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Original Research Article

Satisfaction and Psychosocial Impact of Maxillofacial Prostheses: A Cross-Sectional Study

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Abstract: ***Introduction*:** Acquired maxillofacial defects, most often of tumoral origin in West Africa, have major functional, aesthetic and psychological consequences. Maxillofacial prosthesis (MFP) remains the main rehabilitation option in Senegal, but local data on the lived experience of patients are scarce. The aim of this study was to assess satisfaction and the psychosocial impact of MFP in patients followed at IOS-UCAD. ***Methods*:** A descriptive cross-sectional study was conducted on 60 patients fitted with an MFP, recruited consecutively at the Prosthetics Department of IOS-UCAD in Dakar, from April to July 2025. Sociodemographic, clinical and prosthetic data, as well as satisfaction and psychosocial impact, were collected using a face-to-face questionnaire. ***Results*:** Mean age was 42.5 ± 18.8 years, with a female predominance (60.0%). The defect was of tumoral origin in 91.6% of patients. The MFP was maxillary in 90.0% of cases. Overall satisfaction reached 93.3%. Aesthetic (85.0%) and phonatory (85.0%) satisfaction was high; masticatory function remained the lowest-rated dimension. The patient–caregiver relationship was rated fully satisfactory by all patients on the five criteria assessed (100.0%). The psychosocial impact was positive: 96.7% of patients reported feeling at ease with themselves and having regained self-confidence; 93.3% reported improved social integration. ***Conclusion*:** MFP provides a rehabilitation considered satisfactory by the great majority of Senegalese patients and restores a quality of life compatible with social reintegration. Masticatory satisfaction is the main area for improvement. The expansion of MFP services within the Senegalese hospital network should be strengthened.

Keywords: Acquired Defect, Maxillofacial Prosthesis, Satisfaction, Quality of Life, Psychosocial Impact, Senegal.

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INTRODUCTION

Acquired maxillary defects (AMDs) are osteomucosal destructions resulting in a loss of continuity that may establish communication between the oral, nasal and sinus cavities. They most often result from the surgical excision of a maxillary tumor; infectious or traumatic origins are less frequent (Touré A *et al.*, 2022; Bentahar O *et al.*, 2008). Whatever the etiology, these defects readily extend to several regions of the cervico-maxillofacial area and produce major functional, aesthetic, social and psychological disturbances (Bentahar O *et al.*, 2008; Vo Quang S *et al.*, 2016).

The loss of the palatal envelope compromises mastication, swallowing and phonation, while disfigurement affects self-image and social integration (Vo Quang S *et al.*, 2016; Keeft AM *et al.*, 2012). At the Institute of Odontology and Stomatology (IOS) in Dakar,

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several previous studies have already reported the prosthetic management of such defects, including palatal obturator prostheses after tumor maxillectomy (Touré A *et al.*, 2020) and rigid obturators fabricated for rarer conditions such as granulomatosis with polyangiitis (Wegener's vasculitis) (Dieng L *et al.*, 2013).

In sub-Saharan Africa, the etiological profile of AMDs is dominated by cancers of the oral cavity and sinus structures, which are frequently diagnosed at a late stage because of delayed consultation, limited diagnostic resources and restricted access to specialized oncology (Dieng A *et al.*, 2021). At the Fann National University Hospital Center (CHNU) in Dakar, parotid gland tumors also illustrate the substantial share of cervico-maxillofacial tumor pathology in the local recruitment (Faye AD *et al.*, 2022). This late presentation requires extensive resections, leading to complex defects.

Faced with these defects, surgical reconstruction with free flaps remains the prerogative of a few referral centers having a multidisciplinary team and an adequate technical platform (Vigarios E *et al.*, 2015; Maurice D *et al.*, 2013). In Senegal, maxillofacial prosthesis (MFP) remains, in the great majority of cases, the main rehabilitation option (Touré A *et al.*, 2022; Touré A *et al.*, 2020; Badji K *et al.*, 2019). When well designed, it restores oro-sinus sealing, supports phonation, restores soft-tissue support and gives the patient a face that is acceptable in social settings. Its fabrication may be delayed or immediate, the latter when the prosthesis is placed intraoperatively as part of a combined surgical–prosthetic approach (Touré A *et al.*, 2022; Rokhssi R *et al.*, 2016).

The evaluation of MFP outcomes is not limited to the clinical examination. It is judged above all from the patient's lived experience: can they eat, speak, go out, return to work, look at themselves in a mirror without looking away? Patient-centered indicators, namely satisfaction and oral health–related quality of life, are now considered essential markers of prosthetic success (Locker D *et al.*, 2001; Michaud PL *et al.*, 2012). In obturator wearers, masticatory function and phonation are regularly identified as the most sensitive dimensions (Kreeft AM *et al.*, 2012; Arigbede AO *et al.*, 2006). At the Institute of Odontology and Stomatology (IOS) of Cheikh Anta Diop University of Dakar (UCAD), the prosthetics team has already reported patient-centered evaluations for complete removable dentures (Kamara PI *et al.*, 2021) and has begun the analysis of quality of life in obturator wearers after maxillectomy (Badji K *et al.*, 2019). Specific data on maxillofacial prosthesis (MFP) that simultaneously address functional satisfaction, the quality of the patient–caregiver relationship and the perceived psychosocial impact remain scarce in the Senegalese context.

This study aimed to describe the sociodemographic and clinical profile of patients fitted with an MFP and followed at the Prosthetics Department of IOS-UCAD, and to assess their functional and aesthetic satisfaction, the perceived quality of the patient–caregiver relationship, and the psychosocial impact of the prosthesis.

MATERIALS AND METHODS

Study Design, Setting and Period

This was a descriptive cross-sectional study conducted at the Prosthetics Department of the Institute of Odontology and Stomatology (IOS) of Cheikh Anta Diop University of Dakar. The inclusion period extended from April to July 2025.

Population and Sampling

The study population consisted of patients fitted with a maxillofacial prosthesis fabricated and followed within the department, rehabilitating an acquired defect or a congenital malformation. Recruitment was consecutive and exhaustive over the study period. Patients fitted with an MFP that had been in place for at least one month and who had given their consent to participate were included. Patients who could not be reached after two reminders or who refused to answer the questionnaire were excluded. A total of sixty patients were included.

Data Collection

Data were collected by means of a structured questionnaire administered face to face by a trained interviewer, in French or in Wolof depending on the patient's preference. The questionnaire comprised four sections: (i) sociodemographic characteristics (age, sex, education level, marital status); (ii) clinical and prosthetic characteristics (cause of the defect, type of prosthesis, duration of wear); (iii) functional and aesthetic satisfaction, assessed using a four-point Likert scale (very satisfied, satisfied, slightly satisfied, not at all satisfied) on four dimensions: comfort of wear, masticatory function, phonatory function and aesthetic appearance, as well as an overall appraisal; (iv) quality of the patient–caregiver relationship (five items rated by agreement/disagreement), reception conditions, waiting time, and perceived psychosocial impact (sense of well-being, self-confidence, social integration). Regarding the type of prosthesis, the maxillary devices were essentially obturator prostheses and neonatal orthoses, while the mandibular ones were guide-flange appliances.

Statistical Analysis

Data were entered into Excel® and analyzed with Stata 17/IC/MAC. Qualitative variables were described by counts and percentages. Quantitative variables were expressed as means ± standard deviation, and as medians where appropriate.

Ethical Considerations

The study received administrative authorization from the head of department. Free and informed oral consent was obtained from each participant after clear

information about the objectives and procedures of the study. Children were included with the agreement of their parents or legal guardians. Confidentiality was ensured by the anonymization of questionnaires and the use of a unique identifier. No therapeutic intervention was tied to participation.

RESULTS

Sociodemographic Characteristics

The mean age of the 60 patients included was 42.5 ± 18.8 years (median: 45 years), with extremes ranging from childhood to over 60 years. The 46–60-year (33.3%) and 31–45-year (23.3%) age groups were the most represented. The female sex predominated (60.0%). Nearly one in two patients had no formal schooling (46.7%), and 41.7% were married (Figure 1).

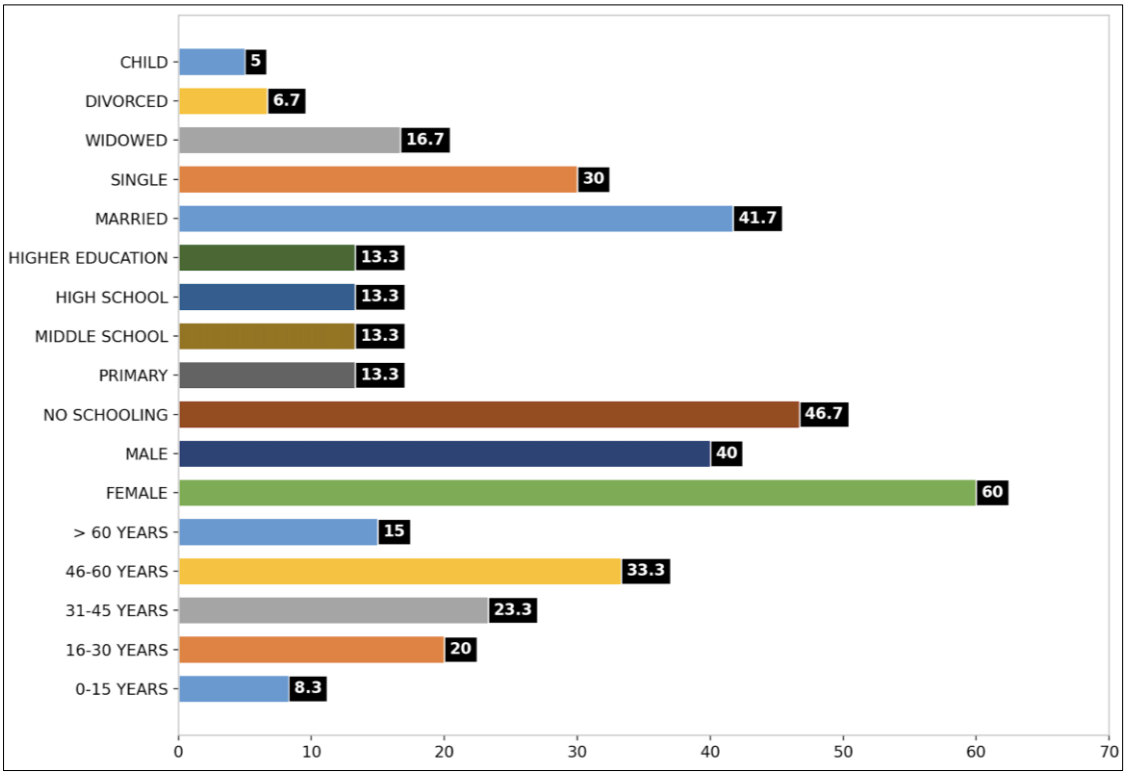

Figure 1: Sociodemographic characteristics of patients fitted with an MFP (N = 60).

Clinical and Prosthetic Characteristics

The defect was of tumoral origin in 91.6% of patients: malignant tumor in 63.3% of cases, and benign tumor or other cause in 28.3%. Congenital malformations represented 8.3% of etiologies. The MFP was maxillary in nine out of ten patients (90.0%), mandibular in 6.7% of cases and mixed in 3.3%. At the time of the survey, 43.3% of patients had been wearing their prosthesis for more than one year, and one-quarter (25.0%) for exactly one year (Table I).

Table I: Clinical and prosthetic characteristics (N = 60)

Variable	n	%
Cause of defect		
Malignant tumor	38	63.3
Benign tumor / other	17	28.3
Congenital malformation	5	8.3
Type of prosthesis		
Maxillary	54	90.0
Mandibular	4	6.7
Maxillary and mandibular	2	3.3
Duration of prosthesis wear		
< 3 months	6	10.0
3–11 months	13	21.7
1 year	15	25.0
> 1 year	26	43.3

Functional and Aesthetic Satisfaction

Overall satisfaction was high: 28.3% of patients reported being very satisfied and 65.0% satisfied, that is, 93.3% globally satisfied; only 6.7% reported being slightly satisfied. The aesthetic dimension was the best rated (85.0% very satisfied or satisfied), followed by phonation (85.0%) and comfort of wear (81.7%). Masticatory function remained the lowest rated: 75.0% of patients very satisfied or satisfied, but 25.0% slightly or not at all satisfied (Table II).

Table II: Functional, aesthetic and overall satisfaction (N = 60)

Dimension	Level of satisfaction	n	%
Comfort of wear	Very satisfied	7	11.7
	Satisfied	42	70.0
	Slightly satisfied	11	18.3
Masticatory function	Very satisfied	4	6.7
	Satisfied	41	68.3
	Slightly satisfied	14	23.3
	Not at all satisfied	1	1.7
Phonatory function	Very satisfied	13	21.7
	Satisfied	38	63.3
	Slightly satisfied	8	13.3
	Not at all satisfied	1	1.7
Aesthetic appearance	Very satisfied	5	8.3
	Satisfied	46	76.7
	Slightly satisfied	8	13.3
	Not at all satisfied	1	1.7
Overall satisfaction	Very satisfied	17	28.3
	Satisfied	39	65.0
	Slightly satisfied	4	6.7

Patient–Caregiver Relationship, Reception Conditions and Psychosocial Impact

All patients (100.0%) reported strong agreement with the five statements regarding the quality of the patient–caregiver relationship: time devoted to explanations, clarity of information, listening and respect, empathy, and organization of follow-up. The reception setting was rated satisfactory or very satisfactory by all patients (66.7% and 33.3% respectively). The waiting time for care was perceived as short by 61.7% of patients, long by 30.0%, and very long by 8.3%.

The perceived psychosocial impact was positive: 96.7% of patients reported feeling at ease with themselves and 96.7% having regained self-confidence; 93.3% reported improved social integration (Table III).

Table III: Patient–caregiver relationship, reception conditions and psychosocial impact (N = 60)

Dimension	Modality	n	%
Quality of patient–caregiver relationship			
Time devoted to explanations	Strongly agree	60	100.0
Clear and sufficient information	Strongly agree	60	100.0
Listening and respect	Strongly agree	60	100.0
Demonstration of empathy	Strongly agree	60	100.0
Regular and organized follow-up	Strongly agree	60	100.0
Waiting time for care	Short	37	61.7
	Long	18	30.0
	Very long	5	8.3
Reception setting and conditions	Very satisfactory	20	33.3
	Satisfactory	40	66.7
Psychosocial impact (YES response)			
Feeling at ease with oneself	YES	58	96.7
Regaining self-confidence	YES	58	96.7
Improved social integration	YES	56	93.3

DISCUSSION

This study provides a snapshot of satisfaction and psychosocial impact of MFP in 60 patients followed in a Senegalese university center. The results converge on three points: an epidemiological profile dominated by tumor etiologies, an overall high but heterogeneous

satisfaction across dimensions, and a substantial perceived psychosocial benefit.

Epidemiological Profile

The mean age of 42.5 years and the female predominance (60%) observed in this population are consistent with what has been described in several African series of MFP wearers (Touré A *et al.*, 2020; Badji K *et al.*, 2019). The proportion of tumor etiologies (91.6%, including 63.3% malignant tumors) is also concordant with the usual recruitment of maxillofacial prosthetics services in sub-Saharan Africa, where late diagnoses of cancers of the maxilla and sinuses lead to extensive resections (Dieng A *et al.*, 2021; Faye AD *et al.*, 2022). The place of congenital malformations (8.3%), although a minority, justifies maintaining a pediatric rehabilitation activity. The low schooling level (46.7% with no formal education) is an element to take into account in therapeutic communication. It calls for rethinking the content and form of hygiene and prosthesis-care instructions, by favoring oral delivery, the use of Wolof (the national language) and visual aids, rather than written documents.

Satisfaction

The level of overall satisfaction (93.3% satisfied or very satisfied) is consistent with the international literature on prosthetic satisfaction after rehabilitation (Kreeft AM *et al.*, 2012; Arigbede AO *et al.*, 2006; Marchini L, 2014) and with results previously observed at IOS-UCAD for complete removable dentures, where mean satisfaction reached 68.5 mm on a 100-mm visual analog scale (Kamara PI *et al.*, 2021). The aesthetic and phonatory dimensions are the best rated (85%), which corresponds to what the patient primarily seeks at the end of an oncology pathway: regaining an acceptable appearance and the ability to speak. Masticatory function remains the most problematic dimension, with 25% of patients slightly or not at all satisfied. This finding is not a local peculiarity: mastication is regularly identified as the most fragile function in obturator wearers, particularly when the oro-naso-sinus communication remains wide or when prosthetic retention is insufficient (Kreeft AM *et al.*, 2012; Arigbede AO *et al.*, 2006). Several levers exist for improvement: optimizing the design of the obturator part, using more retentive attachments, or resorting to immediate rehabilitation with an obturator prosthesis placed intraoperatively when conditions allow (Touré A *et al.*, 2022; Rokhssi R *et al.*, 2016; Vigarios E *et al.*, 12015, Touré A *et al.*, 2026).

Patient–Caregiver Relationship

The unanimity observed on the five items of the patient–caregiver relationship (100% agreement) should be interpreted with caution. It reflects real satisfaction in a context where prosthetic follow-up is close and where the patient knows the practitioner well. However, it may also reflect a social desirability bias, as the questionnaire was administered in the same department where the patient regularly returns for check-ups. The use of more discriminating, transculturally validated tools, such as the McGill Denture Satisfaction Instrument already adapted at IOS for complete removable dentures (Kamara PI *et al.*, 2021) or the OHIP-14 (Locker D *et al.*, 2001), could be considered in further work to better capture areas for improvement. The waiting time remains a point to monitor: 38.3% of patients perceive it as long or very long. This signal calls for organizational analysis, particularly regarding appointment scheduling and the management of prosthetic emergencies. Improving this waiting time also requires the recruitment of MFP specialists, given that only one specialist is currently in activity at IOS-UCAD.

Psychosocial Impact

Almost all patients reported feeling at ease with themselves (96.7%) and having regained self-confidence (96.7%), and 93.3% reported improved social integration. For patients who have often gone through a mutilating cancer, these results are not anecdotal. They confirm that MFP is not a simple gap-filling device but a tool for social reintegration. This observation is in line with previous work on the emotional repercussions of the loss of oro-dental structures (Fiske J *et al.*, 1998) and with the data already reported on the quality of life of patients fitted with an obturator prosthesis after maxillectomy (Badji K *et a.l*, 2019).

Limitations

The study is single-center, descriptive, and based on a modest sample (n = 60). It does not allow before/after comparative analysis or fine identification of the determinants of satisfaction. The questionnaire used is not psychometrically validated, which limits the international comparability of the results. Finally, intra-hospital recruitment introduces a possible selection bias: patients lost to follow-up, whose experience is probably less favorable, could not be included.

CONCLUSION

In patients followed at the Prosthetics Department of IOS-UCAD in Dakar, maxillofacial prosthesis is associated with a high level of satisfaction and a marked psychosocial benefit. The areas for improvement concern mainly masticatory function and the management of waiting times. Expanding MFP services within the Senegalese hospital network, increasing qualified personnel, introducing validated tools for measuring quality of life, and providing access, when indicated, to implant-based stabilization are priority directions for the coming years.

Conflicts of Interest: The authors declare no conflicts of interest in connection with this article.

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