

Service quality: Input to service operation management

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Abstract

Service quality is the judgment of patients based on their perception of the services they have received. The perception will be compared with patients' expectations in order to have a judgment about services quality. The study primarily aims to assess the level of satisfaction of patients in the Dental Dispensary of the Lyceum of the Philippines University- Batangas for the month of April, Academic Year 2018-19; to determine the profile of the respondents in terms of age, sex and nature of work; and to test the differences in the response of the participants when grouped according to profile. A proposed action plan will be the study's output. The research method used in this study was descriptive in approach. Questionnaires referring to the expectations and the perceptions of the patients were distributed to 131 patients after treatment. Likert-type scales were used to evaluate the each dimension. These dimensions have been classified in five quality dimensions: tangibility, reliability, responsiveness, assurance and empathy. The results revealed that patients' expectation exceeded perceptions in all service quality dimensions. The smallest gap between perception and expectation was for responsiveness and the biggest gap was for tangibility. There is a significant difference on the service quality of the clinicians as to reliability when grouped according to age and gender. In general, service quality was lower than the expectations of the patients in the Dental Dispensary of the Lyceum of the Philippines University- Batangas. Identifying the gaps in service quality dimensions and employing proper policies will lead to an improvement and patient's satisfaction.

Keywords: service quality, patient satisfaction, dental dispensary, dental treatment

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1. Introduction

In today's competitive world, it is challenging for entire industries to improve and maintain a competitive advantage in their target markets. Customer expectation is what the customer expects according to available resources and is influenced by cultural background, family lifestyle, personality, demographics, advertising, experience with similar products and information available online. Customer perception is totally subjective and is based on the customer's interaction with the product or service. Perception is derived from the customer's satisfaction of the specific product or service and the quality of service delivery. The customer gap is the most important gap and in an ideal world the customer's expectation would be almost identical to the customer's perception. Increased perception and expectation have caused them to be customer-oriented (Shetty & Vardhan, 2017).

Service between customer qualities can be defining as the difference between customer expectation for service performance prior to the service encounter and their perceptions of the service received (Torres, 2014). Service quality can be measured as the difference between expected service and perceived service. According to Park and Yi (2016), expectation pertains to the wants of customers and perception is the customers' evaluation of the services. If expectations were more than perception, then the quality of received services is low and the result is dissatisfaction of customer. Despite the fear to the dentist, patients still submit themselves to treatment as long as they are assured. Assurance is the positive declaration intended to give confidence. Dental clinician should have the ability to understand and share feelings of another. Putting themselves in the shoe of the patient will uplift the quality of care, concern and understanding (Scambler & Asimakopoulou, 2014). Therefore, high quality of service is an integral part of any dental practice's success (Gohain et al., 2018).

Quality of service is very important to the Lyceum of the Philippines University Batangas. Being the first tertiary educational institution in the region to receive an autonomous status, they value credibility and reputation. This only shows that the institution has its heart for the quality of service to the students. They are providing the needs and an environment conducive to learning to produce good dental clinicians so that they could render quality service as they are completing the number of requirements they need to finish the course. Completion of the clinical requirements will not be possible without the satisfied patients who are willing to stay and be treated. Patients who are satisfied come back even if the procedure requires multiple appointments. They can even make referrals and make the dental dispensary a word-of-mouth signifying that the university is offering a state-of-the art dental dispensary thereby producing competent dentist in the future. Thus, it is the responsibility of the college and the dental clinicians to ensure that the satisfaction will be met from the quality of service they rendered.

The researcher became interested to conduct the study to identify the expectations and perceptions of the patients in terms of tangibility, reliability, responsiveness, assurance and empathy in the dental dispensary of the Lyceum of the Philippines University. This study holds significance as it aimed to bridge the gap between patient expectations and the actual service delivery at the dental clinic of the Lyceum of the Philippines University. By identifying and understanding patients' perceptions of tangible aspects, reliability, responsiveness, assurance, and empathy, the study can provide valuable insights into the strengths and weaknesses of the current service.

In pinpointing areas where patient expectations are not being met, the dental clinic can implement targeted improvements to enhance patient satisfaction. The findings can also inform the development of strategies to address patient concerns and exceed their expectations. Understanding patient perceptions can help build trust and loyalty, leading to increased patient retention and referrals. Comparing the results to industry standards or other dental clinics can provide a benchmark for performance evaluation and improvement of the clinical

training of the dental students.

The study directly benefits patients by providing a platform to voice their opinions and contribute to improving the dental services they receive. It can help staff, clinical instructors and clinicians identify areas for improvement in their service delivery and enhance their skills, thereby contributing to the overall quality of healthcare services offered by the university and enhancing its reputation. The study can serve as a foundation for future research on patient satisfaction and service quality in dental settings. While there may be existing studies on patient perceptions in dental settings, this research specifically focuses on the Lyceum of the Philippines University, providing a unique perspective. The findings of the study also yielded some practical recommendations for improving service quality, which can be directly implemented by the college dental dispensary. By prioritizing patient expectations and perceptions, this study hoped to contribute to the growing emphasis on patient-centered care in oral healthcare. Ultimately, this research can make a valuable contribution to enhancing the dental experience for the patients of the Lyceum of the Philippines University.

Objectives of the study - The study primarily aimed to assess the level of satisfaction of patients in the Dental Dispensary of the Lyceum of the Philippines University- Batangas for the month of April, Academic Year 2018-19. Specifically, the study aimed to determine the profile of the respondents in terms of age, sex and nature of work; to determine the service quality of the dental clinicians in terms of tangibility, reliability, responsiveness, assurance and empathy; to test the differences in the response of the respondents when grouped according to profile; and propose action plan to continuously improve the Dental Dispensary of the University.

2. Methods

Research Design - This study utilized quantitative descriptive research, which is a methodological approach aiming to accurately and systematically depict the characteristics of a population, situation, or phenomenon. It involves collecting and analyzing numerical data to provide a clear representation of the subject matter. In the context of this study, a quantitative descriptive design is appropriate as it enables the systematic and quantifiable examination of patients' expectations and perceptions regarding tangibility, reliability, responsiveness, assurance, and empathy. It involves gathering numerical data through surveys or questionnaires to measure patients' responses on a scale. Additionally, it analyzes the data using statistical techniques to identify patterns, trends, and relationships among the variables, and presents the findings in a clear and concise manner using descriptive statistics.

Participants of the study - The respondents of the study were the 131 patients in the Dental Dispensary in the month of April at the LPU-Batangas. The respondents were further classified according to age, sex and nature of work. As for age group, less than 18 years, 18-25, 26-35, 36-45, 45-55 and more than 55; as for gender were male and female; and as for the of nature of work, they were student, who were self-employed, employed, and unemployed.

Data Gathering Instrument - The questionnaire was the main source of the data for this study. Measuring the service quality of the dental clinicians of Lyceum of the Philippines University Batangas College of Dentistry is a good way to know the expectation and perception of the patients from the services they received. Whatever its strengths and limitations, patient satisfaction is an indicator that should be indispensable to the assessment of the quality of care. Kotler defined satisfaction as "a person's feeling of pleasure or disappointment resulting from comparing a product's perceived performance or outcome in relation to his or her expectations" (Ahmady 2015). Different models and measurement were developed to measure the quality of service but the SERVQUAL model developed by Parasumaran et al (1985; 1988). The questionnaire was divided into two parts where Part I dealt with the profile of the respondents and Part II consisted of 16 questions which focused on the patient's expectation and perception as to tangibility, reliability, responsiveness, assurance and empathy. Likert scale was used to measure each question from Strongly Agree (4), Agree (3), Disagree (2) and Strongly Disagree (1).

Data Gathering Procedure and Analysis - The questionnaires were distributed by the researcher to the patients in the dental dispensary. Distribution of the questionnaires was given on the scheduled clinic days and hours of the researcher. The questionnaires were answered by the patients in the dental dispensary after the treatment. All the data were collected, gathered and tallied by the researcher. All data needed were tallied, encoded and interpreted using different statistical tools such as frequency count and percentage to analyze the profile of the patients. Weighted mean was used to analyze the service quality in relation to tangibility, reliability, responsiveness, assurance and empathy. Analysis of Variance (ANOVA) was used to test the significant difference on the level of satisfaction when grouped according to profile.

Ethical consideration - Quantitative survey research carries specific ethical implications that must be carefully considered. Informed consent was done to ensure participants fully understand the purpose, procedures, and potential risks or benefits of the study. Participants were made aware that their participation is voluntary, and they have the right to withdraw at any time without consequence. Participants' personal information, such as names, contact details, or any identifiable data, were kept strictly confidential and securely stored to protect their privacy. Only aggregated data or anonymized responses were used for analysis and reporting to prevent the identification of individual participants. The researcher ensured the protection of participant identity through anonymity in data collection and analysis.

3. Results and discussion

Table 1

Distribution of Respondents According to Profile (N = 131)

Age group (years)	Frequency	Percentage	Rank
Less than 18	9	6.9	6
18 – 25	62	47.3	1
26 – 35	15	11.5	3
36 – 45	19	14.5	2
46 – 55	12	9.2	5
More than 55	14	10.7	4
Gender			
Male	47	35.9	2
Female	84	64.1	1
Nature of Work			
Student	43	32.8	1
Self-employed	15	11.5	4
Employed	31	23.7	3
Unemployed	42	32.1	2

Table 1 shows the distribution of respondents according to age, gender, and nature of work. The largest age group among the respondents was 18 to 25 years old, accounting for 47.3% of the total population. This indicates that young adults comprised nearly half of the respondents, which may suggest that the program or activity where the data was gathered appeals strongly to this demographic. The second largest group was 36 to 45 years old (14.5%), followed by 26 to 35 years old (11.5%) and those more than 55 years old (10.7%). Respondents below 18 years old were the least represented at only 6.9%. This trend is typical in studies involving community participation, education, tourism, or digital platforms where young adults are often more engaged and accessible. A significant majority of respondents were female (64.1%), while males accounted for 35.9%. This gender distribution shows a female-dominated sample, which may reflect the composition of the population targeted by the study or the sectors involved (e.g., tourism, education, community service). This aligns with many tourism and hospitality contexts where women are often more active participants in related programs and surveys.

The highest proportion of respondents were students (32.8%), closely followed by the unemployed group

(32.1%), which together make up more than 64% of the sample. This indicates a predominantly non-working population, possibly reflecting either an academic community or youth sector. Employed individuals made up 23.7%, and self-employed respondents had the smallest share at 11.5%. This distribution provides insights into the respondents' economic and social context, which can influence their perspectives, participation, and spending behaviors (especially relevant in tourism, education, or community research).

The dominant age group (18–25) and high percentage of students/unemployed respondents suggest a youthful population with time flexibility and likely higher exposure to educational, tourism, or social programs. The female majority may imply gendered patterns of participation, where women are more engaged or represented in the activity. These characteristics can influence the design and targeting of programs, marketing strategies, policy interventions, or research implications.

Table 2
Summary Table of the Service Quality of the Dental Clinicians

Indicators	Perception			Expectation			Gap
	WM	VI	R	WM	VI	R	
1. Tangibility	3.46	A	5	3.61	SA	5	-0.14
2. Reliability	3.51	SA	4	3.63	SA	4	-0.12
3. Responsiveness	3.60	SA	3	3.67	SA	3	-0.08
4. Assurance	3.61	SA	1.5	3.71	SA	2	-0.10
5. Empathy	3.61	SA	1.5	3.73	SA	1	-0.12
Overall Composite Mean	3.56	SA		3.67	SA		-0.11

Legend: 3.50 – 4.00 – Strongly Agree (SA); 2.50 – 3.49 – Agree (A); 1.50 – 2.49 – Disagree (D); 1.00 – 1.49 – Strongly Disagree (SD)

Table 2 shows the summary table of the service quality of the dental clinicians. The overall composite mean in expectation (3.67) and in perception (3.56) resulted in a negative gap (-0.11). This shows that there is considerable difference between what people expect and what they get. Respondents were not satisfied in all dimensions. This indicates a considerable disparity between what patients anticipate in terms of dental care services and the reality of their experiences. In other words, the dental clinicians fell short of fully meeting the expectations of their patients across multiple dimensions of service quality. This finding implies there was significant room for improvement in the delivery of dental services to enhance patient satisfaction and aligned the care provided with the needs and preferences of the patient population (Chang & Chang, 2013). Addressing this negative gap will be crucial for the dental clinic to elevate the quality of its services and better meet the evolving standards and demands of its clientele (Kalsi et al., 2018).

The result revealed that tangibility dimension was the most critical dimension as the largest gap (-0.14). This revealed that the tangibility dimension, which encompasses aspects such as the physical facilities, equipment, and appearance of the dental clinic, was the most critical dimension as it had the largest gap between patient expectations and perceptions. This suggests that patients placed a high importance on the tangible aspects of the dental service and had expectations that were not fully met by the actual conditions and amenities of the clinic. The sizable gap in this dimension indicates that the dental clinic should prioritize investments and improvements in its physical infrastructure, modern equipment, and overall aesthetics to better align with the standards and preferences of its patient population (Ahmady et al., 2015). Addressing the shortcomings in the tangibility dimension could significantly enhance the overall service quality experience and help close the disconnect between what patients anticipate and what they ultimately receive.

Following tangibility, the next largest gap was observed in the reliability dimension, with a gap of -0.12. This suggests that patients had higher expectations regarding the reliability and consistency of the dental services provided, which were not fully met in their actual experiences. The most common reason for this patient disappointment was their expectation that once they left the dental dispensary, their treatment would be complete and fully resolved. However, the reality was that many patients likely required multiple appointments or follow-up visits to fully address their dental needs, which did not align with their initial expectations of a single,

comprehensive treatment session (Meyer et al., 2016). This disconnection between patient anticipation and the actual dental care process highlights an area for improvement, where the clinic could better manage patient expectations and ensure a more seamless and reliable treatment experience from start to finish. In this study, the empathy dimension had a gap of -0.12, indicating that patients felt the dental clinicians did not fully demonstrate empathy and a caring attitude during their interactions. The root cause of this gap appears to be that many patients were not satisfied with the consultation hours provided by the clinic, suggesting they felt the clinicians were not accommodating their scheduling needs and preferences. This finding contrasts with the study by Bahadori et al. (2015), where empathy had the largest gap while tangibility had the lowest gap, the opposite of the current study's results.

Table 3 presents the difference in service quality of clinicians when grouped according to profile variables. The analysis revealed a statistically significant difference in the reliability dimension of service quality between male and female dental clinicians. The computed F-value for reliability when grouped by gender exceeded the critical value, and the resulting p-value was less than the 0.05 level of significance. This led to the rejection of the null hypothesis, indicating that the reliability of service quality differed significantly between male and female clinicians. Upon further examination, the data showed that female dental clinicians provided a higher level of reliable service compared to their male counterparts. This suggests that female clinicians were more consistent and dependable in delivering dental care services that met the expectations and needs of their patients (Akbar & Ayuandyka, 2018; Ungureanu & Mocean, 2015).

The greater reliability demonstrated by female clinicians may be attributed to factors such as stronger interpersonal skills, a more empathetic approach, or a heightened focus on ensuring a seamless and cohesive treatment experience for patients. These findings highlight the importance of considering gender-based differences in service quality when evaluating and improving the overall performance of dental clinicians. Study of Al Fraihi & Latif (2016) showed a significant association between genders and mean scores gap in tangible and reliability dimensions. The female expectations were higher across these dimensions than the male. This is consistent in the study of Rocha et al. (2017). In the study of Bahadori, et al. (2015), it showed no such association. The quality gap in patients' expectations with university education was higher than other groups in tangibility and reliability dimensions. The patients who made multiple visits to outpatient services have higher expectations related to empathy dimension.

Table 3

Difference on the Responses on Service Quality of the Dental Clinicians When Grouped According to Profile Variables (Perception) $\alpha = 0.05$

Profile Variables	F _c	p value	Decision	Interpretation
Age Group(years)				
1. Tangibility	0.660	0.655	Accepted	Not Significant
2. Reliability	2.227	0.056	Accepted	Not Significant
3. Responsiveness	1.033	0.401	Accepted	Not Significant
4. Assurance	0.686	0.635	Accepted	Not Significant
5. Empathy	0.349	0.882	Accepted	Not Significant
Gender				
1. Tangibility	2.455	0.120	Accepted	Not Significant
2. Reliability	10.227	0.002	Rejected	Significant
3. Responsiveness	3.144	0.079	Accepted	Not Significant
4. Assurance	1.772	0.185	Accepted	Not Significant
5. Empathy	0.437	0.510	Accepted	Not Significant
Nature of Work				
1. Tangibility	0.985	0.402	Accepted	Not Significant
2. Reliability	1.198	0.313	Accepted	Not Significant
3. Responsiveness	2.092	0.105	Accepted	Not Significant
4. Assurance	2.297	0.081	Accepted	Not Significant
5. Empathy	2.052	0.110	Accepted	Not Significant

As shown in table 4, among all the profile variables tested, only “Age group” in relation to the Reliability dimension showed a statistically significant difference. Gender and nature of work did not show any significant variations in expectations across all service quality dimensions. This indicates that dental clinics may focus on enhancing the “Reliability” of their services for different age groups, as this is where perception gaps appear. Examples include improving punctuality, consistency in results, clarity of information, and accuracy of dental procedures. For other dimensions (Tangibility, Responsiveness, Assurance, and Empathy), the expectations are relatively stable, meaning existing service standards are generally aligned with what patients expect across gender and work profiles.

Table 4

Difference on the Responses on Service Quality of the Dental Clinicians When Grouped According to Profile Variables (Expectation) $\alpha = 0.05$

Profile Variables	F _c	p value	Decision	Interpretation
Age Group(years)				
1. Tangibility	0.325	0.897	Accepted	Not Significant
2. Reliability	2.574	0.030	Rejected	Significant
3. Responsiveness	0.802	0.550	Accepted	Not Significant
4. Assurance	1.984	0.085	Accepted	Not Significant
5. Empathy	0.647	0.664	Accepted	Not Significant
Gender				
1. Tangibility	0.061	0.806	Accepted	Not Significant
2. Reliability	1.306	0.255	Accepted	Not Significant
3. Responsiveness	2.601	0.109	Accepted	Not Significant
4. Assurance	2.235	0.137	Accepted	Not Significant
5. Empathy	0.410	0.523	Accepted	Not Significant
Nature of Work				
1. Tangibility	0.053	0.984	Accepted	Not Significant
2. Reliability	1.012	0.390	Accepted	Not Significant
3. Responsiveness	1.810	0.149	Accepted	Not Significant
4. Assurance	1.226	0.303	Accepted	Not Significant
5. Empathy	0.888	0.449	Accepted	Not Significant

The varying perspectives on reliability across different age groups suggest that factors such as experience, communication styles, and patient engagement strategies may differ among dental clinicians of diverse ages, ultimately impacting the consistency and dependability of the care they deliver (Stein et al., 2014). There are several investigations into the specific age-related trends and their underlying causes that could help the dental clinic implement more targeted initiatives to enhance the reliability of services across all age groups of its clinicians, such as the studies of Mills et al. (2013), Bethel et al. (2014), and Chideka et al. (2015). While the existing literature presents some conflicting evidence, the findings from the present study highlight the importance of considering the influence of clinician demographics, particularly gender and age, on the perceived reliability of dental services.

In each dimension, the F-statistics and p-values indicate that there were no statistically significant differences in perceptions between genders. The lack of significant differences suggests that both males and females perceived similar levels of service quality across all dimensions evaluated. Gender did not appear to influence perceptions of dental service quality in this study. These results align with the findings from some previous studies, which have also reported no significant associations between gender and patients' overall satisfaction or perceptions of service quality in dental settings (Bahadori et al., 2015).

Similar to gender, the analysis showed no statistically significant differences in perceptions of service quality among different nature of work categories. Whether respondents were students, employed, self-employed,

or unemployed did not significantly impact their perceptions of dental service quality across the dimensions evaluated. This uniformity suggests that dental clinicians are perceived similarly regardless of the respondents' occupational status.

In summary, the majority of dimensions across age group, gender, and nature of work categories showed no statistically significant differences. This implies that dental clinicians in this study were generally perceived similarly across different demographic and occupational groups.

For dental clinics and healthcare providers, understanding these age-related differences in perceptions of service quality can inform more targeted efforts to enhance their service delivery and communication strategies. By tailoring approaches to address the specific needs and expectations of different age groups, particularly regarding the reliability dimension which showed significant variances across clinicians of diverse ages, clinics can work to improve the consistency and dependability of the care they provide. Incorporating insights from research on age-related trends in healthcare experiences, such as the implications discussed by Liao & Fu (2014), can guide clinics in developing more age-sensitive initiatives to boost the overall quality of their services and build stronger trust with patients across the lifespan. This type of age-focused service optimization can help ensure dental clinicians of all ages are perceived as consistently reliable and competent, ultimately enhancing the patient experience for individuals of all demographic backgrounds.

4. Conclusion and recommendation

In general, service quality was lower than the expectations of the patients in the Dental Dispensary of the Lyceum of the Philippines University- Batangas. Identifying the gaps in service quality dimensions and employing proper policies may lead an improvement and patient's satisfaction. Majority of patients belonged to ages 18-25 years old, females and students. In terms of service quality, there were negative gaps in all dimensions. The reliability of the service quality of dental clinicians differed significantly from male to female as perceived by the respondents. Significant differences existed in the responses as to age in their expectation on the reliability of the service quality. A plan was proposed for the enhancement of service quality. The management of the Lyceum of the Philippines University Batangas should improve the dental dispensary so that it will be more visually appealing to the patient by providing modern equipment, materials and dental chairs. The head of the department should continuously undergo evaluation tests for the service quality should be frequently conducted to ensure patient satisfaction at all times. The dental dispensary should provide services as promised and this should be explained to the patients most especially to female patients. Future researchers may conduct similar study using other variable on service quality. The department could review the proposed action plan for possible implementation.

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