RESEARCH ARTICLE

Patient-Centred Dental Hygiene Care: Assessing Satisfaction and Quality in Preventive Treatments—A Cross-Sectional Study

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Abstract

Objective: To evaluate patient satisfaction with treatments provided by dental hygienists, and to explore demographic influences on patient perceptions.

Method: The cross-sectional study was conducted from April to June 2018 at Aga Khan University Hospital, Karachi, and comprised patients having received dental hygiene treatments. Patient satisfaction was assessed using the validated Dental Satisfaction Questionnaire. Data was analysed using SPSS 23.

Results: Of the 83 patients, 51(61.4%) were females and 32(38.6%) were males. The overall mean age was 38.3±14.7 years. All the 83(100%) patients acknowledged respect and carefulness during examinations as well as effective pain management. Accessibility and operational convenience were less favourably rated; 9(8.4%) and 6(7.2%), respectively. Improvements in treatment quality were suggested by 38(45.4%) participants, and 29(34.9%) expressed dissatisfaction with waiting times. Cost-effectiveness was negatively perceived by 40 (39.8%) patients. Age and gender significantly influenced perceptions of care quality, pain management and cost-effectiveness ($p<0.01$).

Conclusion: The patients generally reported high satisfaction with communication and respect shown by dental hygienists. However, operational factors, like waiting times and treatment quality, required attention.

Key Words: Patient satisfaction, Dental hygienists, Preventive care, Communication, Pain management, Patient-centred care, demographic influence.

(JPMA 76: S32 :03 (Supple-1); 2026) **DOI: https://doi.org/10.47391/JPMA.AKU-10Surg-09**

Introduction

Patient-reported outcome measures (PROMs) are increasingly recognised as essential indicators of healthcare quality.[1] These measures capture patients' subjective experiences with treatments and their outcomes, directly influencing quality of life (QOL). PROMs focus on a range of factors, including pain levels, functional ability, emotional wellbeing and overall satisfaction with care.[2] By systematically incorporating patients' perspectives into healthcare evaluation, PROMs provide a comprehensive understanding of treatment efficacy while promoting patient-centred care. They bridge the gap between clinical outcomes and patients' priorities, fostering trust and ensuring that healthcare delivery aligns with patient needs and expectations.[1,2]

The burden of oral disease in Pakistan is substantial, compounded by a significant deficiency in preventive oral health services. As of 2018, the dentist-to-population ratio (DPR) in Pakistan was approximately 1:10,000, far below globally accepted standards.[3] This disparity highlights the urgent need to bridge the gap in oral healthcare delivery, particularly in underserved and rural areas where access to dentists is even more limited. One potential approach is the utilisation of dental hygienists to perform essential preventive and basic clinical procedures, thereby alleviating the workload on dentists and enhancing the reach of oral health services.

Dental hygienists have gained global recognition as a cornerstone of oral healthcare. They play a pivotal role in preventive care, public awareness initiatives, and patient-centred oral hygiene education. Their scope of practice includes non-surgical periodontal therapies, taking impressions, obtaining radiographs, applying fluoride, placing pit and fissure sealants, and contributing to early detection efforts, such as oral cancer screenings.[1] By delegating these essential preventive and basic clinical procedures to trained dental hygienists, dentists can focus on more complex treatments, optimising resource allocation and enhancing the efficiency of care delivery.

Patient satisfaction is a critical factor in evaluating the quality of dental care. Studies, such as the one conducted at Muhimbili University of Health and Allied Sciences in Tanzania, highlight how aspects like pain management, service quality, accessibility, and cost-effectiveness

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influence patients' overall satisfaction with their dental care.[4] The role of dental hygienists is integral to enhancing patient satisfaction, particularly in the preventive and educational aspects of care. As primary providers of routine treatments and preventive services, dental hygienists have direct interactions with patients, which significantly impact their experience. Hygienists who communicate effectively, provide gentle care, and educate patients about oral health contribute to a positive dental experience, fostering trust and satisfaction. By ensuring comfortable and informative interaction, dental hygienists contribute not only to improved oral health outcomes, but also to a more satisfying and patient-centred care experience.

Despite the significant contributions of dental hygienists to preventive care and patient education, there is limited research on patient satisfaction specifically following treatment provided by dental hygienists, particularly in the region. While global studies have explored the role of dental hygienists in improving oral health outcomes, few have evaluated patient satisfaction with their services. Given the growing integration of dental hygienists into dental practices and the increasing emphasis on patient-centred care, it is essential to assess how patients perceive the care they receive from dental hygienists. The current study was planned to evaluate patient satisfaction with treatments provided by dental hygienists, and to explore demographic influences on patient perceptions.

Patients and Methods

The cross-sectional study was conducted from April to June 2018 at Aga Khan University Hospital (AKUH), Karachi, after approval from the institutional ethics review committee. The study adhered to the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines.[5] Participants were recruited from patients who had received dental hygiene treatment from dental hygienist interns at Aga Khan University Hospital.

The sample size was determined in the light of literature,[5] which reported a mean patient satisfaction score of 68.67±6.85, while using the standard formula for estimating a single mean within a specified absolute precision with 95% confidence level. The sample size was inflated by 10% to account for potential non-responses or incomplete data. Participants were recruited via non-probability consecutive sampling. Those included were male and female individuals aged 18-60 years who had previously undergone dental hygiene treatment at AKUH. Those excluded were individuals with systemic diseases or psychological disorders. Informed consent was obtained from all the participants.

Demographic data was collected, and it was followed by patient responses to the validated, 13-item Dental Satisfaction Questionnaire (DSQ)6 (Table 1).

Data was analysed using SPSS 23 The Shapiro-Wilk test was used to determine Data normality, showing a normal distribution. Mean +/- standard deviation values were calculated for continuous data, while frequencies and percentages were calculated for categorical DSQ responses to highlight patient perceptions of various aspects of dental hygiene care. Chi-square test was used to determine the association between demographic variables and DSQ responses. Post-hoc subgroup analyses were subsequently conducted to explore specific differences in agreement levels across gender and age groups. $P<0.05$ was considered significant.

Results

Of the 83 participants with mean age 38.3±14.7 years, 51(61.4%) were females with mean age 36.62±13.07 and 32(38.6%) were males with mean age 40±16.30 years. All the 83(100%) patients acknowledged carefulness during oral examination, while 80(96.4%) said they felt respected. Effective pain management was experienced by 83(100%) patients. Accessibility and operational convenience were less favourably rated; 9(8.4%) and 6(7.2%), respectively. Improvements in treatment quality were suggested by 38(45.4%) participants, and 29(34.9%)

Table-1: Dental Satisfaction Questionnaire (DSQ).[6]

Q. no	Questions
1	There are things in the dental care I received that could have been better.
2	Dental Hygiene students/ interns were very careful during your oral examination.
3	The fee charged for the Dental Hygiene care is high.
4	I avoid going to the Dental Hygiene students/ interns because their procedures are painful.
5	You were subjected to prolonged waiting in dental clinic.
6	You were treated with respect by the dental Hygiene students/ interns
7	Dental Hygiene students/ interns did their best to manage your pain.
8	Dental Hygiene clinic is conveniently located.
9	It was difficult to obtain an appointment for DH student/ intern clinic.
10	Dental Hygiene students/ interns were able to relieve your periodontal problems.
11	Were dental clinic hours convenient for you to visit?
12	Dental Hygiene students/ interns explained the procedure and cost to you beforehand.
13	Was this treatment cost effective for you?

Table 2: Patient responses to DSQ items.

Question	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Q1	23 (22.9%)	18 (18.1%)	28 (27.7%)	26 (26.5%)	5 (4.8%)
Q2	0 (0.0%)	0 (0.0%)	0 (0.0%)	31 (31.3%)	69 (68.7%)
Q3	23 (22.9%)	30 (30.1%)	28 (27.7%)	16 (15.7%)	4 (3.6%)
Q4	5 (4.8%)	13 (13.3%)	11 (10.8%)	48 (48.2%)	23 (22.9%)
Q5	13 (13.3%)	28 (27.7%)	7 (7.2%)	41 (41.0%)	11 (10.8%)
Q6	75 (74.7%)	22 (21.7%)	0 (0.0%)	0 (0.0%)	4 (3.6%)
Q7	77 (77.1%)	23 (22.9%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Q8	54 (54.2%)	37 (37.3%)	0 (0.0%)	5 (4.8%)	4 (3.6%)
Q9	6 (6.0%)	4 (3.6%)	4 (3.6%)	43 (43.4%)	43 (43.4%)
Q10	52 (51.8%)	41 (41.0%)	5 (4.8%)	41 (41.0%)	2 (2.4%)
Q11	51 (50.6%)	42 (42.2%)	1 (1.2%)	2 (2.4%)	4 (3.6%)
Q12	66 (66.3%)	25 (25.3%)	5 (4.8%)	4 (3.6%)	0 (0.0%)
Q13	40 (39.8%)	35 (34.9%)	19 (19.3%)	2 (2.4%)	4 (3.6%)

DSQ: Dental Satisfaction Questionnaire.

Table-3: Association of age and gender with responses to DSQ items**.**

	Age		Gender	
Question	χ^2	*p*-value	χ^2	*p*-value
1	204.18	< 0.001**	18.45	0.001*
2	50.128	0.016*	0.000	0.991
3	183.562	0.001**	1.868	0.760
4	193.762	0.001**	4.143	0.387
5	198.890	< 0.001**	17.444	0.002*
6	95.664	0.004*	8.615	0.013*
7	56.870	0.003*	3.891	0.045*
8	116.311	0.051	1.474	0.688
9	200.529	< 0.001**	3.477	0.481
10	168.299	< 0.001**	6.048	0.109
11	208.897	< 0.001**	3.300	0.509
12	175.918	< 0.001**	3.276	0.351
13	193.147	< 0.001**	3.789	0.435

χ^2: Chi-square. *p≤0.05, **p≤0.001.

expressed dissatisfaction with waiting times. Cost-effectiveness was negatively perceived by 40(39.8%) patients (Table 2).

Age and gender significantly influenced patient perceptions in a number of areas (Table 3).

Post-hoc analysis revealed that gender affected how strongly patients expressed their experiences, whereas age was more closely tied to how patients evaluated care delivery and effectiveness (Table 4).

Table-4 Post-hoc subgroup analysis of agreement levels by gender and age.

Question No.	% Agree (Female)	% Agree (Male)	% Agree (Younger)	% Agree (Older)	Interpretation
Q1	32.0%	18.8%	31.7%	34.5%	Females more expressive, older slightly more satisfied
Q2	68.6%	68.8%	69.0%	82.8%	Both genders equal, older slightly more satisfied
Q3	61.4%	38.6%	14.3%	27.5%	Females more dissatisfied overall
Q4	57.9%	42.1%	76.1%	62.0%	Females more dissatisfied, younger more avoidant
Q5	41.2%	40.6%	59.5%	51.7%	Females more dissatisfied, younger more dissatisfied
Q6	84.3%	59.4%	76.2%	83.3%	Females more satisfied, older more respectful
Q7	84.3%	65.6%	81.0%	72.4%	Females and younger more satisfied
Q8	60.0%	40.0%	57.1%	55.2%	Females and younger slightly more satisfied
Q9	52.8%	47.2%	66.7%	33.3%	Females more satisfied with appointments
Q10	58.1%	41.9%	51.4%	48.6%	Females more satisfied, slight age parity
Q11	64.3%	35.7%	54.1%	45.9%	Females more positive; older slightly less

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Q12	61.8%	38.2%	57.4%	42.6%	Females more informed, younger slightly more
Q13	66.7%	33.3%	53.3%	46.7%	Females more cost-conscious, younger more neutral

Discussion

The assessment of patient satisfaction is a critical factor and a foundational pillar of evidence-based clinical practice.[7] It allows clinicians to evaluate the treatment provided based on the patient's perspective as they are the ultimate stakeholders.[8] Various methods have been introduced for the measurement of patient satisfaction, ranging from Visual Analogue Scale (VAS) to standardised questionnaires, such as the 10-item Dental Visit Scale (DVSS)[9], 31-item Australian Dental Satisfaction Scale (DSS)[10] and the DSQ.[11] The current study involved the evaluation of patient satisfaction using the DSQ after the provision of initial prophylaxis by dental hygiene students.

Dental hygienists all around the world are licensed to perform a number of clinical procedures, out of which non-surgical periodontal therapy, comprising scaling and polishing, is the most common.[12] Dental hygiene as a profession is undervalued in Pakistan, and only a few institutions provide formal training.[3] Since the Aga Khan University is one of the institutions providing the opportunity to earn a diploma in the Sciences of Dental Hygiene[3], the current study also allowed the researchers to evaluate various aspects of dental hygiene clinical training that required further improvement. Furthermore, the data also allowed the researchers to reflect on the incorporation of patients' needs as well when planning a treatment so that a personalised plan is formulated for a specific individual.

Providing quality dental treatment necessitates a combination of knowledge, technical expertise, and effective communication with patients. While knowledge and technical skills can be taught through regular dental school training programmes, developing communication and patient management skills requires active effort and engagement from the students themselves. The current results show an overall positive response in terms of patient satisfaction. This was paralleled by the results of another research conducted on final-year dental students providing care to the patients.[13] However, a study conducted at the Department of Dental Hygiene at a university in South Korea reported patients' dissatisfaction with the overall system and the facilities provided.[14]

All the patients in the current study felt that the students were very careful and respectful during the provision of dental treatment, highlighting the importance of professional communication in a hospital-based setting. Moreover, the patients (100%) were also satisfied with the measures taken to reduce pain and discomfort. Additionally, a study conducted on Saudi dental students also showed a positive result with regard to pain management (76.4%) in terms of patient satisfaction, with 91.5% of the patients saying they felt respected by the treating student.[15] Kim et al. reported that the patients showed a negative attitude towards pain management in university dental hygiene clinics.[14]

In the current study, 45.4% of the patients felt that the treatment measures could be improved. This low satisfaction was also paralleled (71.7% dissatisfied patients) by the results obtained for treatment facilities being provided in South Korean dental hygiene schools.[14] In contrast, Alshali et al. concluded that 86.2% of the patients were satisfied with the quality of care being provided.[15]

In the current study, a significant relation was observed for patient satisfaction with age and gender in terms of various aspects of treatment regarding its quality ($p<0.01$), pain management ($p=0.03$), cost-effectiveness ($p<0.01$) and accessibility ($p<0.01$). However, Al Shali et al. showed no significant relation for patient satisfaction with age, number of visits, length of treatment, case severity, and treatment complexity ($p\geq0.116$).[15]

The current study has several limitations. Firstly, the relatively small sample size may limit the generalisability of the findings. A larger, more diverse sample would provide a broader perspective on patient satisfaction and allow for stronger statistical power. Additionally, the study was conducted within a single institution, which may limit the applicability of the results to other settings. Another limitation was the cross-sectional design, which provides a snapshot of patient satisfaction at a single point in time. Longitudinal studies could offer a more comprehensive understanding of how satisfaction evolves over multiple visits or treatments. Lastly, while significant associations between demographic variables (age and gender) and satisfaction were observed, other potentially influential factors, such as socioeconomic status or prior dental experiences, were not explored.

Despite the limitations, however, the findings underscore the importance of integrating patient-centred care principles into dental hygiene training programmes to address both technical and interpersonal aspects of care. Future research should aim at exploring these dynamics

in larger, multi-institutional cohorts and evaluate the long-term impact of tailored interventions on patient satisfaction. Addressing the identified limitations and incorporating patient feedback into clinical training and practice can help ensure the delivery of consistently high-quality, patient-focused dental care.

Conclusion

The patients generally exhibited high levels of satisfaction with dental hygienists, particularly in areas of communication, respect and pain management. However, areas such as treatment quality, waiting times, and cost-effectiveness require attention to further enhance the patient experience. Significant associations between demographic factors and patient satisfaction highlight the need for personalised approaches to dental care.

Disclaimer: None.

Conflict of Interest: None.

Source of Funding: None.

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