

Impact of Prosthetic Rehabilitation on Quality of Life in Patients with Significant Dental and Orofacial Tissue Loss: A Mixed-Methods Study

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Purpose: To assess the impact of prosthetic rehabilitation on quality of life (QoL) in patients with cleft lip and palate (CLP) and in edentulous patients with implant-supported complete dentures (ICD). **Materials and Methods:** CLP (n = 20) and ICD (n = 26) patients completed the Oral Health Impact Profile (OHIP-14). Nine patients with an OHIP-14 score above the 75th percentile were interviewed. Data were interpreted using inductive content analysis and triangulation. **Results:** ICD patients scored higher than CLP patients in overall OHIP-14 score and in most domains ($P < .05$). After rehabilitation, CLP patients reported improvement in psychosocial functions but worsening in physical functions. ICD patients had improvement in all domains, but were less satisfied. **Conclusion:** The mixed-methods study design can detect the origins and interactions of factors in treated patients with complex problems. *Int J Prosthodont* 2019;32:32–35. doi: 10.11607/ijp.5919

The new definition of oral health displays how its central elements (disease, physiologic and psychosocial functions) interact with individual perceptions and expectations, which are essential to quality of life (QoL).¹ This integrative approach is even more important for patients with complex, chronic, and multifaceted problems.

Patients with cleft lip and palate (CLP) and patients who are edentulous present similar functional, psychosocial, and esthetic difficulties,^{2–4} although with different etiologies for loss of teeth and orofacial tissues. Tooth loss is a traumatic event that causes early aging, decreases self-esteem, and impairs social interaction regardless of age, social status, or cultural context.⁵ Oral rehabilitation may not restore all factors that contribute to compromised QoL.

The present mixed-methods study evaluated the impact of prosthetic rehabilitation on oral health–related QoL in patients who suffer from congenital or acquired dental and orofacial tissue loss.

MATERIALS AND METHODS

This study had an observational, descriptive, correlational, mixed-methods design with quantitative and qualitative approaches for data collection, analysis, and interpretation. The research protocol followed the precepts of the Declaration of Helsinki and was approved by the institutional review board.

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A consecutive sample ($n = 46$) was selected from among the adult patients treated at the outpatient dental clinics of the Pontifical Catholic University of Rio Grande do Sul, Brazil, according to the inclusion criteria: patients with CLP and prosthetic rehabilitation ($n = 20$); and patients with an edentulous mandible and/or maxilla treated with implant-supported fixed complete dentures (ICD; $n = 26$). The exclusion criteria were: use of any medication with potential interference; presence of periodontal disease; and recent oral and maxillofacial surgery. All patients signed an informed consent form.

Procedures

For quantitative QoL data collection, the validated Portuguese version of the Oral Health Impact Profile-14 (OHIP-14) was used.⁶ Data were analyzed using the additive method and the Kruskal-Wallis test at a .05 significance level.

Nine patients (four CLP, five ICD) who scored above the 75th percentile on the OHIP-14, indicating low QoL, participated in the qualitative study following the Enhancing Transparency in Reporting the Synthesis of Qualitative Research (ENTREQ)⁷ and Consolidated Criteria for Reporting Qualitative Research (COREQ)⁸ methodologic standards. The individual semi-structured interviews followed the guiding topics:

- How do you feel with the new dentures?
- Did the results of the treatment meet your expectations?
- In which aspects did the rehabilitation influence your daily activities?
- Are you esthetically pleased?
- Were your functional difficulties solved?
- How is your feeding now?

Data were transcribed verbatim, categorized into domains, and interpreted using inductive content analysis, comparisons between cases and groups, and triangulation.

Table 1 Median OHIP-14 Scores (25% to 75% Interval Scores) for CLP and ICD Patients After Prosthetic Rehabilitation

OHIP-14 domains	Items	CLP (n = 20)	ICD (n = 26)
Functional limitation	1. Difficulty pronouncing words 2. Taste worsened	2.0 (0.5–3.5)	2.0 (1–4.0)
Physical pain	3. Pain in the mouth 4. Discomfort eating	1.0 (0–3.0)	2.5 (1.0–4.2)
Psychologic discomfort	5. Self-conscious 6. Felt tense	3.5 (2–7.5)	5.0 (0–7.0)
Physical incapacity	7. Diet unsatisfactory 8. Interrupt meals	0 (0–2.5)	3.0 (0–5.0)
Psychologic incapacity	9. Difficult to relax 10. Embarrassment	2.0 (0.5–4.0)	3.5 (0–5.0)
Social incapacity	11. Irritable with other people 12. Difficulty with daily activities	0 (0–2.0)	0 (0–2.0)
Handicap	13. Life less satisfying 14. Reduced work capacity	0 (0–0)	1.5 (1–4.0)
Total OHIP-14	All items	12.0 (7.5–23.0)	21.5 (10.5–29.75)*

OHIP-14 = Oral Health Impact Profile; CLP = cleft lip and palate; ICD = implant-supported complete denture.

* $P < .05$ (Kruskal Wallis test).

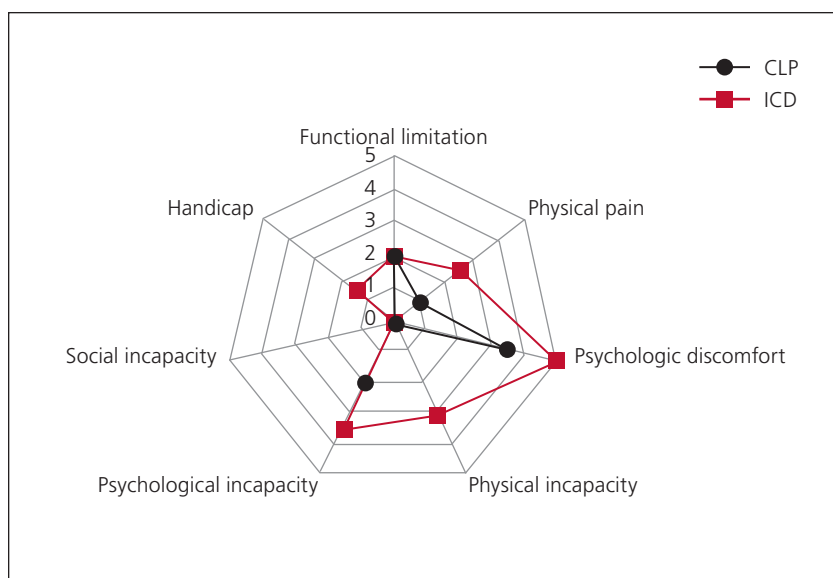


Fig 1 Comparison of the median scores for each OHIP-14 domain between patients with cleft lip and palate (CLP) and patients with implant-supported complete dentures (ICD) after prosthetic rehabilitation.

RESULTS

ICD patients scored higher than CLP patients in overall OHIP-14 score and in most domains ($P < .05$) (Table 1, Fig 1). ICD patients answered with “often” and “always” more often than CLP patients.

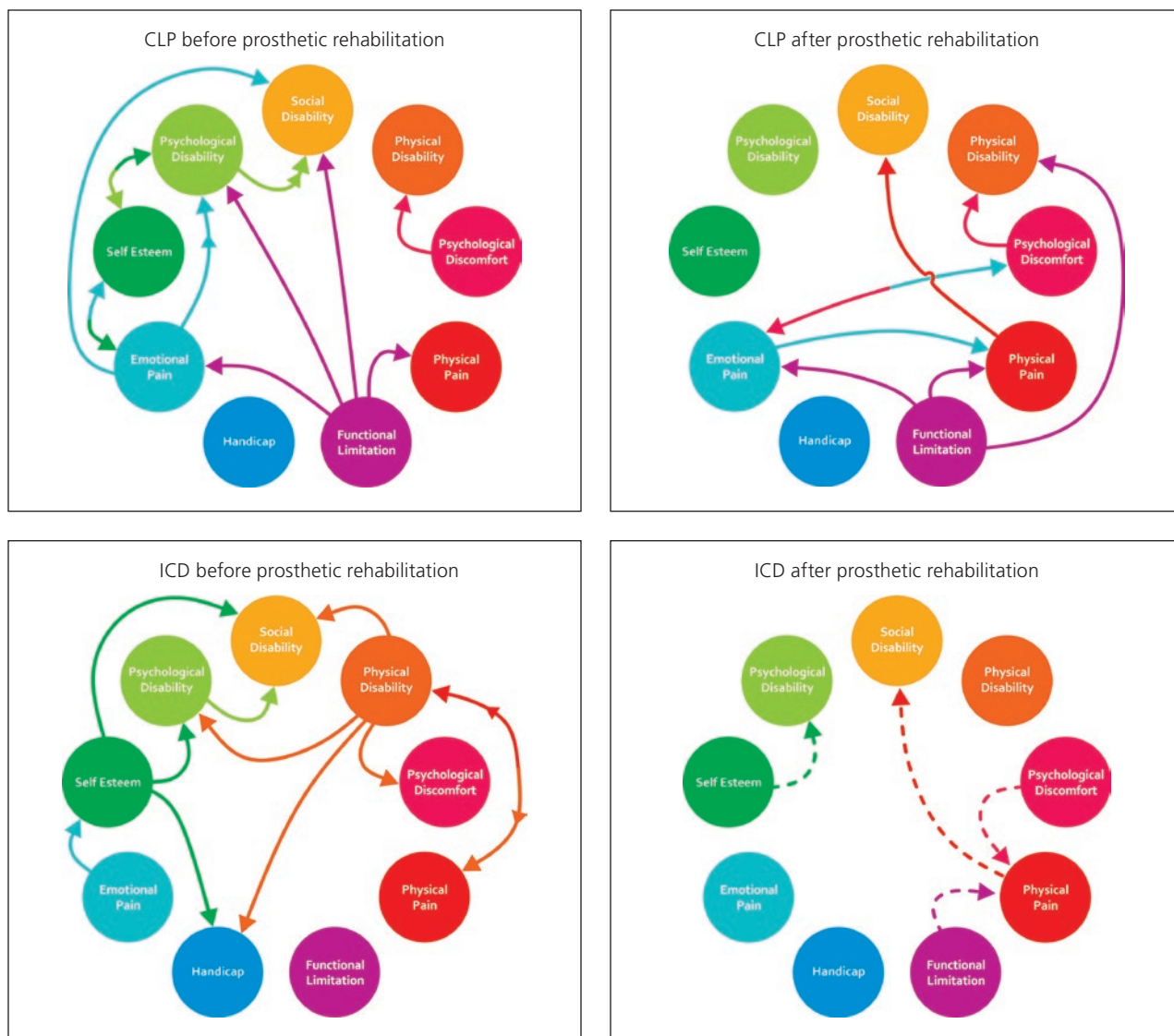
Keywords for each domain/theme were identified from the interviews (Table 2) for OHIP-14 themes, plus two new themes (self-esteem and emotional pain). CLP and ICD groups showed different QoL relational patterns (Fig 2).

Table 2 Comparison of Keywords and Phrases Identified in Interview Analysis

Themes	CLP (n = 4)	ICD (n = 5)
Functional limitation	Nasal voice/wheezing Difficulty pronouncing words	Taste
Physical pain	Disturbance Discomfort Pain	Disturbance Prosthesis hurts Stomachache (deficient chewing)
Psychologic discomfort	Fears Great worries (in life)	Concerns with prosthesis and stomach health
Physical incapacity	Not eating Choking Afraid of being hurt	Loose prosthesis Swallow food chunks (deficient chewing)
Psychologic incapacity	Shame Avoid appearing in public	Shame Do not participate
Social incapacity	Difficulty with daily activities	Difficulty with daily activities
Handicap	–	Impaired work
Self-esteem	Appearance/esthetics Self-esteem	Appearance/esthetics Self-esteem
Emotional pain	Resentment Suffering	Sadness Resentment Suffering

The keywords and phrases were saturated into nine themes according to the seven Oral Health Impact Profile domains plus two new themes.

Fig 2 (below) Relationship among the themes of the qualitative analysis for before and after prosthetic rehabilitation for patients with cleft lip and palate (CLP) or implant-supported complete dentures (ICD). Arrow = direction of the relation path; double arrow = large magnitude of the relation; dashed line = mild relation.



DISCUSSION

All CLP patients were satisfied with the prosthetic treatment, reporting that it was “the best thing that happened” in their lives. CLP patients perceived a positive impact of prosthetic rehabilitation on psychosocial issues, with marked improvement in appearance, social interaction, and self-esteem.^{2,3,9} This satisfaction was also associated with individualized care by the dental professional team. Conversely, some functional issues worsened with the fixed prosthesis (ie, speech, chewing, pain, discomfort).

In contrast, ICD patients reported improvement in all domains—particularly in functional complaints, such as instability of the old dentures and poor chewing leading to pain in the mouth and stomach.^{4,10,11} Patients resumed eating previously avoided foods and felt re-integrated into social life (eg, being able to eat corncobs at the beach, barbecue with family, and drink chimarrão tea at the neighbor’s). After ICD rehabilitation, all functional aspects (chewing, swallowing, taste, speech) improved, but the patients now perceived altered taste and the presence of acrylic portions. The satisfaction was closely linked to the initial expectations and previous dentist-patient relationship experiences.¹² Those who had negative expectations/relationships reported not being fully satisfied.

CLP and ICD patients with low QoL showed different relational patterns of factors and their magnitude impacting QoL before and after prosthetic rehabilitation (Fig 2). For CLP, the first-order issues were functional limitation (speech) and self-esteem (appearance). Both themes often affected psychologic incapacity (shame), social incapacity (daily activities), and emotional pain (stigma and heartbreak). For ICD patients, the origin was mainly physical incapacity, physical pain, and self-esteem. These themes more often impacted the dimensions of psychologic incapacity, social incapacity, and disabilities.

CONCLUSIONS

The complementary strengths of the OHIP-14 and interviews can help understand compromised QoL in-depth for a holistic and individualized clinical practice. Responses to the core patient’s needs and a good dentist-patient relationship can lead to high satisfaction beyond technical aspects and focus on what clinical success means.

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REFERENCES

- Glick M, Williams DM, Kleinman DV, Vujicic M, Watt RG, Weyant RJ. A new definition for oral health developed by the FDI World Dental Federation opens the door to a universal definition of oral health. *J Am Dent Assoc* 2016;147:915–917.
- Hickey AJ, Salter M. Prosthodontic and psychological factors in treating patients with congenital and craniofacial defects. *J Prosthet Dent* 2006;95:392–396.
- Sinko K, Jagsch R, Precht V, Watzinger F, Hollmann K, Baumann A. Evaluation of esthetic, functional, and quality-of-life outcome in adult cleft lip and palate patients. *Cleft Palate Craniofac J* 2005;42:355–361.
- Compagnoni MA, Paleari AG, Rodriguez LS, Giro G, Mendoza Marin DO, Pero AC. Impact of replacing conventional complete dentures with implant-supported fixed complete dentures. *Int J Periodontics Restorative Dent* 2014;34:833–839.
- Nordenram G, Davidson T, Gynther G, et al. Qualitative studies of patients’ perceptions of loss of teeth, the edentulous state and prosthetic rehabilitation: A systematic review with meta-synthesis. *Acta Odontol Scand* 2013;71:937–951.
- Oliveira BH, Nadanovsky P. Psychometric properties of the Brazilian version of the Oral Health Impact Profile—short form. *Community Dent Oral Epidemiol* 2005;33:307–314.
- Tong A, Flemming K, McInnes E, Oliver S, Craig J. Enhancing transparency in reporting the synthesis of qualitative research: ENTREQ. *BMC Med Res Methodol* 2012;12:181.
- Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): A 32-item checklist for interviews and focus groups. *Int J Qual Health Care* 2007;19:349–357.
- Oosterkamp BC, Dijkstra PU, Rimmelink HJ, et al. Satisfaction with treatment outcome in bilateral cleft lip and palate patients. *Int J Oral Maxillofac Surg* 2007;36:890–895.
- Yunus N, Masood M, Saub R, Al-Hashedi AA, Taiyeb Ali TB, Thomason JM. Impact of mandibular implant prostheses on the oral health-related quality of life in partially and completely edentulous patients. *Clin Oral Implants Res* 2016;27:904–909.
- Hyland R, Ellis J, Thomason M, El-Feky A, Moynihan P. A qualitative study on patient perspectives of how conventional and implant-supported dentures affect eating. *J Dent* 2009;37:718–723.
- Sivakumar I, Sajjan S, Ramaraju AV, Rao B. Changes in oral health-related quality of life in elderly edentulous patients after complete denture therapy and possible role of their initial expectation: A follow-up study. *J Prosthodont* 2015;24:452–456.