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Review Article

Oral health-related quality of life in adults with cleft lip and/or palate: A systematic review

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ABSTRACT

Background: Cleft lip and/or palate (CL/P) is a prevalent congenital craniofacial anomaly that affects facial esthetics, function, and psychosocial well-being. Oral health-related quality of life (OHRQoL) is a critical measure reflecting the impact of oral health on daily functioning and overall life quality. Despite extensive treatment, adults with CL/P may continue to face challenges affecting their OHRQoL.
Objective: To systematically evaluate and synthesize the existing evidence on OHRQoL in adults (≥18 years) with CL/P.
Materials and Methods: A systematic search was conducted across Scopus, Embase, Web of Science, and PubMed until March 2025. Eligible studies included those assessing OHRQoL in adults with CL/P, using validated questionnaires such as Oral Health Impact Profile-14 (OHIP-14) and Oral Impacts on Daily Performances. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines were followed, and the protocol was registered in PROSPERO. Risk of bias was assessed using a modified Newcastle–Ottawa Scale for cross-sectional studies and the National Heart, Lung, and Blood Institute Quality Assessment Tool for pre–post studies. Due to heterogeneity in methodologies, a narrative synthesis approach was adopted.
Results: From 407 identified records, 9 studies met the inclusion criteria. The majority were cross-sectional ($n = 7$), with 2 pre–post intervention studies. Most used the OHIP-14 questionnaire. Findings consistently showed that adults with CL/P report diminished OHRQoL, particularly in physical and psychological domains. Interventions like orthognathic surgery and prosthetic rehabilitation improved specific outcomes, but did not fully resolve functional or psychosocial challenges. Factors such as female gender, low income, limited social support, and the extent of dental decay were associated with worse outcomes.
Conclusion: Despite receiving specialized, multidisciplinary treatment, adults with CL/P continue to experience impaired OHRQoL. These findings underscore the need for a more holistic, patient-centered care approach that includes psychological support and long-term follow-up. Future research should focus on longitudinal studies and explore strategies to address persistent psychosocial impacts in adulthood.

Key Words: Adult, cleft, life quality

INTRODUCTION

Cleft lip and/or palate (CL/P) is one of the most common congenital craniofacial anomalies worldwide, with a prevalence ranging from 1 in every 500–1100 births. Beyond its impact on facial appearance, CL/P can lead to significant functional problems such as difficulty in chewing, speaking, and swallowing, all of

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which can profoundly affect the individual's daily life and well-being.[1-5]

Oral health-related quality of life (OHRQoL) is a multidimensional concept that reflects how oral health influences an individual's daily functioning and overall quality of life. It encompasses physical, emotional, and social aspects, including pain, discomfort, functional limitations, and psychosocial challenges.[6] Individuals with CL/P consistently report lower OHRQoL compared to those without such conditions, across nearly all of these domains.[7] Moreover, the complex and prolonged nature of treatment, which may involve multiple surgeries, orthodontic interventions, and dental prosthetics, can contribute to psychological stress, reduced self-esteem, and even depression.[7,8]

Several meta-analyses have attempted to quantify this impact. One review focusing on individuals aged 18 years and below found that orthodontic patients with CL/P reported significantly lower OHRQoL than those without cleft anomalies.[9] Another meta-analysis involving participants aged 8–19 years found that overall OHRQoL was moderately lower in CL/P patients, particularly in functional, emotional, and social dimensions.[10]

Age influences how individuals perceive their quality of life. A study on OHRQoL in patients with cleft conditions suggested that functional limitations become more pronounced with age.[7] This may be attributed to developmental changes over time, such as shifts in daily responsibilities, emotional insight, social relationships, and communication abilities, as well as the evolving stages of CL/P treatment. However, the relationship between age and OHRQoL is not entirely linear or uniform. Some literature, such as the studies by Mani *et al.*[11] and Piombino *et al.*,[12] suggest that younger adults may experience poorer quality of life than older adult patients.

Given these complexities, it is important to evaluate OHRQoL across the lifespan of individuals born with CL/P. Incorporating qualitative assessments, particularly those exploring treatment burden and satisfaction with care, may provide more nuanced insights into patients' lived experiences. While one systematic review conducted in 2013 included both children and adults, it identified only three adult-focused studies and concluded that OHRQoL tends to be lower both in children and adults compared to noncleft population.[13] Since then, a significant number of new studies have been published on adults with CL/P, highlighting the need for a more comprehensive and updated synthesis of this evidence.[14-16]

The present study aims to conduct a systematic review to assess the OHRQoL in adults (aged 18 years and above) with CL/P.

MATERIALS AND METHODS

This systematic study was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Protocol Registered in PROSPERO with the following ID: CRD420251050335.

The study question is whether the treatment of CL/P impacts the OHRQoL of patients over 18 years. This review includes all the studies assessing OHRQoL in adult patients with CL/P, regardless of presence of a control group. It was anticipated that there would be limited qualitative and quantitative studies available, given the constructs being considered (OHRQoL) in a niche clinical population (CL/P). Therefore, criteria were deliberately developed to be inclusive with no restrictions placed on the types of study design or methodology used or the location of the study.

Searches

Searches were performed on Scopus, Scopus secondary, Embase Web of Science, and PubMed until March 2025. To find the eligible papers, we performed a search strategy combining MeSH terms, MeSH synonyms, and free terms. The "AND" and "OR" Boolean operators were applied to combine keywords. The principal search terms included "cleft lip" "cleft palate" "quality of life," and "adult." The full search strategy for each database is provided in the supplementary material. Once selected, the references were analyzed according to the eligibility criteria. Duplicate items were removed in the selection process, and after screening abstracts, possible papers for inclusion were read by two authors (MD and SH) in full text. Papers not fulfilling the inclusion criteria were removed. Finally, hand searching was done by checking the references of the papers included in the study and personal communication with the experts in this field. The correlation coefficients between the two authors in abstract and full-text search results were 0.92 and 0.99, respectively.

Based on the study subject, the PICOT (Population, Intervention, Comparison, Outcome, Type of study) question and the inclusion/exclusion criteria were determined [Table 1], and the relevant studies were searched.

Assessment of risk of bias in the included studies

Two independent reviewers (MR and QP) qualified the eligible studies for analysis (1.0 Kappa). One researcher (MR) was responsible for extracting qualitative or quantitative data from the studies, and the second researcher (QP) verified all qualified information. Collected information included the author's name, year, country, type of study, sample size, age, gender, outcomes assessment, case and control group main characteristics, and conclusion.

Bias risk assessment

Quality assessment of the included studies

To evaluate the methodological quality of the included studies, we employed two distinct tools tailored to the study designs. For cross-sectional studies, we utilized a modified version of the Newcastle–Ottawa Scale (NOS), focusing on seven key domains: representativeness of the sample, sample size justification, nonrespondents, ascertainment of the exposure (risk factor), comparability of subjects, assessment of the outcome, and the statistical test used. This adaptation allowed for a structured assessment of potential biases inherent in cross-sectional designs.[17] The risk of bias was low when receiving 6–9 positive responses. The bias was moderate if answers to 3–5 questions were positive. If <2 questions received a positive response, the risk of bias was assessed as high.

For the two before–after (pre–post) studies without control groups, we applied the National Heart, Lung, and Blood Institute (NHLBI) Quality Assessment Tool. This instrument comprises 12 criteria evaluating aspects such as the clarity of the study question, eligibility criteria, representativeness of the participants, consistency of the intervention, outcome measures, blinding, and statistical analyses.[18] Based on the 12 responses, each study is then characterized as good, fair, or poor. Two independent reviewers (MR and QP) conducted the assessments. Any discrepancies between reviewers were resolved through discussion to reach a consensus. Detailed tables for the NOS and NHLBI risk-of-bias assessments are provided in the supplementary material.

Table 1: Inclusion and exclusion criteria

Inclusion criteria (based on PICO)	Exclusion criteria
P: Individuals over 18 years old born with CL/P I: Not applicable O: OHRQoL	Syndromic patients or patients with neurological disorders were excluded Articles that only reported the mixed results of participant below 18 with adult participants Articles that reported CL/P mixed with other conditions such as sleep apnea OHRQoL not measured with validated scales or questionnaires Case reports Editorial letters Pilot studies Historical reviews Studies in languages other than English

PICO: Population, intervention, comparison, outcome; CL/P: Cleft lip and/or palate; OHRQoL: Oral health-related quality of life

Data analysis

Due to the heterogeneity in case selection criteria among the studies, a narrative synthesis approach was taken following the Guidance on the Conduct of Narrative Synthesis in Systematic Reviews.[19] To assess heterogeneity, relationships within and between studies were explored, including a critical reflection on the synthesis process. Study characteristics are reported and tabulated, and relevant themes are outlined and critically reviewed. Studies were not excluded based on quality, but limitations are discussed.

RESULTS

Selection of the studies

A flow diagram of the search strategy is illustrated in Figure 1. Out of 407 papers retrieved initially, after duplicate removal, 226 papers were assessed according to the eligibility criteria, and 205 were excluded after the titles and abstracts review. Twenty-one papers were eligible to be included in the systematic review, of which 12 papers were excluded (10 had mixed results with participants under 18 years, 1 was a new questionnaire validation study, and 1 had unseparated mixed conditions of CL/P with TMD (Temporomandibular Disorder) or sleep apnea). The OHRQoL questionnaires used in the studies included Oral Health Impact Profile-14 (OHIP-14) and Oral Impacts on Daily Performances (OIDP). In addition, four studies using OHIP-14 contributed to the meta-analysis.

Characteristics of the studies

We identified nine different studies from three different countries. The age ranged between 18 and 65 years. Among nine included studies, seven studies were cross-sectional and two were pre–post experiments.

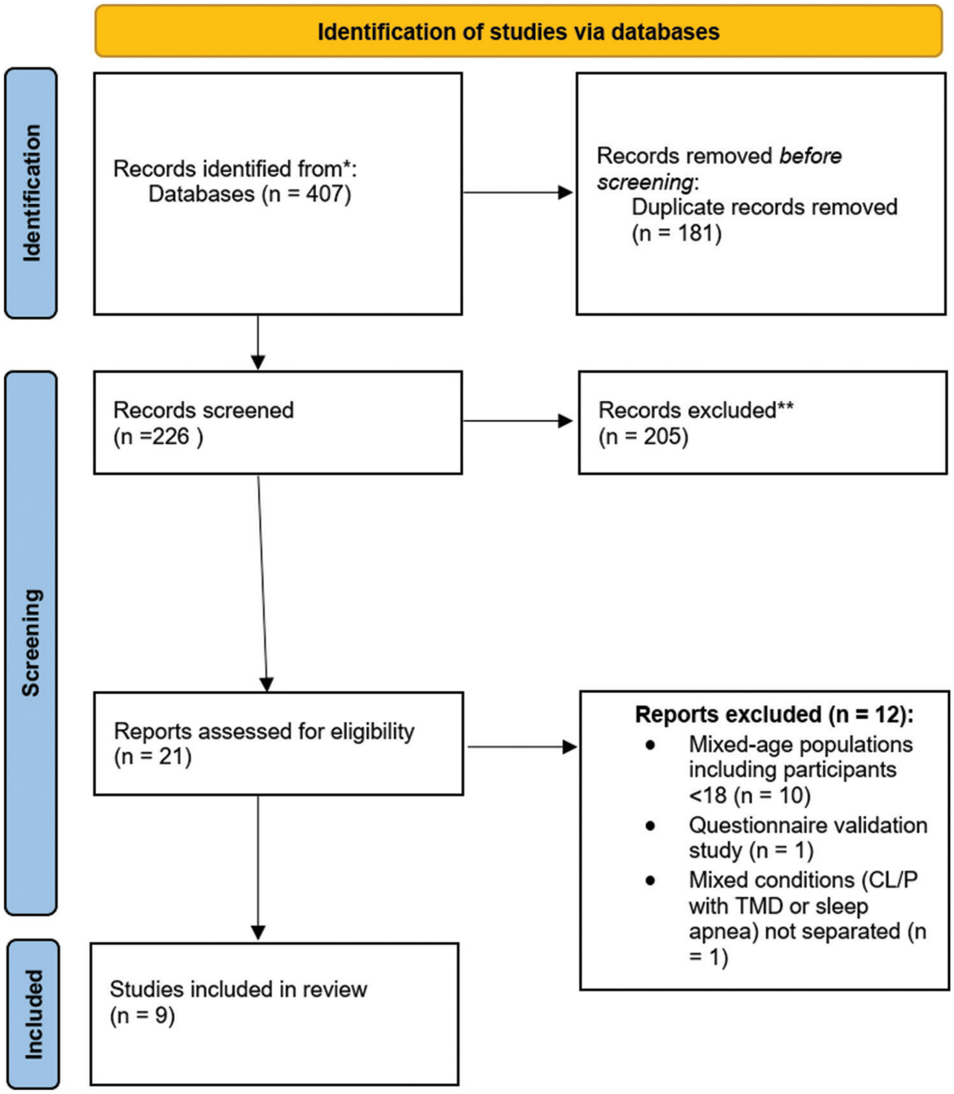

Figure 1: Preferred Reporting Items for Systematic Reviews and Meta-Analyses flowchart.

Regarding the risk of bias, three studies[16,20,21] were considered moderate quality. The rest of the studies were considered high quality with a low risk of bias regarding the NOS or NHLBI scale. Table 2 summarizes the characteristics of the included studies, and Table 3 shows qualitative outcomes of all the studies included in qualitative assessment.

Oral health-related quality of life evaluation

Eight out of nine studies used OHIP-14 questionnaire, and one used the OIDP questionnaire.

Age

Participants were consistently adults above 18 years. Specific mean or median ages, where reported for CL/P groups, generally fell within the early twenties to early thirties: Barros *et al.*[22] reported mean ages for UCL/P groups between 22.2 and 24.5 years; Beluci and Genaro[23] had a mean age of 24 years; Feitosa *et al.*[24] reported a mean age of 24.8 years (range: 18–30); Olsson *et al.*'s CL/P case group had a median age of 21 years (range: 18–32);[25] Corrêa de Queiroz Herkrath *et al.*[26] reported a mean age of 29.4 years (range: 18–63); Palmeiro *et al.*'s CL/P group had a mean age of 30.6 years;[16] and Foo *et al.*[20] reported a mean age of 31 years (range: 18–65). Corcoran *et al.*[14] specified participants were "over 18 years," and Hideki[21] included participants in the range of 20–50 years.

Gender

Gender distribution varied. Palmeiro *et al.*[16] had an equal number of males and females (10 each) in each group. Studies with fairly similar numbers included Barros *et al.*[22] (total UCL/P: 25 males and

Table 2: Characteristics of the included studies

Author	Year	Country	Study design	Sample size	Mean age±SD (years old) of participants	Gender (Female: male)	OHRQoL Scale	Case	Control
Barros *et al*.[22]	2019	Brazil	Cross-Sectional	Case: 52 UCL/P Nonsurgical UCL/P: 25 Surgical UCL/P: 27 Control: 51 Class III	Case: Nonsurgical UCL/P: 22.2±7.5 Surgical UCL/P: 24.5±5.7 Total UCL/P: 23.5±6.7 Control: Class III : 24.7±6.2 (Adults only)	Nonsurgical UCL/P: 16:9 Surgical UCL/P: 11:16 Total UCL/P: 27:25 Control (Class III): 23:8	OHIP-14	Adults with repaired UCL/P, prior to orthodontic treatment/surgery; grouped into nonsurgical and surgical orthodontic treatment based on skeletal severity	Adults with surgical Class III malocclusion prior to orthognathic surgery
Beluci and Genaro[23]	2016	Brazil	One-group pretest–posttest	50	24 (All over 18)	21:29	OHIP-14	CL/P adults undergoing surgical correction; assessed approximately 3 days before surgery	Participants 3–11 months after surgery (mean: 6 months)
Corcoran *et al*.[14]	2020	Finland	Cross-sectional	63	Over 18 (the mean and SD not mentioned)	40:23	OHIP-14	CL/P patients over 18 (under observation of a treatment center since childhood)	No control
Corrêa de Queiroz Herkrath *et al*.[26]	2018	Brazil	Cross-sectional	96	29.4±9.1 (from 18 to 63)	60:36	OIDP	Adults with cleft lip with or without cleft alveolus, cleft palate, and cleft lip and palate who completed the repairing treatment in the cleft treatment center	No control
Feitosa *et al*.[24]	2022	Brazil	One-group pretest–posttest	69	24.8 SD=6, minimum=18, maximum=30	26:43	OHIP-14	Adults with unilateral or bilateral cleft lip and palate who completed orthodontic treatment with multibracket fixed appliances in both arches from 1 to 2 years before orthognathic surgery, referred for treatment planning of Le Fort I osteotomy for maxillary advancement	No controls (presurgical (T0) compared to postsurgical (T1))
Foo *et al*.[20]	2012	Australia	Cross-sectional	88	Mean 31, Median 27.5, Range 18–65	40:48	OHIP-14	Adults treated in the cleft repairing center for cleft lip with or without cleft alveolus, cleft palate, or both	South Australian 2002 state-level norms
Olsson *et al*.[25]	2022	Brazil	Case-control	Case: 68 CL/P with class III Control: 68 class III	Case: Median 21 (18–32) Control: Median 23 (18–36)	6:42	OHIP-14	Patients with skeletal Class III malocclusion with CL/P. requireing orthognathic surgery	Patients with skeletal Class III malocclusion requiring orthognathic surgery without CL/P
Palmeiro *et al*.[16]	2018	Brazil	Cross-sectional	CL/P 20/ Control 20/ DENT: Maxillary denture wearers 20	CL/P 30.6±10.55 Control 23.2±0.63 All adults	10:10	OHIP-14	Adult patients with CL/P who had been treated since childhood by a multidisciplinary team4. These patients had completed surgical repair, orthodontics, and oral rehabilitation with partial fixed prostheses supported by either natural teeth or dental implants in both arches	Healthy fully dentate subjects/maxillary denture wearers
Hideki de Lima Toyoshima *et al*.[21]	2024	Brazil	Cross-sectional	CL/P 52	Mean age not explicitly reported, range 20–50	23:29	OHIP-14	Adults CL/P who required treatment with fixed partial dentures (syndromic and nonsyndromic mixed)	No controls (Before and 30 days after after FPD treatment)

CL/P: Cleft lip and/or palate; UCL/P: Unilateral CL/P; OHRQoL: Oral health-related quality of life; SD: Standard deviation; OHIP-14: Oral Health Impact Profile-14; FPD: Fixed partial dentures; OIDP: Oral Impacts on Daily Performances

Table 3: Qualitative outcomes of all studies included in Qualitative assessment

Author	Outcome
Barros *et al.*[22]	Class III patients reported worse overall OHRQoL compared to UCL/P, mainly in physical and psychological domains. No notable difference was found between nonsurgical and surgical UCL/P groups. Both groups showed reliable OHRQoL measurement
Beluci and Genaro[23]	Positive impact of Psychological Discomfort, Psychological Disability, Social Disability, Handicap and Overall Score of OHIP-14 was observed after surgery
Corcoran *et al.*[14]	Despite the comprehensive treatment received by the patients born with a CL/P, they still experienced lower OHRQoL, especially physical pain and psychological discomfort were more pronounced
Corrêa de Queiroz Herkrath *et al.*[26]	Poorer OHRQoL in adults with cleft lip and/or palate was associated with low family income, female sex, low social support, low social network, smoking, the type of oral cleft, and a higher number of decayed and missing teeth. Furthermore, the most frequently reported impacts on daily life were on smiling and speaking
Feitosa *et al.*[24]	OHRQoL improved after orthognathic surgery, particularly in psychological and physical domains. Functional and social aspects showed no significant changes
Foo *et al.*[20]	The oral health impact among cleft patients was poor compared with population-level estimates, with significantly higher prevalence, extent, and severity of oral health impacts reported by the cleft sample. This indicates that current cleft treatment protocols may not fully address the adverse effects on patient's OHRQoL
Olsson *et al.*[25]	Patients with CL/P presented with less myofascial pain and other articular conditions More patients with CL/P reported no chronic pain. The OHRQOL of patients with CL/P without TMDs or no psychological factors was better than that of patients without CL/P
Palmeiro *et al.*[16]	CL/P subjects reported poorer quality of life and more depression symptoms than denture wearers or healthy control groups, though their depression scores were within the normal range. Due to small sample sizes, all cleft types were combined into a single CL/P group. The median OHIP-14 score in the CL/P group was six times higher than in the healthy control group, indicating significant residual OHRQoL impact postcare
Hideki de Lima Toyoshima *et al.*[21]	All domains of OHRQoL of adults with CL/P improved after prosthetic treatment with FPDs

OHRQoL: Oral health-related quality of life, CL/P: Cleft lip and/or palate, UCL/P: Unilateral CL/P, OHIP-14: Oral Health Impact Profile-14, FPDs: Fixed partial dentures

27 females), Beluci and Genaro[23] (29 males and 21 females), Foo *et al*.[20] (48 males and 40 females), and Hideki de Lima Toyoshima *et al*.[21] (29 males and 23 females). A higher proportion of females was seen in the studies by Corcoran *et al*.[14] (40 girls, 23 boys) and Corrêa de Queiroz Herkrath *et al*.[26] (60 females and 36 males). A higher proportion of males was noted in the studies by Feitosa *et al*.[24] (43 males and 26 females) and Olsson *et al*.[25] (42 males and 26 females in each group).

Cleft types

The types of clefts varied across studies: several studies included a broad spectrum of clefts: Corrêa de Queiroz Herkrath *et al*.[26] specified "cleft lip with or without cleft alveolus, cleft palate, and CL/P." Foo *et al*.[20] included "cleft lip with or without cleft alveolus, cleft palate, or both." Palmeiro *et al*.[16] noted that "all cleft types were combined into a single CL/P group." Corcoran *et al*.[14] used the general term "CL/P."

Other studies focused on more specific types: Barros *et al*.[22] concentrated on unilateral CL/P (UCL/P), differentiating between nonsurgical and surgical UCL/P groups. Feitosa *et al*.[24] included adults with "unilateral or bilateral CL/P." Olsson *et al*.[25] studied patients with "skeletal Class III malocclusion with CL/P." Beluci[23] and Hideki[21] referred to participants with "cleft lip and palate" and "CL/P" respectively.

Treatment history

All participants were adults who had received treatment for their cleft conditions. They had undergone reparative procedures (e.g., "repaired UCL/P adult patients" in Barros;[22] "completed the repairing treatment" in Corrêa[26] "treated since childhood" in Palmeiro,[16] consistent with primary surgical repairs. Some studies focused on participants undergoing or having received specific additional treatments in adulthood: Beluci and Genaro[23] and Feitosa *et al*.[24] assessed individuals undergoing surgical correction or orthognathic surgery (Feitosa specifically mentions "Le Fort I osteotomy").[1] Hideki de Lima Toyoshima *et al*.[21] focused on those receiving fixed partial dentures. Barros *et al*.[22] selected patients prior to orthodontic treatment/surgery and differentiated them based on whether their orthodontic treatment plan was nonsurgical or surgical.

Socioeconomic factors

Socioeconomic factors were not uniformly reported. Corrêa[26] explicitly reported on such factors, finding that "poorer oral OHRQoL in adults with CL/P was associated with low family income, female sex, low social support, low social network." Other studies in the Table 2 did not provide this level of detail on socioeconomic associations in their "outcome" or "case" descriptions. In summary, the adult CL/P populations in these nine studies showed variation in terms of specific age distributions within adulthood, gender ratios, the precise types of clefts included, and the history or current status of advanced treatments beyond primary repairs. Detailed socioeconomic data were limited.

DISCUSSION

This systematic review assessed the OHRQoL in adults (≥18 years) with CL/P and identified consistent patterns of diminished OHRQoL in this population. Despite variations in cleft type, age, and treatment history, a shared theme emerged across studies: adults with CL/P continue to face physical, psychological, and social challenges that negatively impact their daily lives.

Several studies have assessed long-term outcomes in adults treated for CL/P at specialized centers, primarily using cross-sectional designs to evaluate the cumulative impact of care. Among these, Corcoran *et al*.[14] stand out for explicitly evaluating outcomes at the conclusion of a long-term treatment protocol at age 18. Beluci and Genaro[23] and Feitosa *et al*.[24] provided prospective follow-up data postorthognathic surgery, though with relatively short follow-up periods (6–12 months). Other studies[16,22,25,26] assessed quality of life and oral health outcomes in adults posttreatment, offering insights into the effectiveness of specialized center care but without tracking patients longitudinally across the entire treatment course. While these studies collectively highlight the importance of specialized, long-term CL/P care, most rely on snapshots in adulthood rather than extended follow-up over time.

Another important observation across multiple studies was the disconnect between objective treatment completion and patients' subjective experience of quality of life. Even after receiving multidisciplinary care, including surgical repair, orthodontics, and prosthodontics, many adults still reported compromised OHRQoL.[14,20] This discrepancy underlines the importance of integrating patient-reported outcomes into treatment planning and follow-up.

Furthermore, psychological factors such as self-esteem, perceived facial esthetics, and communication difficulties often persist posttreatment and may not be fully addressed through surgical means alone. This calls for a more holistic, patient-centered model of care that includes psychosocial support and long-term follow-up, especially into adulthood when individuals face new social and occupational challenges.

Limitations of the review

Several limitations should be acknowledged. First, the number of eligible studies focusing exclusively on adults remains limited. Many existing datasets either combined children and adults or did not disaggregate data by age. Second, the predominance of cross-sectional designs limits causal inference. Only two studies evaluated changes in OHRQoL over time, and none incorporated long-term longitudinal follow-up into older adulthood. Third, variability in outcome measurement tools and inconsistent reporting of confounding variables (e.g., socioeconomic status, gender, and cleft type) reduce the ability to perform robust subgroup analyses.

Language restrictions and exclusion of non-English studies may have also led to selection bias, particularly given that cleft prevalence is high in non-English-speaking countries. The final limitation is that some studies assessed quality of life after a long follow-up period, while others focused on the short-term effects of various surgical or treatment approaches. As a result, we were unable to identify at least three comparable studies that used the same questionnaire and had similar study design and case selection criteria. Therefore, performing a meta-analysis was not feasible.

Reporting long-term outcomes for CL/P teams across the world is mainly limited to short-term follow–ups, but focus on their life time quality of life should not be neglected. CL/P teams should be more dedicated for publication of their long time results and long-term follow-ups.

CONCLUSION

The overall conclusion of this study is that despite receiving long-term, specialized treatment, adults with CL/P continue to experience compromised OHRQoL, particularly in psychological and physical domains. While specific interventions such as orthognathic surgery and prosthetic treatment (e.g. fixed partial dentures) show measurable improvements in certain

OHRQoL aspects, persistent challenges remain, especially related to pain, discomfort, and social and emotional well-being. In addition, factors such as socioeconomic status, gender, and oral health status further influence these outcomes. These findings suggest that while current cleft care protocols offer significant benefits, they may not fully mitigate the long-term psychosocial and functional impacts experienced by CL/P patients in adulthood.

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Conflicts of interest

The authors of this manuscript declare that they have no conflicts of interest, real or perceived, financial or nonfinancial in this article.

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SUPPLEMENTARY MATERIAL

Supplementary methods

Full search strategy per database

“cleft lip” OR “cleft palate”

“Life Quality” OR “quality of life” OR “Oral Health Related Quality of Life” OR “Oral Health-Related Quality Of Life”

“Oral”

“Adult” OR “Grown-up” OR “Mature” OR “senior”

Database	Keyword	Result
Pubmed	(((“cleft lip” OR “cleft palate”) AND (“Life Quality” OR “quality of life” OR “Oral Health Related Quality Of Life” OR “Oral Health-Related Quality Of Life”)) AND (“Oral”)) AND (“Adult*” OR “Grown-up” OR “Mature” OR “senior”)	75
Embase	(“cleft lip”/exp OR “cleft lip” OR “cleft palate”/exp OR “cleft palate”) AND (“quality of life”/exp OR “quality of life” OR “life quality”/exp OR “life quality” OR “oral health related quality of life”/exp OR “oral health related quality of life”) AND (“oral”) AND (“adult”/exp OR “adult” OR “grown-up” OR “mature” OR “senior”)	124
Scopus	(TITLE-ABS-KEY (“cleft lip”) OR TITLE-ABS-KEY (“cleft palate”)) AND (TITLE-ABS-KEY (“Life Quality”) OR TITLE-ABS-KEY (“quality of life”) OR TITLE-ABS-KEY (“Oral Health Related Quality of Life”) OR TITLE-ABS-KEY (“Oral Health-Related Quality Of Life”)) AND (TITLE-ABS-KEY (“Oral”)) AND (TITLE-ABS-KEY (“Adult”) OR TITLE-ABS-KEY (“Grown-up”) OR TITLE-ABS-KEY (“Mature”) OR TITLE-ABS-KEY (“senior”))	80
Scopus Secondary	(TITLE-ABS-KEY (“cleft lip”) OR TITLE-ABS-KEY (“cleft palate”)) AND (TITLE-ABS-KEY (“Life Quality”) OR TITLE-ABS-KEY (“quality of life”) OR TITLE-ABS-KEY (“Oral Health Related Quality of Life”) OR TITLE-ABS-KEY (“Oral Health-Related Quality Of Life”)) AND (TITLE-ABS-KEY (“Oral”)) AND (TITLE-ABS-KEY (“Adult”) OR TITLE-ABS-KEY (“Grown-up”) OR TITLE-ABS-KEY (“Mature”) OR TITLE-ABS-KEY (“senior”))	1
WOS	(((TS=(“cleft lip” OR “cleft palate”)) AND TS=(“Life Quality” OR “quality of life” OR “Oral Health Related Quality of Life” OR “Oral Health-Related Quality Of Life”)) AND TS=(“Oral”)) AND TS=(“Adult” OR “Grown-up” OR “Mature” OR “senior”)	127

Methodological quality assessment of the included studies using modified Newcastle - Ottawa Scale (NOS)

Corresponding author (reference)	Study design	Criteria							Quality score
		Selection				Comparability	Outcome		
		Representativeness of the sample	Sample size	Non – responders	Ascertainment of exposure/risk factor	The study controls for the most important factor	Assessment of the outcome	Statistical test	
Borros, 2019	Cross-sectional	1	1	1	2	1	1	1	8
Olsson, 2021	Cross-sectional	1	0	0	2	1	1	1	6
Corcoran, 2020	Cross-sectional	1	0	1	2	1	1	1	7
Correa, 2018	Cross-sectional	1	0	0	2	1	1	1	6
Foo, 2012	Cross-sectional	1	0	0	2	0	1	1	5
Palmeiro, 2018	Cross-sectional	1	0	0	2	0	1	1	5
Toyoshima, 2024	Cross-sectional	0	0	0	2	0	1	1	4

Quality Assessment using NIH quality assessment tool for before–after (pre–post) studies with no control group	**Beluci *et al*., 2016**	**Feitosa *et al*., 2022**
1. Was the study question or objective clearly stated?	Yes	Yes
2. Were eligibility/selection criteria for the study population prespecified and clearly described?	Yes	Yes
3. Were the participants in the study representative of those who would be eligible for the intervention in the general or clinical population of interest?	Yes	Yes
4. Were all eligible participants that met the prespecified entry criteria enrolled?	No	Yes
5. Was the sample size sufficiently large to provide confidence in the findings?	No	NR
6. Was the intervention clearly described and delivered consistently across the study population?	Yes	Yes
7. Were the outcome measures prespecified, clearly defined, valid, reliable, and assessed consistently across all study participants?	Yes	Yes
8. Were the people assessing the outcomes blinded to the participants' interventions?	NR	Yes
9. Was the loss to follow-up after baseline 20% or less? Were those lost to follow-up accounted for in the analysis?	No	NA
10. Did the statistical methods examine changes in outcome measures from before to after the intervention? Were statistical tests done that provided P values for the pre-to-post changes?	Yes	Yes
11. Were outcome measures of interest taken multiple times before the intervention and multiple times after the intervention (i.e., did they use an interrupted time-series design)?	No	No
12. If the intervention was conducted at a group level (e.g., a whole ward, a hospital, a community), did the statistical analysis account for the use of individual-level data to determine effects at the group level?	NA	NA
Rating	Good	Good

NA: Not available; NIH: National Institutes of Health; NR: Not reported