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Psychosocial Outcomes of Maxillofacial Prosthetic Rehabilitation: Appearance, Stigma, Social Reintegration, Speech, Eating, and Emotional Recovery

Ibrahim Abdul Jaleel Yamani¹, Izzeldeen Abdullah Alnaimi², Ahed J. Alkhatib³

¹Imam Mohammad Ibn Saud Islamic University (IMSIU)

²Imam Mohammad Ibn Saud Islamic University (IMSIU)

³Jordan University of Science & Technology

Abstract:

Maxillofacial prosthetic rehabilitation not only involves the replacement of anatomy and restoration of function but is also fundamental to the reconstruction of identity, confidence, socialization and emotional well-being of patients with craniofacial defects. Defects caused due to resections in oncology defects, trauma, congenital and other pathological defects or extensive surgical defects. These defects may interfere with the disturbance in facial appearance, speech, mastication, social interaction and may result in significant psychosocial consequences. This article deals with psychosocial outcomes of maxillofacial prosthetic rehabilitation with reference to appearance, stigma, social reintegration, speech, eating and emotional recovery. According to the evidence, successful prosthetic rehabilitation provides patients with a more positive self-perception, body image, facial satisfaction, communication, nutritional function, and social confidence. The influences of expectations, cultural disability perceptions, socioeconomic status, access to specialist care, and multidisciplinary support availability on patient outcomes. Despite successful technical prosthesis, patients may experience stigma, social avoidance, anxiety, altered identity, and difficulties in public engagement, highlighting the need for a patient-centered assessment. The review suggests that validated quality-of-life measures, psychological screening, speech therapy, dietary counseling, social support, and ethical accessibility should be added to routine maxillofacial rehabilitation. All in all, psychosocial recovery must be thought of as a primary therapeutic endpoint rather than as a secondary outcome of prosthetic treatment.

Keywords: Maxillofacial prosthetics; psychosocial rehabilitation; facial appearance; social reintegration; quality of life

1. Introduction

Following surgical procedures to treat craniofacial trauma or oncology-related resections, many patients experience loss of facial volumes or contours requiring prosthetic restoration (1, 2). This rehabilitation aims to prevent stigmatization, facilitate social reintegration, and restore abilities for speech and chewing

(3, 4). Craniofacial prosthetic rehabilitation supports psychosocial recovery through modification of appearance, re-establishment of cosmetic daily routines, and mitigation of degree of stigma experienced during social interactions (5,6). The goal of treatment is to enhance the patient's integrative perception of self by restoring parts of the face or head that affect social capabilities, thus counteracting the physiological consequences of the surgical procedure (7, 8). Therefore, factors influencing psychosocial recovery have increased importance in the field since previous work has extensively characterized gains in speech and masticatory function and extensive systematic mapping of psychosocial recovery pathways — from the clinical side of prosthetic rehabilitation to the psychological side on support needed by the patient (9)(table 1).

Table 1: Core Psychosocial Domains Affected by Maxillofacial Prosthetic Rehabilitation

Domain	Main patient concern	Possible positive effect of rehabilitation	Suggested assessment tool/outcome
Appearance and facial identity	Altered face, asymmetry, visible defect, loss of self-image	Improved facial harmony, confidence, body image, and acceptance	Appearance satisfaction scale, body-image questionnaire
Stigma and public perception	Fear of being stared at, social embarrassment, negative comments	Reduced perceived stigma and improved public interaction	Stigma scale, social avoidance items
Social reintegration	Avoidance of family, workplace, and community activities	Return to social roles, better interpersonal relationships	Social functioning scale, QoL domains
Speech and communication	Hypernasality, articulation difficulty, reduced intelligibility	Improved speech clarity and communication confidence	Speech intelligibility assessment, patient-reported speech comfort
Eating and mastication	Difficulty chewing, altered diet, embarrassment while eating	Improved mastication, diet variety, eating in public	Masticatory performance tests, food diaries
Emotional recovery	Anxiety, sadness, altered identity, coping difficulties	Better adjustment, resilience, emotional stability	Anxiety/depression scales, coping/resilience measures

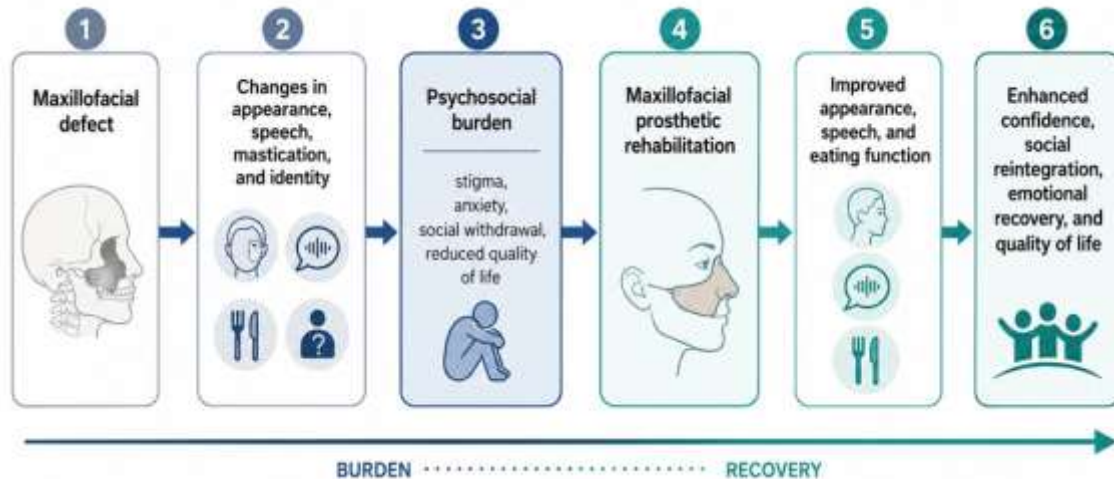


Figure 1: Conceptual pathway linking maxillofacial defects to psychosocial burden and showing how prosthetic rehabilitation contributes to appearance restoration, functional recovery, social reintegration, and emotional adjustment.

2. Appearance and Self-Perception

Patients undergoing maxillofacial prosthetic rehabilitation commonly report a strong impact on their self-perception and appearance-related psychosocial outcomes (10). These changes are generally associated with improvements in confidence, perceived body image, identity, and satisfaction with facial aesthetics (11). On the other hand, unfulfilled expectations regarding rehabilitation may relate to a loss of social confidence, perceived harassment, and a negative potential impact on occupational success (12, 13). Information surrounding the impact of maxillofacial rehabilitation on psychosocial outcomes is nevertheless scarce, which significantly affects the psycho-social evaluation (14, 15).

Assessment of appearance-related and psychosocial outcomes remains heterogeneous. Numerous authors have developed methodologies for the self-assessment of appearance, and for quantifying satisfaction with rehabilitation outcomes (16). Appearance-related assessment scales have been classified as general or specific, homogeneous or multidimensional, and subjective or non-subjective (17). The classification of scales regarding satisfactory assessment of the self-perception of a face—complementary to maxillofacial rehabilitation is nevertheless missing (18). The wide range of potential changes in appearance following the rehabilitation of maxillofacial defects hampers the production of generic peri- and post- rehabilitative assessments (19). A large number of relevant questions also concern the choice of scales and the critical examination of supplementary parameters including the assessment of satisfaction regarding various aspects of the rehabilitation are missing (19-22).

3. Stigma and Public Perception

Prosthetic rehabilitation positively influences social reintegration and interpersonal relationships across family, work, and community domains (23). Documented changes include increased social participation, expanded support networks, and enhanced perceived acceptance after rehabilitation (24). Nevertheless,

barriers to reintegration and strategies to overcome them persist (25). These include addressing specific social concerns, such as integration with colleagues, and training in communication skills to facilitate the resumption of activities such as public or external presentations (26).

4. Social Reintegration and Relationships

Maxillofacial prosthetic rehabilitation profoundly influences social reintegration and relationships (27). Extensive research substantiates the barriers to integration faced by persons requiring facial prostheses (27). Social reintegration requires increased participation not only in the family domain but also at work and in the community (28). Maxillofacial prosthetic rehabilitation has a strong positive impact on social reintegration and interpersonal relationships, promoting participation at home, work, or the community, and enhancing social acceptance (29). Changes in social activities and increases in invited social gatherings indicate such improvements, together with expansions of social support networks in the family, workplace, and community domains (30). After maxillofacial rehabilitation, social life satisfaction improves substantially, leading to better overall rehabilitation outcomes (31). Several barriers to rehabilitation should be highlighted (32). Maximizing social acceptance represents an important objective, as limited engagement in social activities and infrequent invitations to gatherings hinder further reintegration (28). Ineffective communication and non-verbal interaction may obstruct social contact and encourage avoidance behavior (29). Non-participation in rehabilitation consultations and time constraints also reduce the extent of rehabilitation pursued (30). To overcome these challenges, additional efforts should be made to assist clients and their families, drawing on speech therapists and communication skills training to promote expression, foster engagement in the rehabilitation process, and recommend esthetic enhancement support (31, 32).

5. Speech and Communication

Prosthetic rehabilitation following maxillofacial tissue loss positively impacts speech and communication, facilitating smooth and articulate verbal expression (29). Changes in aesthetic appearance and restoration of masticatory function are essential in the rehabilitation of patients who have experienced full-thickness resection of the anterior maxilla or hard palate (32). Deficits in these domains have been reported to disturb speech intelligibility and comfort, exerting a negative influence on daily life (33). Maxillofacial rehabilitation has been shown to significantly enhance speech intelligibility in patients who have undergone glossectomy (34). Maxillofacial rehabilitation with occlusal and non-occlusal obturators improves mastication and the consequent patient diet (35). Speech plays a major role in social communication, and impairments such as articulation disorders, resonance disorders, or disturbances in fluency may lead to serious social limitations (36-38).

Speech and communication remain a crucial psychosocial component of maxillofacial rehabilitation (39). The aim of maxillofacial prosthetic treatment is to restore the lost part of the structure, integrate with the remaining facial parts while providing comfort to the patient, and preserve articulation, mastication, and other functions of daily living (40-42).

6. Mastication and Eating Functions

Maxillofacial prosthetic rehabilitation plays a decisive role to restore the mastication and eating functions of an individual affected by the loss of facial structures (43). Apart from regaining the ability to masticate and resume a normal diet, patients after prosthetic rehabilitation also reported a significant improvement in the quality of food textures and chewing efficiency (44). The chewing ability of patients with prosthesis is commonly evaluated using standardised tests (jelly cube test), food diaries, and masticatory performance factors (45). Studies were also conducted to compare the chewing function of patients rehabilitated with prosthesis and patients receiving complementary rehabilitative approaches (46, 47).

7. Emotional and Psychological Adjustment

Maxillofacial defects impair physical appearance and bodily integrity, leading to altered self-perception, body image, social functioning, and identity (48). Rehabilitation through prosthetic devices enhances varying aspects of appearance, resuming integral bodily perception (49). Treatment requires coordinated multidisciplinary efforts to restore function and aesthetics (50). Participation in caregiving and the nature of trauma markedly influence the rehabilitation period and psychosocial adjustment (51). The trajectory of emotional and psychological adjustment differs among patients, as illustrated by diverse responses following similar rehabilitation (51).

The temporal course of emotional and psychological adjustment after rehabilitation remains poorly understood (52). Changes in mood, anxiety, resilience, and coping styles post-prosthetic rehabilitation have been consistently reported (53). Adjustment disorder screening indicates the need for further assessment of adjustment-related emotional distress, coping styles, and psychosocial support benefits (54). Multiple validated distance questionnaires have been employed to comprehensively assess various adjustment aspects to a lost bodily part and its restoration (55). Constructed narratives document personal accounts of distress associated with varying rehabilitation aspects, exemplifying individual adjustment experiences (56-58).

A considerable body of research addresses emotional recovery following prosthetic rehabilitation (59). Generally, the surgical establishment of maxillofacial prostheses restores patients' psychosocial wellness, but responses differ significantly (60).

8. Multidisciplinary Rehabilitation Approaches

Maxillofacial trauma and its subsequent rehabilitation invoke strong emotional responses. Individuals often experience incongruities between internal perception and external appearance (61). A maxillectomy prosthesis restores both and facilitates socialization, allowing the individual to return to a normal functional state (62). Early on, the adjustment process focuses on the restoration of appearance so that perception and acceptance of defect and prosthesis can begin (63). This article delineates a multidisciplinary rehabilitation team approach to facial prosthetic rehabilitation and reports normative data for measuring treatment outcomes.

The team should include a maxillofacial surgeon, a prosthodontist with a maxillofacial or orofacial prosthetic specialty, a speech-language pathologist, a psychologist, a dietitian, and a social worker (10).

Intensive restorative treatment should be prioritized within the framework of a supportive multidisciplinary treatment program (64). Rehabilitation should start as soon as the surgical site is healed, scar maturation is complete, and tissue health permits prosthetic construction (65). If maxillectomy or mandibular resection cases are treated within three to six months, supragingival obturator prostheses and prostheses may be stabilized with residual tissue instead of implants (66, 67) (table 2, figure 1).

Table 2: Multidisciplinary Roles in Maxillofacial Prosthetic Rehabilitation

Team member	Main role	Psychosocial contribution
Maxillofacial surgeon	Surgical reconstruction and preparation of defect site	Reduces physical impairment and prepares patient for rehabilitation
Prosthodontist/maxillofacial prosthetist	Design and fabrication of prosthesis	Restores appearance, speech, chewing, and patient confidence
Speech-language pathologist	Speech and swallowing rehabilitation	Improves communication, social participation, and self-expression
Psychologist/psychiatrist	Emotional assessment and counseling	Addresses anxiety, depression, body-image distress, and coping
Dietitian	Nutritional support and dietary adaptation	Improves eating confidence, nutrition, and quality of life
Social worker	Family, financial, occupational, and community support	Supports reintegration, access to care, and long-term follow-up
Nurse/care coordinator	Follow-up, education, and adherence support	Enhances continuity of care and patient engagement

9. Patient-Centered Outcomes and Quality of Life Measures

Maxillofacial defects, often ensuing from surgery for cancer or congenital malformations, can severely affect a patient's appearance and speech (48). Unaddressed, these issues confer a heavy burden on daily living and health-related quality of life (QoL) (41). Maxillofacial prosthetic rehabilitation has therefore evolved as an essential discipline, providing missing facial elements, optimizing facial contouring, and enhancing oral functions such as speech and mastication (29). The impact of rehabilitation on pivotal psychosocial dimensions—appearance, stigma, social reintegration, speech, eating, and emotional recovery—has inspired an ever-growing body of knowledge supporting patient-centered, evidence-based treatment (68).

An extensive review of the literature elucidates these psychosocial aspects and proposes their integration into clinical practice and future research (69). Informed decisions on maxillofacial rehabilitation depend on a comprehensive understanding of patients' concerns and the restoration modalities available (70). Materials, designs, retention mechanisms, and complementary approaches such as surgery, aesthetics, or speech therapy directly influence the selection of prosthetic devices capable of reintegrating the patient within their environment (71). The review also highlights the need to address stigma during rehabilitation:

alterations in appearance may provoke unsolicited comments, discouraging candid interactions and, ultimately, social reintegration (72, 73) (table 3).

Table 3: Recommended Patient-Reported Outcome Measures for Future Studies

Outcome area	Recommended measure	Purpose
Oral health-related quality of life	OHIP-14 or OHIP-EDENT	Measures functional, psychological, and social impact
General quality of life	WHOQOL-BREF or EORTC QLQ-C30	Evaluates broader physical, psychological, and social well-being
Head and neck cancer-specific QoL	EORTC QLQ-H&N35	Suitable for post-oncology maxillofacial rehabilitation
Appearance concern	Derriford Appearance Scale or FACE-Q modules	Assesses distress related to visible difference
Anxiety and depression	HADS or DASS-21	Screens emotional distress
Social reintegration	Social functioning domains or participation scales	Measures return to family, work, and community roles
Satisfaction with prosthesis	Prosthesis satisfaction questionnaire	Evaluates comfort, retention, aesthetics, and function

10. Ethical Considerations and Accessibility

Maxillofacial prosthetic rehabilitation has the potential to significantly improve the quality of life (QoL) and psychosocial outcomes for patients with craniofacial defects, yet accessibility to appropriate care remains a challenge (10). Ethical implications may preclude the collection of comprehensive evidence, but available observations underscore the importance of developing and sharing pragmatic guidelines to facilitate continued care for those affected (74, 75).

A defined understanding of the constructs of consent, autonomy, and support informs equitable access to maxillofacial prosthetic rehabilitation (76). The manner in which patients define personal agency within the care process—whether autonomy or social inter-dependence—may reject a universal approach (77). Access also extends to contextual values that shape means of prioritising care, such as recognition of long-term cost-effectiveness vis-à-vis frail elderly patients (78). Cultural frameworks significantly influence perceptions of disability and psychosocial outcomes across different regions and populations, thus culture-sensitive frameworks are vital for setting national or regional policy on rehabilitation and determining clinical modalities that best meet local requirements (79). Accessibility barriers persist due to service availability and affordability, imposing burdens that require collaborative engagement with third-party caregivers, community leaders, and other stakeholders (80). Addressing concerns around involvement of family members, data privacy, regularity of follow-up, and transient audio recording or monitoring of consultation offers a pathway for the ethical collection of comprehensive evidence regarding patient and caregiver perspectives (81).

11. Conclusion

Maxillofacial prosthetics polls positive with maxillofacial prosthesis—an implantable restorative medical device that restores the oral cavity function and a supplementary esthetic prosthesis for the reconstructions of facial defects—facial reconstruction satisfaction and oral resection quality of life, self-image, and psychosocial stigma experiences improve immediately, according to systematic review conclusions. Appearance, stigma and social reintegration, supplementary functions such as speech and masticatory function, and emotional recovery constitute the six dimensions of psychosocial prosthetic rehabilitation variables. In systematic reviews, detailed in-work insights clarify how prosthetic rehabilitation affects them. Motivating research concentration on psychosocial rehabilitation points to its prospect of achieving higher patient gratification than merely restoring aesthetic function.

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