of age groups of patients was 48.8% for those aged 18-40 years and 41-60 years was 31.3 %. In public health institutions, 14.2 % of patients aged less than 18 years and 5.7 % of those aged more than 60 years were observed. Concerning gender, there were more female patients (59.3 %) compared to male patients. Lastly, more than two-thirds (68.7 %) of patients from public healthcare centers studied up to the secondary level, whereas 26.3 % attended universities. The corresponding charts for patients' demographic characteristics are given.

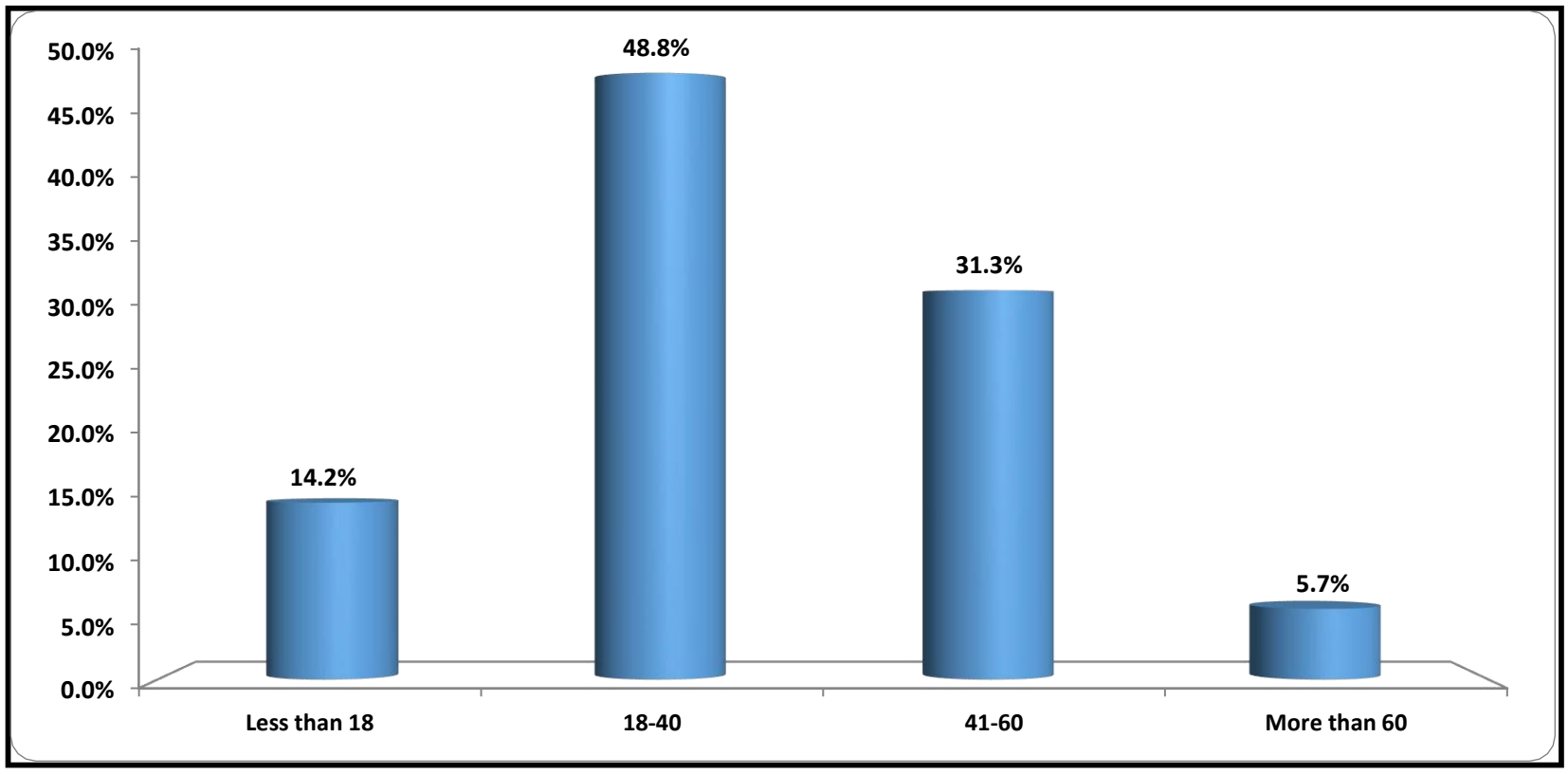

Figure 1: Age group

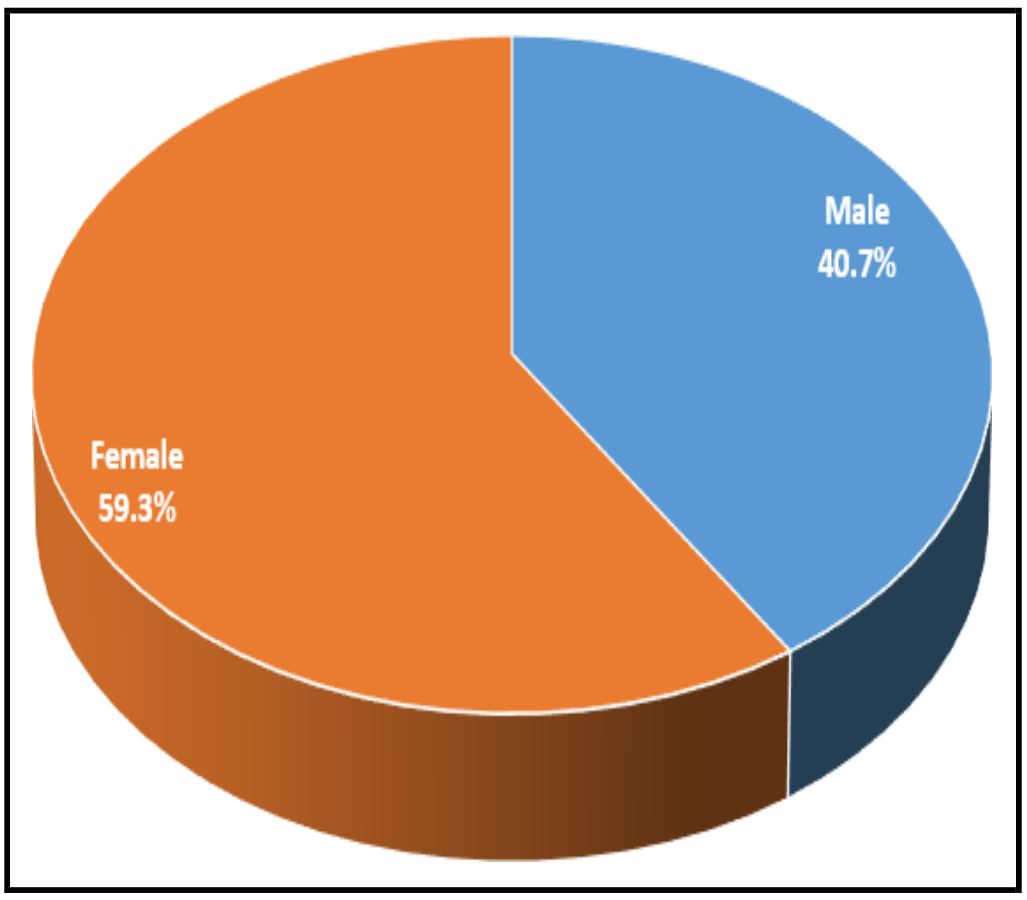

Figure 2: Gender

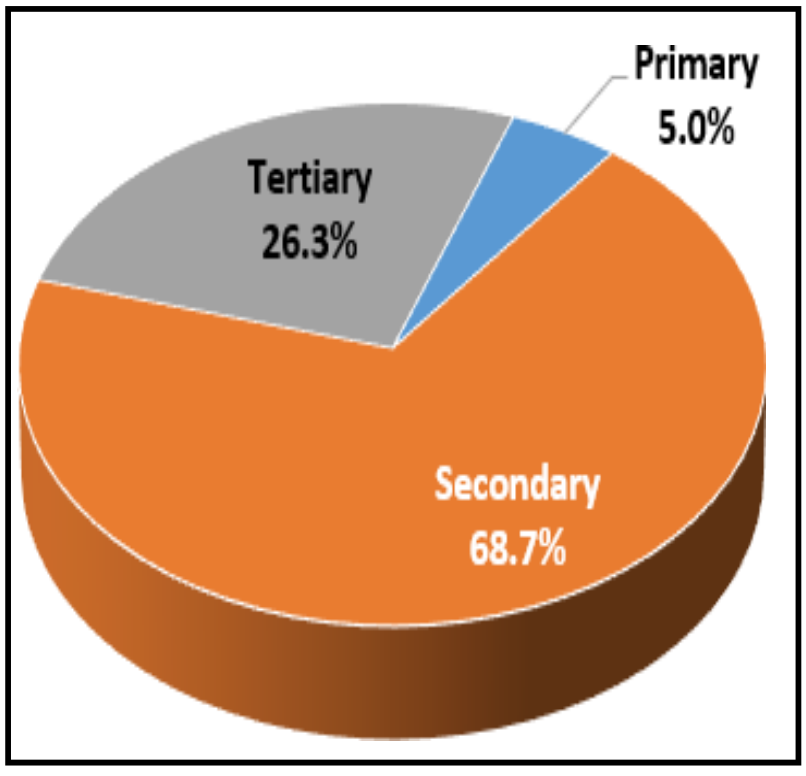

Figure 3: Education level

Analysis of Public Healthcare Centres

The replies to the sets of statements under each of the four research constructs were descriptively analysed in part using the weighted means approach.

The respondents were satisfied with the dentists' performance. Their Satisfaction with the clinical competence was highest, but the availability of dentist score was lowest.

The respondents were satisfied with a score of more fantastic than four for Satisfaction with dental assistants. The level of Satisfaction with dental assistants was lowest when there were not enough of them available in the clinic, and it was highest when the infection control routine was being monitored.

The respondents were generally satisfied with non-clinical dental services. Concerning Satisfaction with non-clinical dental services, patients' Satisfaction was highest with the ease of obtaining an appointment date through the receptionist with accuracy, whereas the center's décor scored the lowest.

In general, with overall Satisfaction, respondents expressed Satisfaction. Concern for cleanliness and sterility in the facility received the most positive feedback overall, followed by the promptness of emergency services.

Inferential Analysis

1. Correlation Analysis

Correlation analysis was conducted as a pre-requisite for testing a multiple regression model for patients from the sample. With the dependent variable being *Overall Satisfaction*, the proposed predictors were *Satisfaction with Dentists' Performance*, *Satisfaction with Dental Assistants*, and *Satisfaction with Non-Clinical Dental Services*. It is to be noted that all four constructs were computed as the overall mean of the mean scores of their statements, so Pearson's coefficient was used to measure the correlations.

It was found that the independent concept correlations were significantly and positively connected at the 1 % level and with overall Satisfaction. Therefore, the testing of a multiple regression model was unquestionably warranted by these findings, especially in light of the fact that correlation need not indicate causation**[8]**.

2. Analysis of multiple regression

Multiple regression analysis was used in this study to assess the importance of the effects of *Satisfaction with Dentists' Performance*, *Satisfaction with Dental Assistants*, and *Satisfaction with Non-Clinical Dental Services* on the dependent variable *Overall Satisfaction* for Patients. There were three hypotheses were to be tested, as formulated below:

Hypothesis 1

***H*0**: *Satisfaction with Dentists' Performance* has no impact on *Overall Satisfaction*

***H*1**: *Satisfaction with Dentists' Performance* has a significant positive impact on *Overall Satisfaction*

Hypothesis 2

***H*0**: *Satisfaction with Dental Assistants* has no impact on *Overall Satisfaction*

***H*1**: *Satisfaction with Dental Assistants* has a significant positive impact on *Overall Satisfaction*

Hypothesis 3

***H*0**: *Satisfaction with Non-Clinical Dental Services* has no impact on *Overall Satisfaction*

***H*1**: *Satisfaction with Non-Clinical Dental Services* has a favorable effect that is significant on overall Satisfaction

Reporting of Results

First, the regression model's significance at the 1 % level (p 0.01) is confirmed by the p-value (Sig. F Change) in **Table 2**, indicating that at least one of the variables had a meaningful impact on Overall Satisfaction. The three predictors explained 57.8 % of the variability in Overall Satisfaction, according to the coefficient of determination (R2), demonstrating how well the model suited the sample data.

SPSS-generated table of coefficients (**Table 3**) shows that *Satisfaction with Dentists' Performance* (β = .464, t = 7.482, p < .001) and *Satisfaction with Non-Clinical Dental Services* (β = .299, t = 5.242, p < .001) had a significant and favourable effect at the 1% level on overall Satisfaction. With a β-coefficient of higher magnitude (.464), *Satisfaction with Dentists' Performance* had a more significant impact on *Overall Satisfaction* for patients attending public health institutions. Therefore, the 1% level of rejection was applied to the null hypotheses 1 and 3 above.

On the other hand, Satisfaction with dental assistants did not significantly affect overall Satisfaction at the 5 % level (=.074, t = 1.100, p =.272). As a result, there was insufficient statistical support to rule out null hypothesis 2 at the level of 5 %.

Table 1: Satisfaction with Dentists' performance, dental assistants, non-clinical dental services and overall satisfaction

Statements	*Public*	
Satisfaction with dentists' performance	*Mean*	*SD*
The availability of enough dentists in the centre	4.19	0.78
Commitment to being punctual	4.30	0.84
Ability to listen to the patients' and empathize with them	4.42	0.69
Providing clear explanation to the patient before treatment and give post treatment instructions	4.42	0.75
Clinical competence in performing the dental procedure at the designated time frame	4.37	0.77
Statements	*Public*	
Satisfaction with dental assistants	*Mean*	*SD*
The availability of enough dental assistants in the center	4.06	0.94
The dental assistant's speed of response to the patient's needs	4.23	0.78
The use of modern dental devices and instruments	4.23	0.79
The availability of all the needed dental materials and instruments	4.23	0.77
The infection control protocol monitoring	4.35	0.71
Statements	*Public*	
Satisfaction with non-clinical dental services	*Mean*	*SD*
Ease of obtaining a date for appointment	4.16	0.91
Waiting time before seeing the doctor on the day of appointment	4.02	0.91
Availability of enough seats in the waiting area	3.87	1.01
Suitability of interior design/decor of the center	3.83	1.03
Welcoming at the reception counter	4.11	0.87
Ease of obtaining an appointment date through the receptionist with accuracy	4.19	0.79
Speed of response to the patient's complaints	4.18	0.82
Statements	*Public*	
Overall satisfaction	*Mean*	*SD*
Treatments results	4.26	0.73
Promptness of service in case of emergencies	4.31	0.77
Caring about the sterilization and hygiene in the center	4.37	0.67

Table 2: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics		
					R Square Change	**F Change**	**Sig. F Change**
1	.760[a]	**.578**	.574	.40493	.578	130.592	**.000**
a. (Constant), Satisfaction with Dentists' Performance, Satisfaction with Dental Assistants, Satisfaction with Non-Clinical Dental Services							
b. Dependent variable: Overall Satisfaction							

Table 3: Regression coefficients

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	1.024	.170		6.014	.000
Satisfaction with Dentists' Performance	.452	.060	.464	7.482	**.000**
Satisfaction with Dental Assistants	.069	.063	.074	1.100	.272
Satisfaction with Non-Clinical Dental Services	.256	.049	.299	5.242	**.000**
a. Dependent Variable: Overall Satisfaction					

3. Cross-Sectional Analysis

A cross-sectional analysis was carried out to determine whether the patients' demographic features were related to their overall happiness. First, given that the sample sizes were fewer than 2000, the Shapiro-Wilk test in SPSS was used to determine if the test variable's Overall Satisfaction was normally distributed. They were deciding whether to utilize parametric or non-parametric tests required doing a normality test. Since both p-values were significant at the 1% level, the data above demonstrate that Overall Satisfaction was not regularly distributed. As a result, the Kruskal-Wallis H test was employed for age group and education level, whereas the Mann-Whitney U test was utilized for gender (a dichotomous variable) (multichotomous variables).

The SPSS output tables are summarized in **Table 4**. To identify significant differences between overall Satisfaction among the subscales of relevant demographic variables, it should be noted that substantial associations (if any) would be further examined using descriptive statistics for gender and type of institution (specialized or generalized dental clinics), as well as non-parametric post hoc tests via pairwise comparisons for age group and education level in SPSS. The *p*-values show that overall Satisfaction was significantly associated with only *the type of institution* (t = 2.171, p = 0.030) at the 5% level for patients attending public healthcare centers.

Type of institution (generalized or specialized dental clinics)

Since *the type of institution* is a dichotomous variable (General, Specialised), a non-parametric *post hoc* test was not applicable, so descriptive statistics were used to determine the more satisfied subgroup.

The results of **Table 5** suggest that patients who attended specialized public institutions were significantly more satisfied than their counterparts who attended general public institutions at the 5 % level because a p-value of 0.030 was obtained for the association between type of institution and overall Satisfaction **(Table 4)**.

Table 4: Association between patients' demographic characteristics and their overall satisfaction

	test-statistic	**p-value**
Type of institution	2.171	0.030*
Age group	3.700	0.296
Gender	-0.712	0.477
Education level	1.364	0.506

* $p < 0.05$; ** $p < 0.01$

Table 5: Descriptive Statistics for type of institution

Type of institution	**N**	**Mean**	**Std. Deviation**
General	174	4.2663	.58889
Specialized	116	4.3908	.65978

Discussion

Interpretation of the study findings should bear in mind that patients filled out the questionnaire immediately after treatment. People who were in a rush to leave and those who had vision impairments were among the non-respondents because the poll was an exit survey.

Similarly, to Dena et al.**[9]**, in this study, Satisfaction with Dentists' Performance had the most significant impact on overall patient satisfaction. A high satisfaction score for the explanation given by dentists indicates that the dentist in the studied clinics answered the patients' expectations. This may result from the recently established continuing education program directly related to the Ministry of Health and Quality of Life. Under this program, dentists must attend seminars, conferences, and workshops to keep up with the latest developments in dentistry and, most importantly, renew their practicing licenses each year.

This study divided the non-clinical factors into accessibility, physical exterior, and reception staff. Numerous studies have found that

patient satisfaction is higher when clinics are more easily accessible. This is explained by the fact that there are currently 54 dental clinics (including 3 mobile dental clinics) offering routine dental care at the hospital and primary health care level and 13 specialized dental clinics (Oral Surgery, Orthodontics, and Endodontics). The three mobile dentistry clinics mainly serve students but also offer services in rural locations with poor access to dental care. Three dental clinics are also located within jails. The physical exterior has been seen to impact positively on overall patient satisfaction. This could be explained by humans judging something based on what we see first. Since the external environment is what the patients know, it is essential that the clinic's setting should be welcoming, relaxing, clean, and beautiful as possible.

In Mauritius, continuous efforts are being input by the Ministry for patient comfort. Several dental clinics are being updated, and new medical clinics are being constructed. To make the dental clinic at the Odette Leal Community Health Centre (CHC) less stressful for kids, a child-friendly setup has been implemented on a test basis. Overall Satisfaction was unaffected by Satisfaction with Dental Assistants. This is contraindicated by some research where it is usually the trend to consider that a supportive dental assistant with high etiquette can account for higher Satisfaction.

A cross-sectional analysis was done to determine whether patients' demographic features were related to their overall satisfaction. This study reported that there were no associations between age and gender. Gurdal et al. **[10]** and Hashim et al. said similar findings. Regarding education, no association was found in this study, and this was corroborated in other studies**[11,12]**. Generally speaking, demographic traits are seen as erratic in the literature and poorly related to health care**[13]** Satisfaction, reflecting the nature of Satisfaction in many cultures. Furthermore, these relationships can be regarded as minor. Thus, any suggestion of turning this knowledge into policy actions should be taken very seriously.

A positive association was found between the type of institutions and overall patient satisfaction. The generalized dental clinics have adopted a first-come, first-served system for scheduling patient appointments. Dental surgeons see patients who need specialized dental care at this triage stage before being referred to a dental specialist. Patients from specialized clinics were more satisfied, which can be attributed to a good appointment with a schedule, except in emergency cases, which allows the dentist to provide an appropriate examination, accurate diagnosis, and different treatment options. The patients will feel heard and included in the decision-making process if given sufficient time to voice their concerns. The dental staff will better meet the patient's needs and expectations**[14]**, increasing satisfaction.

Limitations

1. The high level of reported Satisfaction, which is consistently and accurately recorded in the majority of the literature on health care, is a significant drawback of this study. Positively skewed reporting could be due to social desirability bias, reluctance to voice unfavourable opinions about providers, or a lack of clarity and specificity in the questions.
2. Future research on a representative national population and an examination of the viewpoint of dental practitioners should be conducted to complete the current study and provide a more accurate description.
3. The kind of procedure (preventive vs. restorative), the patient's level of pain, and other visit-specific criteria were not considered. These factors may have an impact on the patient's Satisfaction and experience.

Conclusion

Patients who utilized dental public services reported feeling extremely satisfied with their dental treatment across all metrics. In dental public healthcare facilities in Mauritius, patient satisfaction scores were unaffected by age, gender, or educational level. Patients attending specialized public institutions were more satisfied than their counterparts attending general public institutions, implying that understanding patients' needs and addressing them is associated with a higher degree of Satisfaction.

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