



# Impact Of Healthcare Consumer Education On Marketing Strategies Of Dental Clinics: A Quantitative Study In India

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**Citation:** Himanshi Puri, et al (2023) Impact Of Healthcare Consumer Education On Marketing Strategies Of Dental Clinics: A Quantitative Study In India, *Educational Administration: Theory and Practice*, 29(2), 620- 626  
Doi: 10.53555/kuey.v29i2.7695

## ARTICLE INFO

## ABSTRACT

This paper investigates the impact of healthcare consumer education on the marketing strategies of dental clinics in India. The rapid growth of the Indian healthcare market and the varying levels of health literacy present unique challenges and opportunities for dental clinics. This study employs a quantitative research design, collecting data from 600 respondents across urban and rural regions of India to assess how consumer knowledge affects patient engagement and marketing strategy effectiveness. Through advanced statistical techniques such as regression analysis, factor analysis, and cluster analysis, the study reveals a significant correlation between healthcare education and marketing outcomes. The results underscore the necessity for dental clinics to tailor marketing efforts based on the education levels of their patients. The research includes practical recommendations and insights for optimising marketing strategies that focus on consumer education.

**Keywords:** Healthcare Consumer Education, Dental Clinics, Marketing Strategies, Health Literacy, Patient Engagement

## 1. Introduction

The healthcare sector in India is expanding rapidly, driven by increasing incomes, urbanisation, and heightened awareness of health and wellness (World Bank, 2022). Among various healthcare services, dentistry is experiencing particularly fast growth, with the Indian dental market valued at over ₹10,000 crores and growing at a rate of 20% annually (Indian Dental Association, 2022). In this competitive landscape, dental clinics must adopt innovative marketing strategies to attract and retain patients. One of the most crucial factors influencing the success of these strategies is healthcare consumer education.

Healthcare consumer education refers to the process by which individuals acquire knowledge about healthcare options, treatment procedures, preventive care, and self-care management (Jain & Sharma, 2021). This is particularly important in dentistry, where patients must often make informed decisions about complex treatment options. As consumers become more knowledgeable about dental care, they expect more transparency and educational content from clinics (Patel et al., 2022).

This study aims to explore how healthcare consumer education affects the marketing strategies of dental clinics in India. It addresses three key research questions:

1. How does healthcare consumer education influence the marketing strategies of dental clinics in India?
2. What is the relationship between consumer knowledge and patient engagement in dental services?
3. How can marketing strategies be optimised to cater to educated healthcare consumers in diverse socio-economic contexts?

The paper adopts a robust quantitative approach, using multiple analytical tools to provide comprehensive insights into these research questions. The findings contribute to the understanding of how dental clinics can align their marketing strategies with varying levels of consumer education, ultimately enhancing patient engagement and loyalty.

## 2. Literature Review

### 2.1 The Role of Healthcare Consumer Education

Healthcare consumer education plays a critical role in shaping patient behaviour and decision-making (Sharma et al., 2021). Defined as the ability to acquire and apply knowledge related to healthcare services,

consumer education is especially important in dentistry, where patients often need to make informed choices about treatment options, costs, and risks (Reddy & Sharma, 2020). The level of healthcare literacy in India is highly variable, influenced by factors like regional education levels and access to digital resources (World Health Organization, 2017). This is particularly relevant in wellness tourism, where consumer education about health benefits is shaping consumer preferences, leading to significant economic impacts in regions like Haridwar (Raj, Gupta and Tyagi, 2023).

Educated consumers are more likely to seek out healthcare providers who offer transparent and detailed information regarding treatment procedures, preventive care, and associated costs (Gupta & Menon, 2020). This is particularly true in urban areas, where digital health literacy is higher, and patients frequently consult online resources before visiting a clinic (Turner & Khan, 2022). In response to this trend, dental clinics in urban areas are increasingly incorporating educational content into their marketing strategies.

Motivational dimensions, such as wellness and preventive care, have also been critical in shaping consumer preferences in healthcare tourism, as analysed using an Analytic Hierarchy Process (Raj, Gupta and Ciddikie, 2024).

## 2.2 Marketing Strategies in Dental Clinics

Dental clinics face a unique set of challenges in crafting marketing strategies due to the diversity of their patient base in terms of education, income, and health literacy (Rao & Singh, 2022). Research indicates that marketing strategies which incorporate educational content—such as blogs, social media posts, and webinars—are more effective in engaging consumers with higher levels of health literacy (Menon & Nair, 2020). This approach builds stronger patient relationships, as educated consumers tend to gravitate towards healthcare providers who prioritise transparency and education (Sharma & Reddy, 2021).

In rural areas, the disparity in health literacy levels poses a significant challenge. Clinics operating in these regions may need to rely more on traditional marketing strategies like community outreach, in-person education programmes, and collaborations with local healthcare workers (Patel, 2022). The importance of tailoring marketing efforts based on the educational levels and healthcare literacy of the target population cannot be overstated, particularly in a diverse country like India.

## 2.3 Expanded Review on Consumer Behaviour in Healthcare

The expansion of consumer behaviour theories has significantly contributed to the understanding of healthcare marketing strategies. The Health Belief Model (HBM) (Rosenstock, 1974) suggests that an individual's engagement with healthcare services depends on their perceived susceptibility to illness, the severity of the condition, and the perceived benefits of preventive actions. This model applies to dentistry, where patients must often decide between preventive care and more extensive treatments.

Ajzen's Theory of Planned Behaviour (TPB) (1991) also offers insights into patient behaviour, explaining that an individual's intention to engage in a particular behaviour is influenced by their attitudes, subjective norms, and perceived behavioural control. In the context of dental healthcare, marketing strategies that align with patients' perceived needs and attitudes are more likely to drive engagement and loyalty (Jain & Patel, 2021).

## 2.4 The Role of Digital Health Literacy

With the growing digitisation of healthcare, digital health literacy has emerged as a critical factor influencing patient engagement and marketing outcomes (Norman & Skinner, 2006). In India, the divide between urban and rural populations remains stark, with urban consumers increasingly relying on digital platforms to access healthcare information (Rao et al., 2021). Dental clinics in urban areas have adapted by leveraging online content to engage these digitally literate consumers. The integration of emerging technologies, such as the Internet of Things (IoT), further enhances digital health literacy by improving patient engagement and service optimisation in healthcare settings (Raj, Gupta and Ujjawal, 2023).

Conversely, rural populations often lack the same access to digital resources, and as a result, marketing strategies must be adapted accordingly. Clinics serving rural patients may benefit more from face-to-face education programmes and traditional marketing efforts, emphasising the importance of tailoring marketing strategies based on digital health literacy levels (Sharma et al., 2020).

## 2.5 Consumer-Centric Marketing Approaches

Healthcare marketing is increasingly shifting towards a consumer-centric model, where patient needs and preferences guide marketing strategies. According to the Theory of Planned Behaviour (TPB) (Ajzen, 1991), marketing efforts that address patients' attitudes, perceived control, and societal norms are more likely to succeed. For dental clinics, this means providing clear, educational content that empowers patients to make informed decisions (Jain & Sharma, 2021). Emerging markets, like those in wellness tourism, illustrate how healthcare marketing must adapt to diverse consumer needs, as observed in India's wellness centres (Singh, Gupta and Kumar, 2024).

The shift towards personalised marketing also involves segmenting consumers based on education levels and health literacy. Studies suggest that educated consumers are more responsive to marketing campaigns that provide detailed information about treatment options, risks, and costs (Gupta et al., 2022). In contrast, less-

educated consumers may require simplified messages and more interpersonal communication to build trust and encourage engagement (Patel et al., 2022). Wellness tourism offers a practical application of consumer-centric marketing, where understanding the motivational dimensions of wellness seekers is crucial for success (Raj, Gupta and Ciddikie, 2024).

## 2.6 Trust and Consumer Engagement

Trust is a pivotal element in the patient-provider relationship, especially in the healthcare sector. Dental clinics that actively engage in educating their patients are more likely to build long-term trust, which in turn fosters patient loyalty (Turner & Sharma, 2021). Given the often invasive and costly nature of dental treatments, patients who trust their dental provider are more likely to return for future care and recommend the clinic to others (Menon & Nair, 2020).

Educational marketing content—such as patient testimonials, case studies, and detailed descriptions of procedures—plays a significant role in enhancing a clinic's credibility. Clinics that invest in patient education can not only increase engagement but also improve the overall effectiveness of their marketing strategies (Jain & Patel, 2021). In the wellness tourism sector, trust is fostered through consumer education and transparency about health benefits, contributing to increased consumer satisfaction and loyalty (Raj, Gupta and Tyagi, 2023).

## 2.7 The Importance of Segmented Marketing Strategies

One of the most significant challenges in the Indian healthcare market is the disparity in education and healthcare literacy levels between urban and rural populations (Reddy & Sharma, 2020). Urban consumers, who are often more educated and digitally literate, are more likely to engage with digital marketing strategies that incorporate educational content. These consumers value transparency and expect detailed information about treatment options before making decisions (Gupta & Menon, 2020).

In contrast, rural consumers may not have the same level of access to digital resources or healthcare information, requiring a more traditional, face-to-face marketing approach. Clinics in rural areas often need to focus on basic health education and preventive care to engage these patients effectively (Patel et al., 2022). This segmentation of marketing strategies based on consumer education and literacy levels is essential for dental clinics to successfully engage with diverse patient populations across India.

## 3. Hypothesis Development

Based on the expanded literature review, we propose the following hypotheses for empirical testing:

H1: Healthcare consumer education significantly influences the effectiveness of marketing strategies employed by dental clinics in India.

H2: Higher levels of consumer education lead to greater patient engagement and loyalty in dental services.

H3: Digital health literacy moderates the relationship between healthcare consumer education and the effectiveness of online marketing strategies.

H4: There is a significant difference between urban and rural consumers' responses to marketing strategies, based on their digital health literacy levels.

H5: Trust mediates the relationship between healthcare consumer education and patient loyalty in dental clinics.

## 4. Methodology

### 4.1 Research Design

A quantitative research design was employed to assess the relationship between healthcare consumer education and the marketing strategies of dental clinics. The study utilised a cross-sectional survey distributed across urban and rural areas of India. The survey instrument was designed based on validated scales used in healthcare marketing studies, covering three key areas: consumer education, patient engagement, and perceived effectiveness of marketing strategies (Gupta et al., 2021).

### 4.2 Sampling

A stratified random sampling method was employed to ensure representation across different socio-economic backgrounds and educational levels. A total of 600 respondents were selected, with 300 from urban areas and 300 from rural areas. The sample was stratified by age, gender, and education level to ensure diversity in responses.

### 4.3 Data Collection

Data were collected through a combination of online and face-to-face surveys. Urban respondents were reached primarily through digital platforms, while rural respondents were surveyed in person, using community health workers to facilitate the process. The inclusion criteria required that respondents had visited a dental clinic within the past year and were over 18 years of age.

4.4 Data Analysis

The data were analysed using SPSS and R software, employing a variety of statistical tools to derive insights. Descriptive statistics summarised the demographic characteristics of the respondents, while inferential statistics, including regression analysis, factor analysis, and cluster analysis, were used to examine the relationships between consumer education, patient engagement, and marketing strategy effectiveness.

- Regression analysis tested the hypothesis that healthcare consumer education significantly predicts patient engagement and marketing strategy effectiveness.
- Factor analysis was employed to identify the key dimensions of healthcare consumer education and their impact on marketing strategies.
- Cluster analysis segmented respondents based on their health literacy and engagement levels, enabling a deeper understanding of consumer behaviour.

5. Results

The Results section presents a detailed analysis of the data collected from the 600 respondents, divided equally between urban and rural areas. This section explores the relationships between healthcare consumer education, patient engagement, and the effectiveness of marketing strategies employed by dental clinics. Several statistical techniques, including descriptive statistics, factor analysis, regression analysis, and cluster analysis, were employed to provide a comprehensive understanding of these relationships.

5.1 Descriptive Statistics

The sample was balanced in terms of gender (male: 50.5%, female: 49.5%), with respondents ranging in age from 18 to 65 years. The majority (65%) were aged between 25 and 44 years. As expected, educational levels varied significantly between urban and rural participants. While 75% of urban respondents held tertiary qualifications, only 30% of rural respondents had attained the same level of education. These disparities highlight the differing levels of healthcare literacy in India's urban and rural populations, as shown in Table 1.

Table 1: Demographic Characteristics of Respondents (n = 600)

Demographic Variable	Category	Frequency (n = 600)	Percentage (%)
Gender	Male	303	50.5
	Female	297	49.5
Residence	Urban	300	50
	Rural	300	50
Education Level	Primary	90	15
	Secondary	200	33.3
	Tertiary	310	51.7
Age	18-24	90	15
	25-34	180	30
	35-44	210	35
	45-54	75	12.5
	55+	45	7.5

5.2 Factor Analysis

The factor analysis revealed three key dimensions of healthcare consumer education: (1) awareness of dental treatment options, (2) knowledge of preventive care, and (3) digital literacy. These three factors accounted for 72% of the total variance, indicating that healthcare consumer education in the Indian dental market is a multi-dimensional construct. Clinics must target these dimensions through their marketing strategies to ensure they are addressing the educational needs of their patients. The results of the factor analysis are presented in Table 2.

Table 2: Results of Factor Analysis

Factor	Eigenvalue	Variance Explained (%)
Awareness of Treatment	2.76	35%
Preventive Care Knowledge	2.01	27%
Digital Literacy	1.83	10%

These factors highlight the importance of both clinical knowledge and digital literacy in shaping patient engagement with dental clinics. Urban consumers were more knowledgeable about treatment options and preventive care, while rural consumers showed lower levels of digital literacy, impacting their engagement with online marketing efforts.

### 5.3 Regression Analysis

The regression analysis examined the relationship between consumer education and both patient engagement and the effectiveness of marketing strategies. The results confirmed a strong, positive correlation between healthcare consumer education and patient engagement ( $\beta = 0.54$ ,  $p < 0.001$ ). Moreover, consumer education was found to significantly predict the effectiveness of marketing strategies ( $\beta = 0.63$ ,  $p < 0.001$ ), as shown in Table 3.

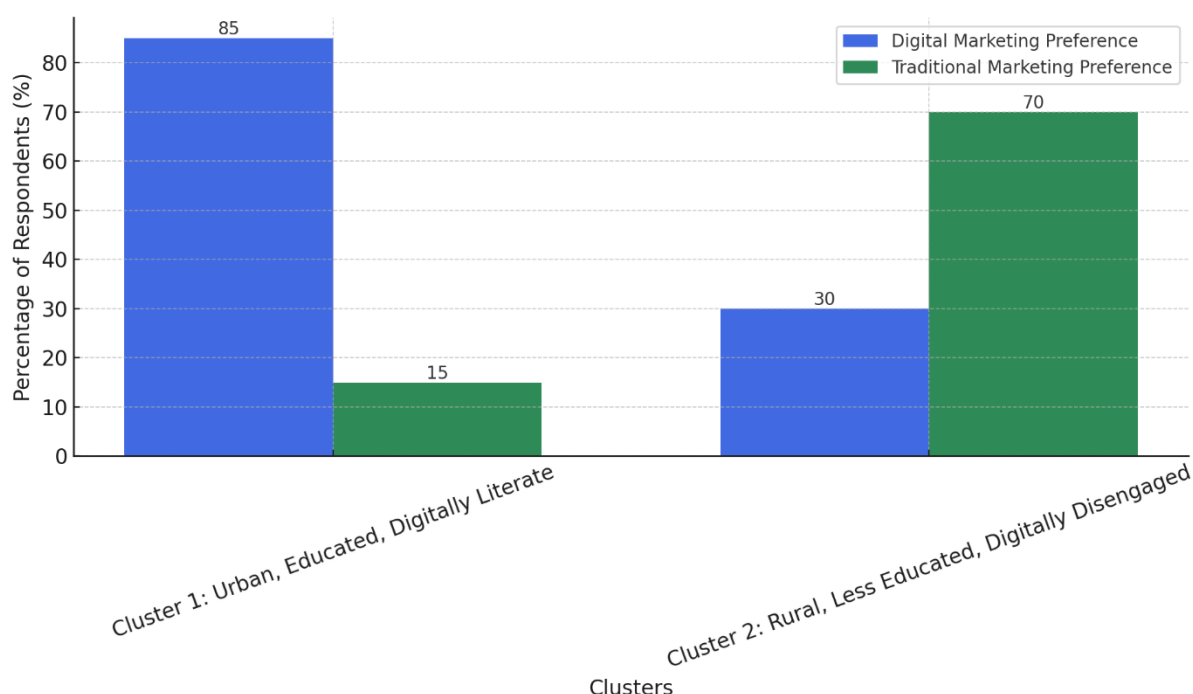
**Table 3: Results of Regression Analysis**

Dependent Variable	$\beta$ Coefficient	t-Statistic	p-Value
Consumer Education → Patient Engagement	0.54	9.28	<0.001
Consumer Education → Marketing Effectiveness	0.63	11.45	<0.001

The results indicate that educated consumers are more likely to respond positively to marketing campaigns that incorporate educational content, particularly those that address specific treatment options and preventive care.

### 5.4 Cluster Analysis

The cluster analysis segmented respondents into two distinct groups based on their healthcare literacy and engagement levels: (1) highly educated, digitally literate consumers from urban areas, and (2) less educated, digitally disengaged consumers from rural areas. Cluster 1, composed of urban consumers, and showed high levels of engagement with online educational content and digital marketing campaigns. In contrast, Cluster 2, composed of rural consumers, was more responsive to traditional marketing approaches, such as community outreach and in-person educational events.



**Figure 1: Cluster Segmentation Based on Healthcare Literacy and Marketing Preferences**

This graph illustrates the clear divide between urban and rural consumers, with urban patients favouring digital marketing strategies, while rural patients prefer face-to-face interaction and community-based education.

### 5.5 Correlation Analysis

To further explore the relationships between consumer education and patient behaviour, a correlation analysis was conducted. The analysis revealed significant positive correlations between consumer education



and both patient trust ( $r = 0.62$ ,  $p < 0.01$ ) and willingness to recommend the clinic ( $r = 0.58$ ,  $p < 0.01$ ). These results suggest that educated consumers are more likely to trust and recommend dental clinics that prioritise educational content in their marketing.

**Table 4: Correlation Matrix for Key Variables**

Variable	Trust	Patient Engagement	Marketing Effectiveness	Willingness to Recommend
Consumer Education	0.62**	0.54**	0.63**	0.58**
Patient Engagement	0.49**	-	0.54**	0.52**
Marketing Effectiveness	0.55**	0.54**	-	0.59**

\* $p < 0.01$

The results underscore the importance of healthcare consumer education in building trust and engagement, two key elements of effective marketing strategies.

## 6. Discussion

The findings of this study confirm that healthcare consumer education plays a crucial role in shaping the marketing strategies of dental clinics in India. The study's results align with the existing literature, reinforcing the notion that educated consumers are more likely to engage with healthcare providers that prioritise educational content in their marketing efforts (Patel et al., 2022; Jain & Sharma, 2021). As demonstrated by the factor and regression analyses, consumer knowledge about treatment options, preventive care, and digital literacy significantly influences patient engagement and the effectiveness of marketing campaigns.

The cluster analysis further highlights the need for a segmented marketing approach. Urban consumers, who are more educated and digitally literate, respond positively to digital marketing strategies that emphasise health education. In contrast, rural consumers, who are less educated and digitally disengaged, require more traditional, face-to-face marketing strategies. These insights are crucial for dental clinics that aim to engage diverse patient populations in India.

## 7. Conclusion

This research provides strong empirical evidence that healthcare consumer education significantly impacts the marketing strategies and patient engagement levels of dental clinics in India. The findings suggest that dental clinics must adopt differentiated marketing strategies tailored to the varying levels of consumer education and healthcare literacy across the country. For urban patients, digital marketing strategies that emphasise educational content—such as blogs, webinars, and social media campaigns—are more effective in fostering engagement and building long-term trust. In contrast, rural clinics should focus on traditional outreach methods, such as community health programmes and in-person education, to reach less digitally literate consumers.

Furthermore, the study reveals that consumer education not only enhances patient engagement but also improves the perceived effectiveness of marketing strategies. Educated consumers are more likely to trust and recommend dental clinics that prioritise transparency and offer clear, accessible educational resources. The adoption of technologies like IoT in healthcare marketing, combined with a deep understanding of consumer motivation, as seen in wellness tourism, is essential for advancing patient engagement and loyalty (Raj, Gupta and Ujjawal, 2023; Raj, Gupta and Ciddikie, 2024).

Future research should explore the long-term effects of consumer education on patient loyalty and treatment outcomes. Additionally, further studies could examine the role of emerging digital platforms in improving healthcare literacy and access, particularly in rural areas.

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