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Patient perception and psychological experience with removable prosthodontics: A cross-sectional study in Libya

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ABSTRACT

Background: Removable dentures remain essential for managing partial and complete tooth loss, particularly among older adults in settings where implant treatment may be limited. This study assessed psychological experiences, self-reported social perceptions, denture type, and duration of use among adults wearing removable prostheses in Libya. **Methods:** A cross-sectional survey was conducted in public and private dental clinics in Benghazi and Al Bida from July to November 2025. Using convenience sampling, 120 adults aged 45 years or older who had worn complete or removable partial dentures for at least three months completed an expert-reviewed, structured 5-point Likert-scale questionnaire. Data were analyzed using Statistical Package for the Social Sciences (SPSS) with descriptive statistics and the Chi-square test. **Results:** Of the 120 participants, 67 (55.8%) were female and 53 (44.2%) were male; 57 (47.5%) were aged 65-74 years. Removable partial dentures (RPDs) were used by 64 participants (53.3%), while 56 (46.7%) used complete dentures (CDs). Denture type was significantly associated with gender ($p < 0.05$). The most frequently reported positive outcomes were increased self-confidence (31.7%), improved social interaction (21.7%), and better self-image (18.3%). The main functional difficulties were chewing problems (26.7%), discomfort or pain (21.7%), and speaking difficulties (20.0%). **Conclusions:** Removable dentures were associated with positive psychological experiences but also persistent functional challenges, highlighting the importance of addressing both adaptation and patient expectations in prosthodontic care.

تصورات المرضى والخبرة النفسية مع التعويضات السنية المتحركة: دراسة مقطعية في ليبيا

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الملخص

الخلفية: تُعد الأطقم السنية المتحركة خيارًا علاجيًا أساسيًا لتعويض الفقد الجزئي أو الكامل للأسنان، ولا سيما لدى كبار السن وفي البيئات التي قد يكون فيها العلاج بالزراعات محدودًا. هدفت هذه الدراسة إلى تقييم الخبرات النفسية والتصورات الاجتماعية المبلغ عنها ذاتيًا، ونوع الطقم ومدة استخدامه لدى البالغين الذين يستخدمون تعويضات سنية متحركة في ليبيا. **الطرائق:** أُجريت دراسة مقطعية في عيادات أسنان عامة وخاصة في بنغازي والبيضاء خلال الفترة من يوليو إلى نوفمبر 2025. شملت الدراسة 120 مشاركًا بعمر 45 سنة فأكثر ممن استخدموا طقمًا كاملاً أو جزئيًا متحركًا لمدة لا تقل عن ثلاثة أشهر، وُجمعت البيانات باستخدام استبيان منظم بمقياس ليكرت خماسي بعد مراجعته من الخبراء. **النتائج:** أظهر التحليل أن 55.8% من المشاركين إناث، وأن الفئة العمرية 65-74 سنة كانت الأكثر تمثيلًا بنسبة 47.5%. استخدم 53.3% أطقمًا جزئية متحركة و 46.7% أطقمًا كاملة، ووجد ارتباط ذو دلالة إحصائية بين الجنس ونوع الطقم. كانت زيادة الثقة بالنفس

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وتحسن التفاعل الاجتماعي والصورة الذاتية أبرز النتائج الإيجابية، بينما كانت صعوبة المضغ وعدم الراحة أو الألم وصعوبة الكلام أكثر المشكلات الوظيفية شيوعاً. الاستنتاجات: تشير النتائج إلى أهمية مراعاة التكيف النفسي والتوقعات الوظيفية للمريض ضمن الرعاية التعويضية.

Abbreviations and Acronyms: CD, complete denture; RPD, removable partial denture; OHIP, Oral Health Impact Profile; SPSS, Statistical Package for the Social Sciences.

1. Introduction

Loss of natural teeth is a prevalent health condition that significantly affects an individual's aesthetics, masticatory function, speech, and overall quality of life [1,2]. Conventional removable complete dentures (CDs) and removable partial dentures (RPDs) remain accessible and essential treatment modalities for managing edentulism. Particularly in many developing countries, these prostheses are the primary treatment option due to their affordability and simplicity of fabrication, as dental implants are often restricted by financial, medical, or anatomical limitations [3].

Beyond restoring physical function, the psychological experience of wearing dentures is profound. Tooth loss and the subsequent confidence on a removable prosthesis can significantly alter a patient's self-esteem, social interaction, emotional welfare, and overall satisfaction with life [4]. It is critical to understand these psychological reactions, particularly in the geriatric population, who frequently face concurrent psychosocial challenges such as social isolation, income loss, and declining physical health [4,5]. Furthermore, normal physiological aging processes such as bone resorption, facial wrinkling, and reduced muscle tone can complicate prosthodontic outcomes and further influence patient self-perception [5,6].

Patient satisfaction, defined as the subjective comparison between expectations and actual experiences, is increasingly recognized as a key indicator of treatment success [7]. In recent years, healthcare has shifted toward patient-centered care, emphasizing that a patient's psychological readiness and attitude toward dentures significantly affect their acceptance and effective use of the prostheses [8]. Recognizing these psychological factors has long been part of prosthodontic planning, utilizing frameworks like the House Mental Classification to anticipate patient reactions and tailor clinical approaches [9,10].

While the psychosocial dimensions of removable prosthodontics have been studied internationally, there is a notable knowledge gap regarding these experiences within the Libyan context. Cultural, economic, and specific healthcare system factors in Libya may uniquely influence patient perceptions and acceptance of removable dentures. Furthermore, while validated global instruments such as the Oral Health Impact Profile (OHIP) exist, a tailored, structured 5-point Likert scale and open-ended questionnaire was utilized in this study. This approach was chosen to capture specific, localized self-reported nuances regarding emotional well-being, functional challenges, and social interactions directly relevant to the patient populations in Benghazi and Al Beda clinics.

Therefore, this study was conducted with the following objectives:

1.1. Primary objective

To evaluate the self-reported psychological experiences specifically self-esteem, confidence, social relationships, and emotional well-being associated with the use of removable prostheses among adult patients in Libya.

1.2. Secondary objectives

1. To identify the most common self-reported functional and psychological challenges experienced by patients using removable dentures.
2. To assess the distribution of denture types (complete vs. partial) and their duration of usage across different age and gender demographic groups.

2. Materials and Methods

2.1. Study design and setting

A descriptive cross-sectional study was conducted to evaluate the psychological experiences and self-perceptions of patients utilizing removable prosthodontics. The study took place at selected public

and private dental clinics in the cities of Benghazi and Al Beda, Libya. Data were collected over a five-month period, from July 2025 to November 2025.

2.2. Participants and sampling

Participants were recruited using a convenience sampling method based on clinic attendance during the study period. A total sample of 120 patients was achieved. During the recruitment phase, patients were screened for eligibility by trained data collectors.

- Inclusion criteria: Adult patients aged 45 years and older who had been wearing a complete or removable partial denture for a minimum of three months.
- Exclusion criteria: Patients with a history of significant recent oral surgery, those with documented psychiatric disorders, and those unable or unwilling to provide informed consent.

2.3. Data collection and questionnaire design

Data were gathered using a structured, self-administered questionnaire. The instrument was developed based on existing literature [11–13] and adapted for the local context. To ensure content validity and cultural appropriateness, the initial draft was reviewed by a panel of prosthodontic and psychological experts. A pilot test was subsequently conducted on a small subset of patients to verify the clarity and comprehensibility of the questions; minor adjustments were made based on this feedback, and pilot data were excluded from the final analysis.

The questionnaire consisted of two distinct sections:

1. Demographic and Clinical Data: This section captured closed-ended categorical variables, including gender, age group (45–54, 55–64, 65–74, and ≥ 75 years), type of prosthesis (Complete Denture [CD] or Removable Partial Denture [RPD]), and duration of prosthesis usage (< 5 , 5–10, 11–20, and > 20 years).
2. Psychological and Functional Outcomes: This section utilized both closed and open-ended formats. Psychological comfort, self-esteem, and social interaction were measured using a 5-point Likert scale (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree). The inclusion of a neutral midpoint helped mitigate response bias for participants feeling ambivalent. Additionally, open-ended questions were included to allow patients to freely describe specific functional difficulties (e.g., chewing or speech issues) and personal challenges adapting to their dentures.

2.4. Data quality control and anonymization

Questionnaires were distributed by trained data collectors who assisted participants if clarification was needed, while ensuring privacy. To prevent duplicate entries, patient recruitment was cross-referenced with clinic appointment logs without recording identifying information on the questionnaires themselves. All collected data were strictly anonymized and coded prior to entry into the database.

2.5. Ethical considerations

The study protocol received formal ethical approval from the Ethical Research Committee, Faculty of Dentistry, University of Benghazi (Approval Number: 0230). Prior to participation, the study's purpose and voluntary nature were explained, and written informed consent was obtained from all participants.

2.6. Statistical analysis

Data were entered and analyzed using IBM SPSS Statistics, version 22. A precise, variable-by-variable analysis plan was executed:

- Demographic profiles (age, gender), clinical variables (denture type, usage duration), and the coded responses from the open-ended functional challenge questions were analyzed using descriptive statistics, presented as absolute frequencies (n) and valid percentages (%).

- Likert-scale responses regarding psychological outcomes were similarly summarized using categorical counts and percentages.
- To test for associations between demographic variables and clinical status (specifically, Gender vs. Denture Type), the Chi-square (χ^2) test for independence was utilized. A p-value of <0.05 was considered statistically significant.

3. Results

3.1. Participant flow and missing data

A total of 120 adult patients who met the inclusion criteria completed the questionnaire. There were no missing responses for the primary demographic, clinical, or categorized outcome variables; therefore, all 120 responses were included in the final analysis.

3.2. Demographic and clinical characteristics

The sample comprised 67 females (55.8%) and 53 males (44.2%). Age was recorded categorically, with the majority of patients falling into the older age groups: 45–54 years ($n = 6$, 5.0%), 55–64 years ($n = 18$, 15.0%), 65–74 years ($n = 57$, 47.5%), and ≥ 75 years ($n = 39$, 32.5%). In total, 80.0% of the sample was aged 65 or older. Regarding the type of prosthesis, 64 participants (53.3%) utilized Removable Partial Dentures (RPDs), while 56 (46.7%) utilized Complete Dentures (CDs). The duration of denture usage among the participants was distributed as follows: <5 years ($n = 14$, 11.7%), 5–10 years ($n = 56$, 46.7%), 11–20 years ($n = 42$, 35.0%), and >20 years ($n = 8$, 6.7%).

3.3. Primary outcomes: psychological comfort and functional challenges

Patients' primary self-reported psychological outcomes following removable prosthodontic treatment are detailed in Table 1. Responses were categorized based on the most significant psychological change reported by each patient. An increase in self-confidence was the most frequently reported beneficial effect ($n = 38$, 31.7%), followed by improved social interaction ($n = 26$, 21.7%) and better self-image/appearance satisfaction ($n = 22$, 18.3%). Only 5.0% of the subjects ($n = 6$) reported experiencing no psychological change.

Table 1. Primary self-reported psychological outcomes associated with denture use ($n = 120$).

Primary psychological outcome	n	%
Improved self-confidence	38	31.7
Improved social interaction	26	21.7
Better self-image / appearance satisfaction	22	18.3
Reduced anxiety or embarrassment	18	15.0
Improved emotional well-being	10	8.3
No psychological change	6	5.0
Total	120	100

Each participant reported the single most significant psychological change. Values are counts and percentages of all participants.

Table 2 presents the primary functional and adaptational challenges reported by the patients. Chewing difficulties were the most commonly noted challenge ($n = 32$, 26.7%), followed by discomfort or pain ($n = 26$, 21.7%) and speech difficulties ($n = 24$, 20.0%).

Table 2. Primary self-reported challenges and difficulties with denture use ($n = 120$).

Primary challenge / difficulty	n	%
Difficulty in chewing	32	26.7
Discomfort or pain	26	21.7
Difficulty in speaking	24	20.0
Psychological adaptation difficulties	16	13.3
Fear of prosthesis displacement	10	8.3
Aesthetic concerns	8	6.7
No significant challenges	4	3.3
Total	120	100

Values are counts and percentages of all participants.

3.4. Secondary analyses: demographic and clinical associations

A cross-tabulation of gender and denture type revealed a statistically significant association (Chi-square test, $p < 0.05$) presented in Table 3. Among female participants, 62.7% ($n = 42/67$) utilized partial

dentures. In contrast, among male participants, 41.5% ($n = 22/53$) utilized partial dentures, while the majority (58.5%, $n = 31/53$) utilized complete dentures.

Table 3. Demographic and clinical characteristics of the study participants ($n = 120$).

Characteristic	Category	n	%
Gender	Female	67	55.8
	Male	53	44.2
Age group	45–54 years	6	5.0
	55–64 years	18	15.0
	65–74 years	57	47.5
	≥ 75 years	39	32.5
	Total	120	100
Prosthesis type	Removable partial denture	64	53.3
	Complete denture	56	46.7
Duration of usage	<5 years	14	11.7
	5–10 years	56	46.7
	11–20 years	42	35.0
	>20 years	8	6.7

Values are counts and percentages of all participants.

When observing denture usage duration across genders, the most frequent duration category for female RPD users was 5–10 years ($n = 26$), representing 61.9% of all female RPD users. For male complete denture users, the most frequent duration category was 11–20 years ($n = 16$).

4. Discussion

This study investigated the psychological experiences and self-reported functional challenges of patients using removable prosthodontics in Benghazi and Al Beda, Libya. The principal findings indicate that removable dentures are associated with notable psychological benefits, primarily improved self-confidence and enhanced social interaction. Conversely, patients continue to face adaptational challenges, most frequently reporting chewing difficulties and physical discomfort. Additionally, a significant demographic pattern emerged, with females more likely to use removable partial dentures (RPDs) compared to males, who predominantly used complete dentures (CDs).

The demographic concentration of denture users in the 65–74 age group aligns with global epidemiological trends regarding tooth loss and prosthetic need in older adults [11]. The observed gender difference regarding denture type is consistent with existing literature suggesting varying patterns of dental care utilization and aesthetic expectations between genders [12]. However, because this study relied on cross-sectional survey data, these differences must be discussed in the context of self-reported behaviors rather than assumed biological or anatomical causes. Whether this trend stems from differences in treatment-seeking timelines, socioeconomic factors, or varying clinical treatment plans in this specific population remains an area for future investigation.

The psychological benefits reported by participants support the consensus that prosthodontic rehabilitation extends beyond mechanical replacement to influence social and emotional well-being [13–15]. Similarly, the persistent functional complaints (chewing difficulty and pain) highlight the well-documented challenges of adjusting to removable prostheses [16,17]. While historical frameworks, such as the House Mental Classification [9,10], conceptually link psychological readiness to treatment acceptance, the current findings quantitatively reinforce that subjective self-perception and emotional well-being are heavily intertwined with the daily use of removable prostheses.

Several limitations of this study must be acknowledged. First, the clinic-based, cross-sectional design prevents the establishment of causal relationships between denture use and psychological changes over time. Second, the reliance on self-reported data introduces potential recall and response biases. Finally, objective clinical variables such as the condition of the residual alveolar ridge, the exact etiology of tooth loss, and the technical quality or fit of the patients' current prostheses were not measured, limiting the ability to correlate functional complaints with anatomical realities.

These findings imply that patient satisfaction with removable dentures is highly subjective. Clinicians should anticipate functional

complaints and address them by managing patient expectations and discussing the psychological realities of denture adaptation prior to treatment.

5. Conclusions

In this clinic-based, cross-sectional study, the use of removable dentures was associated with self-reported improvements in psychological comfort, particularly enhanced self-confidence, despite ongoing functional challenges such as chewing difficulty. Because these findings rely on self-reported data, causal effects cannot be confirmed; however, the results underscore that managing patient expectations regarding both physical adaptation and psychological well-being remains a critical component of prosthodontic care.

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Declarations

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Ethics approval and consent to participate: This study was approved by the Ethical Research Committee, Faculty of Dentistry, University of Benghazi (approval no. 0230). Written informed consent was obtained from all participants.

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