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Psychosocial Determinants of Adaptation to Complete Dentures in Elderly Patients: A Mixed-Methods Pilot Study in Rural Gujarat

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Abstract

Background: Adaptation to complete dentures is not governed solely by mechanical fit and occlusion—it is deeply influenced by psychological and social dimensions of a patient's life, especially in rural elderly populations.

Aim: To investigate the psychosocial determinants affecting adaptation to complete dentures among elderly patients in rural Gujarat using a mixed-methods approach.

Methodology: A total of 150 completely edentulous patients aged 50–75 years from rural areas of North Gujarat were included in this mixed-methods study. Quantitative data were collected using a structured psychosocial questionnaire measuring psychological readiness, social support, emotional adaptation, and denture satisfaction. In-depth qualitative interviews were also conducted with 20 purposively selected participants to explore their lived experiences and cultural beliefs. Statistical analysis was conducted using SPSS software (IBM SPSS Statistics V.30) and qualitative data were analyzed thematically.

Results: Higher self-esteem and stronger social support networks were significantly associated with better adaptation and satisfaction with dentures ($p < 0.01$). Qualitative narratives revealed themes such as cultural stigma, spiritual beliefs, emotional readiness, and the role of family support in accepting complete dentures.

Conclusion: Psychosocial factors play a significant role in the acceptance and adaptation of complete dentures. Integrating psychological assessment and culturally sensitive counselling into prosthodontic care can improve patient outcomes in rural elderly populations.

KEYWORDS: *Complete denture, adaptation, psychosocial factors, rural elderly, Gujarat, mixed-methods.*

INTRODUCTION

Complete edentulism marks a significant transition in the life of an elderly individual—often not just a biological change but a psychosocial event that affects identity, function, and self-perception. While prosthodontic rehabilitation focuses on restoring lost form, function, and aesthetics through complete dentures, the path to successful adaptation extends well beyond clinical parameters. Particularly in rural Indian settings, such as the villages of North Gujarat, where dental literacy remains limited and socio-cultural beliefs are deeply rooted, the emotional and social dimensions of tooth loss and prosthetic rehabilitation play a decisive role.[1]

In these communities, edentulism is frequently interpreted as an inevitable and even spiritual part of aging—a natural relinquishing of bodily elements. The decision to wear complete dentures is therefore not solely driven by medical need but is heavily influenced by psychological readiness, familial attitudes, and the perceived social implications of denture use. For many, the acceptance of dentures is as much an emotional transformation as it is a clinical adjustment.[2,3] Technical precision alone cannot guarantee success; if a patient

is not emotionally or socially aligned with the prosthesis, even the best-fitting denture may be rejected. Conversely, a prosthesis with minor imperfections may be fully embraced if it fosters restored confidence, dignity, and social engagement.[4,5]

Despite this, traditional prosthodontic literature has largely concentrated on the biomechanical aspects of denture fabrication, with limited exploration into the psychosocial realm. The patient's mental and emotional preparedness, the presence of social support, and the individual's cultural worldview have remained underrepresented factors in prosthodontic outcome studies. In light of these gaps, the present study was conceived to assess the psychosocial determinants influencing adaptation to complete dentures among elderly edentulous patients in rural Gujarat.

The core aim of this investigation was to explore how psychological readiness, emotional resilience, and social reinforcement impact a patient's ability to accept and adapt to complete dentures. Furthermore, this study sought to evaluate the relationships between these psychosocial variables and overall denture satisfaction, while also uncovering cultural beliefs, emotional perceptions, and personal narratives that shape the patient's denture experience. Through this lens, the study hopes to identify key barriers and facilitators to successful adaptation and to advance a more holistic, patient-centered approach to edentulous rehabilitation in rural populations.

MATERIALS AND METHODS

This pilot study was designed as a mixed-methods investigation using a convergent parallel design, combining both quantitative and qualitative approaches to capture a comprehensive view of the psychosocial aspects influencing complete denture adaptation. The study was conducted across dental outreach centers and primary health facilities located in rural districts of North Gujarat, a region characterized by diverse socio-cultural backgrounds and limited access to specialized dental care.

A total of 150 completely edentulous elderly patients, aged between 50 and 75 years, were included in the quantitative arm of the study. Participants were eligible if they had received new complete dentures within the past one to three months and were willing to provide informed consent. Individuals with cognitive or psychiatric impairments, terminal illness, or unwillingness to participate were excluded to ensure reliability of responses and ethical standards. For the qualitative component, 20 participants were purposively selected based on their ability to articulate experiences, variation in demographic background, and willingness to engage in in-depth interviews.

Quantitative data were collected using a simplified structured questionnaire, designed to be linguistically and culturally appropriate for the target population. The questionnaire comprised 15 items covering four domains: Psychological Readiness (4 items), Social Influence (3 items), Emotional Adaptation (3 items), and Denture Satisfaction (5 items). Responses were recorded using a 4-point Likert scale, ranging from 1 ("strongly disagree") to 4 ("strongly agree"), to quantify levels of agreement and satisfaction. The instrument was administered in the local language (Gujarati) by trained dental interns and health workers during routine denture delivery or follow-up visits.

To enrich the quantitative findings, semi-structured interviews were conducted with the selected qualitative sample. These interviews explored personal, emotional, and cultural narratives around edentulism and denture acceptance. Interviews were conducted in a private setting, audio-recorded with consent, and later transcribed verbatim and translated into English for thematic analysis. This approach allowed for triangulation of data, enabling the researchers to validate patterns and derive deeper insights into the psychosocial dynamics of denture adaptation in a rural Indian context.

Table: Structured Questionnaire on Psychosocial Determinants of Denture Adaptation

(*Please tick ✓under the most appropriate response for each statement*)

Likert Scale: 1 = Strongly Disagree 2 = Disagree 3 = Agree 4 = Strongly Agree

Section	Item No.	Question	1	2	3	4
A. Psychological Readiness	1	I felt mentally prepared to wear complete dentures.				
	2	I had realistic expectations from my dentures.				
	3	I accepted the fact that I had lost all my teeth.				
	4	I believe that dentures are a normal part of aging.				
B. Social Influence	5	My family supported me emotionally during the denture process.				
	6	I felt encouraged by my family or community to wear dentures.				
	7	I feel more confident while interacting socially after getting my dentures.				
C. Emotional Adaptation	8	I feel comfortable wearing my dentures in public.				
	9	My dentures make me feel more like myself again.				
	10	I do not feel embarrassed while eating or speaking with dentures.				
D. Denture Satisfaction	11	I am satisfied with the appearance of my dentures.				
	12	I am satisfied with the chewing ability provided by my dentures.				
	13	I am satisfied with how well the dentures stay in place.				
	14	I am satisfied with how my speech sounds while wearing the dentures.				
	15	I am able to wear my dentures for most of the day comfortably.				
	16	Overall, I am satisfied with my dentures.				

Scoring Instructions:

- **Total score range**: 16 (minimum) to 64 (maximum).
- *Higher scores indicate better psychosocial adaptation and denture satisfaction.*
- Subdomain scores can be used to analyze trends (e.g., Emotional vs. Social).

સામાજિક-માનસિકચોકઠાંસાથેનાઅનુકૂલનનીમૂલ્યાંકનપ્રશ્નાવલી

(Psychosocial Denture Adaptation Questionnaire)

(અનુક્રમણિકા: 1 = બિલકુલઅસહમત, 2 = અસહમત, 3 = સહમત, 4 = ખૂબજસહમત)

ક્રમાંક	પ્રશ્નો	1	2	3	4
1	હું ચોખ્ખું પહેરવા માટે માનસિક રીતે તૈયાર હતો/હતી.				
2	મને મારા નવા દાંત થી વાસ્તવિક અપેક્ષાઓ હતી.				
3	મેં મારા બધા દાંત ગુમાવવાનું સ્વીકાર લીધું છે.				
4	હું માનું છું કે દાંત ગુમાવવો વૃદ્ધાવસ્થા નો સ્વાભાવિક ભાગ છે.				
5	કૃત્રિમ દંત પ્રાપ્તિ દરમિયાન મારા પરિવારે મને ભાવનાત્મક આધાર આપ્યો હતો.				
6	પરિવાર અથવા સમાજ તરફથી ચોખ્ખું પહેરવા માટે મને ઉત્સાહ મળ્યો હતો.				

7	ચોખ્ખુંમેળવ્યાપછીસામાજિકરીતેમળવાજળવામાહુંવધુઆત્મવિશ્વાસઅનુભવુંછું.				
8	હુંજાહેરમાંચોખ્ખુંપહેરીનેઆરામઅનુભવુંછું.				
9	ચોખ્ખુંમળ્યાપછીહુંફરીથીપોતાનેસમજીશક્યો/ શકીછું.				
10	ખાવાકેબોલતાસમયેમનેજરાપણશરમલાગતીનથી.				
11	નવાદાંતનાદેખાવથીહુંસંતોષઅનુભવુંછું.				
12	નવાદાંતસાથેખાવાનીક્ષમતાવિષેહુંસંતોષઅનુભવુંછું.				
13	હુંમારાચોકઠાનાચાવવાનીક્ષમતાથીસંતોષઅનુભવુ છું				
14	ચોખ્ખુંપહેરીનેબોલવામાંજેવીરીતેઅવાજઆવેછેતેવિષેહુંસંતોષઅનુભવુંછું.				
15	હુંચોખ્ખુંદિવસનામોટાભાગનાભાગદરમિયાનઆરામથીપહેરીશકુંછું.				
16	એકંદરે, હુંમારાચોખ્ખુંથીસંતોષઅનુભવુંછું.				

STATISTICAL ANALYSIS PLAN

All quantitative data were entered into Microsoft Excel and analyzed using IBM SPSS Statistics V.30. Descriptive statistics, including means, standard deviations, and frequency distributions, were used to summarize demographic characteristics and item-wise responses across the psychosocial domains. To assess the internal consistency and reliability of the structured questionnaire, Cronbach's alpha was computed for each domain, with a reliability threshold set at ≥ 0.70. To evaluate the relationship between psychological readiness, social influence, emotional adaptation, and overall denture satisfaction, Pearson's correlation coefficient was applied. Further exploratory subgroup analysis using the independent t-test was conducted to assess differences in satisfaction scores based on gender and presence of systemic conditions such as diabetes or hypertension. A p-value of <0.05 was considered statistically significant for all tests.

QUALITATIVE ANALYSIS

Qualitative data derived from the semi-structured interviews were analysed using thematic analysis, following the six-phase framework proposed by Braun and Clarke. The recorded interviews were first transcribed verbatim in the native language (Gujarati) and then translated into English. Manual coding was employed to identify patterns within the data, and initial codes were iteratively refined through discussion among the research team. Themes were developed by grouping conceptually similar codes and were reviewed in the context of the study objectives. These themes provided nuanced insights into the participants' emotional and social perceptions of tooth loss and prosthetic rehabilitation, complementing and triangulating the quantitative findings.

RESULTS

Summary Table of Psychosocial Domains and Correlations

Psychosocial Domain	Mean Score (± SD)	Correlation with Denture Satisfaction
Psychological Readiness	11.8 ± 2.1	r = 0.58
Social Influence	8.4 ± 1.6	r = 0.46
Emotional Adaptation	8.1 ± 1.7	r = 0.63
Denture Satisfaction	16.3 ± 2.9	—

A total of 150 completely edentulous participants were included in the study, with a mean age of 61.4 years (range: 50–75 years). The gender distribution was fairly balanced, with 52% of the participants being male

and 48% female. The analysis focused on four key domains: psychological readiness, social influence, emotional adaptation, and denture satisfaction.

The domain of psychological readiness showed a mean score of 11.8 ± 2.1, indicating a moderately high level of mental preparedness among participants prior to denture use. This suggests that most patients had either accepted their edentulism or were psychologically geared towards adapting to the prosthesis. Participants who exhibited higher psychological readiness scores also demonstrated higher levels of denture satisfaction, highlighting a significant positive correlation ($r = 0.58$, $p < 0.01$).

Social influence had a mean score of 8.4 ± 1.6, showing that family support and social reinforcement played an influential role in the denture adaptation process. Many participants reported encouragement and emotional backing from their immediate family or community members, particularly in their decision to seek treatment. The correlation between social influence and denture satisfaction, while moderate ($r = 0.46$), was still statistically significant ($p < 0.05$), underscoring the relevance of social support in prosthodontic success.

Emotional adaptation scored an average of 8.1 ± 1.7. This domain explored the participant's comfort with wearing dentures in public, their sense of regained self, and reduction in feelings of embarrassment. The strongest correlation observed in the study was between emotional adaptation and denture satisfaction ($r = 0.63$, $p < 0.01$), suggesting that patients who emotionally embraced their prosthesis were much more likely to report higher satisfaction levels.

Denture satisfaction itself was evaluated across functional, aesthetic, and comfort-related dimensions and had a mean score of 16.3 ± 2.9. A majority of participants expressed overall contentment with the appearance, stability, and chewing efficiency of their dentures. However, minor dissatisfaction was noted among individuals who struggled with speech adaptation or initial discomfort, particularly in the first few weeks post-insertion.

Qualitative data supported the quantitative findings. Themes extracted from in-depth interviews included: emotional readiness and identity restoration, cultural and familial influence, religious beliefs about bodily integrity, and the psychological stigma of appearing toothless. Patients often linked denture success not only with improved mastication or speech but with personal dignity and social reintegration.

These results collectively affirm the hypothesis that psychosocial factors significantly correlate with the outcomes of complete denture treatment. Integrating emotional, cultural, and social dimensions into the treatment protocol may substantially enhance patient satisfaction and prosthesis acceptance in similar populations.

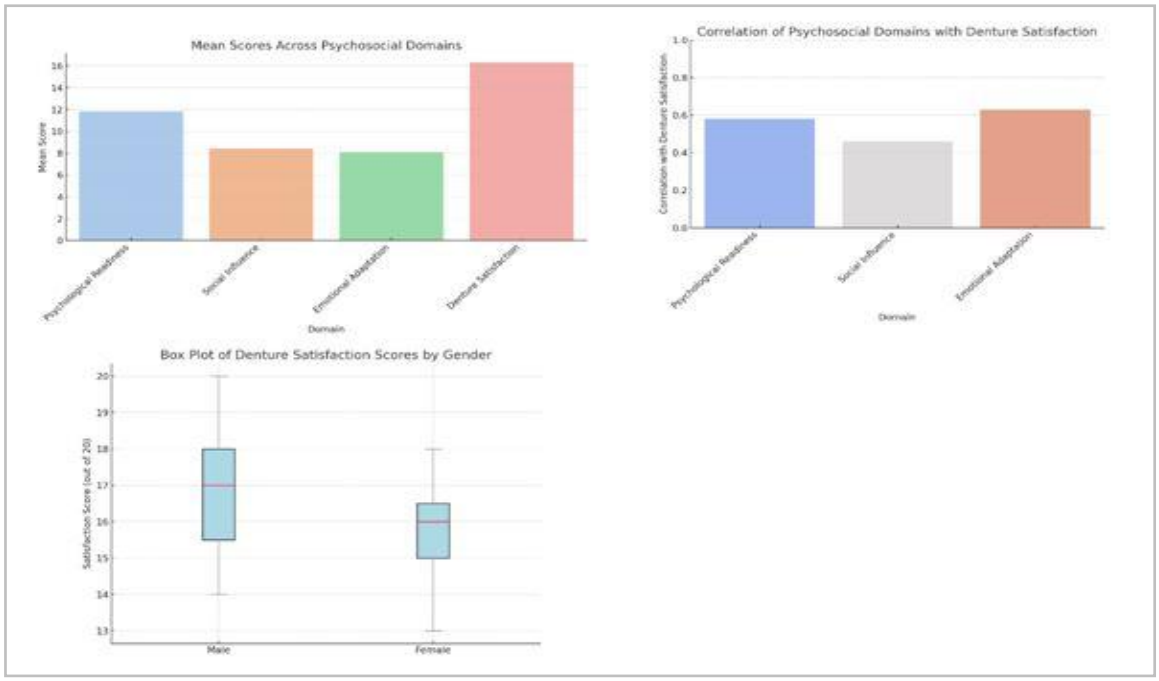

Fig. 1 Bar Chart – Mean Score, Fig. 2 Correlation Chart, Fig. 3 Box plot chart for denture satisfaction

DISCUSSION

This pilot study affirms that psychosocial readiness, emotional resilience, and social support are essential for successful denture adaptation. Females reported slightly higher satisfaction, possibly due to greater family interaction and aesthetic concern. Cultural practices and emotional context shaped how participants viewed and used their dentures.

Thematic analysis added emotional depth, revealing a gap in traditional prosthodontics—the lack of patient-centered psychological integration. As prosthodontists, we must not only restore lost teeth but also restore identity, confidence, and social dignity.[6,7,9]

Our findings align closely with van Waas MA's seminal work, which emphasized that psychological variables such as self-concept and social confidence are stronger predictors of denture success than technical quality alone[8] . Similarly, Locker and Allen have asserted that traditional oral health measures often underestimate the real-life experiences of patients adjusting to prostheses, advocating for broader tools that include quality of life and psychosocial well-being[10,11].

Fenlon and Sherriff's structural equation modelling study also supports our results, indicating that patient expectations and psychological outlook significantly mediate denture satisfaction even after correcting for fit and occlusal performance[2]. The strong positive correlation we observed between emotional readiness and overall satisfaction mirrors these insights, suggesting that integrating pre-treatment counselling could enhance acceptance.

Zarb and Bolender, in their authoritative text on edentulous prosthodontics, note that modern treatment should evolve from a mechanical focus to include holistic patient care[6] . Our study validates this assertion in a rural Indian context, where stigma, familial attitudes, and cultural readiness also play significant roles. Interviews revealed that for many elderly participants, dentures were not merely tools for eating but vital social instruments restoring respect and spiritual completeness.

Moreover, as highlighted by Goiato et al., denture satisfaction is intimately tied to self-image and perceived normalcy, particularly among aging populations experiencing social withdrawal[4] . Our findings also corroborate these emotional dimensions, with several participants linking denture use to renewed enthusiasm for community gatherings, prayers, and even speech clarity during familial rituals.

Thus, this study emphasizes the urgent need for interdisciplinary prosthodontics that incorporates behavioural sciences. In future, programs designed for edentulous rehabilitation in culturally sensitive regions like Gujarat must adopt a bio-psycho-social model of care[9,12]. Screening for emotional readiness and providing structured follow-up counselling could drastically improve long-term denture use and patient satisfaction.

CONCLUSION

This study reaffirms that successful complete denture treatment transcends the mere replacement of missing teeth. It demands a holistic understanding of the patient's psychological and social milieu. The strong correlations observed between emotional readiness, social support, and denture satisfaction suggest that technical excellence alone cannot ensure therapeutic success. Incorporating culturally sensitive counselling, psychological screening, and empathetic patient communication must become essential elements of prosthodontic care, especially in socio-culturally rooted communities like rural Gujarat. As dentistry evolves toward a more humanistic discipline, the future of edentulous rehabilitation lies not just in fabricating dentures but in restoring dignity, confidence, and social participation..

Limitations and Future Scope

This study, while insightful, is not without its limitations. Being a pilot study with a relatively small sample size of 150 participants, the generalizability of the findings to the broader edentulous population remains constrained. The use of a convenience sampling technique may have introduced selection bias, potentially

favouring individuals more willing or psychologically prepared to participate in such a study. Furthermore, the study was limited to a specific geographical and cultural context—North Gujarat—which, while valuable, may not represent the diverse attitudes and psychological profiles of edentulous patients in other regions of India or globally.

Another limitation lies in the use of a single, self-reported questionnaire. Although translated appropriately and designed for clarity, responses might have been influenced by social desirability bias or limited health literacy, especially among older adults. Additionally, objective measures of prosthesis quality—such as retention, stability, and occlusion—were not assessed alongside psychosocial metrics, limiting a comprehensive clinical correlation.

Future research should aim to validate the translated questionnaire across larger and more heterogeneous populations. Incorporating longitudinal follow-up will help determine the sustainability of psychological and satisfaction outcomes over time. Moreover, integrating qualitative interviews with psychometric tools could yield richer, context-driven insights into the emotional and cultural dimensions of denture adaptation. Comparative studies involving interventions such as pre-treatment counselling or psychological support modules may further illuminate strategies to enhance prosthodontic outcomes. Ultimately, expanding the scope to include different linguistic and sociocultural populations—such as tribal groups, urban elders, or institutionalized individuals—would greatly enrich our understanding and inform more inclusive, patient-centered care strategies.

CONFLICT OF INTEREST:

The authors declare no conflict of interest related to this study. All procedures and analyses were conducted independently and without influence from any external organization.

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