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REVIEW ARTICLE OPEN ACCESS

ORAL HEALTH AND QUALITY OF LIFE IN PEOPLE WITH PARKINSON'S DISEASE: AN INTEGRATIVE LITERATURE REVIEW

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ABSTRACT

Objective: To evaluate what the scientific literature describes about the impact of oral health on the quality of life of people with Parkinson's disease.**Method:** This is a descriptive study of integrative review type, the searches for scientific articles were conducted in March 2021 in a timeless way in the following databases: MEDLINE/PubMed, Scopus, Web of Science, LILACS and SciELO.Specific descriptors belonging to the Descriptors in Health Sciences (DeCS) and the Medical Subject Headings (MeSH) were used. The articles were evaluated for the risk of bias by the Critical Appraisal Skills Programme (CASP) and for the level of evidence, the Agency for Health Care and Research and Quality (AHRQ) was used. **Results:** Ninety-two articles were identified in the databases, of which 9 were considered eligible, being 6 classified at level A, with reduced bias risk, and 8 with level of evidence IV. During the analysis of the sample, two thematic categories emerged: 1) The impacts of Parkinson's disease on oral health and quality of life, and 2) Resources used in the practice of dental clinic. **Conclusion:** Manifestations of Parkinson's disease impact oral health when not prevented or treated may negatively impair the quality of life. Thus, it was observed the continuous need of the dentist in the elaboration of prevention and treatment protocols for the maintenance of good oral health in people with Parkinson's disease.

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INTRODUCTION

Considered a neurodegenerative disease, Parkinson's disease (PD) consists of a degeneration of dopaminergic neurons in the substantia nigra in the ventral tegmental area (Martins, 2020). The cardinal signs of this disease are bradykinesia, stiffness, resting tremor and postural instability (De Pablo-Fernandez *et al*., 2019; Poewe *et al*., 2017; Parkinson, 1817). The onset of PD usually occurs between 65 and 70 years old. Before the age of 40, it is seen in less than 5% of cases in population-based cohorts and is considered rare. The disease is slightly more frequent in men than in women. And its prevalence is 100/200 per 100,000 people (Tysnes and Storstein, 2017). One of the factors related to the pathophysiology of PD is the inflammatory component, which is also associated with the causes of oral pathologies (Stenger, 2019), such as dental caries; root caries; periodontal disease; sialorrhea; xerostomia; sensation of oral burning; changes in smell;attrition; erosion; biting the tongue, lips or jugal mucosa; oral ulcers; lack of retention of dental prosthesis; and dysphagia (Debowes *et al*., 2013). Oral health thinking according to the expanded concept of health, is related to the well-being and quality of life (QoL) of people, because it includes the ability to speak, smile, taste, touch, chew, swallow and express emotions by facial expressions without pain and discomfort.Genetic and biological factors, social environment, physical environment, health behaviors and access to care are factors that can affect oral health (Glick *et al*., 2017). Oral health-related quality of life (OHRQoL) is a description of self-perceived health, well-being and QoLof a person related to oral conditions and functions (Sischo *et al*., 2011). Therefore, it is essential that the dentist has knowledge about the disease, especially about the signs and symptoms of PD, its clinical and epidemiological picture, so that there is a better performance with the multidisciplinary team, resulting in improved QoL associated with

oral health (Nogueira, 2016). In view of the above, the aim of this study was to evaluate what the scientific literature describes about the impact of oral health on the quality of life of people with Parkinson's disease.

METHOD

Study design: This is a descriptive study, of the integrative review type. For its elaboration, six stages were followed: identification of the theme and elaboration of the research-conducting question; definition of the inclusion and exclusion criteria of the studies; determination of the information to be extracted from the studies selected for further categorization; evaluation of the studies included in the review; data analysis; and synthesis of knowledge and presentation of the review (Sousa *et al*., 2017). The research-based question was defined as: "What is the impact that oral health has on the quality of life of people with Parkinson's disease?". To elaborate the question, the PICo strategy was used, so that the letter P corresponds to the population (people with Parkinson's disease), I of interest (oral health) and Co context (quality of life). The searches for scientific articles were conducted in March 2021 timelessly in the following databases: National Library of Medicine and National Institutes of Health (MEDLINE/PubMed), Scopus, Web of Science, Latin American and Caribbean Literature in Health Sciences (LILACS), and Scientific Electronic Library (SciELO). For the search in the databases, we selected descriptors present in the DeCS and MeSH: "quality of life", "Parkinson's disease" and "oral health". The Boolean operators of choice were "AND" and "OR". The search strategies used to locate the articles in each database are described in Table 1.

assess the level of evidence of the different study designs. This classifies the studies into six levels according to the level of evidence: I - systematic review or meta-analysis; II - randomized clinical trials; III - clinical trials without randomization; IV - cohort and case-control studies; V - systematic review of descriptive and qualitative studies and VI - single descriptive or qualitative study (AHRQ, 2021).

RESULTS

We identified 92 articles, of which, following the inclusion and exclusion criteria, 9 articles were selected to make up the final sample of this review. The steps that comprised the selection process of the studies are presented through the flowchart proposed by PRISMA, represented in Figure 1. The selected articles were organized in table 2 regarding the journal; title; author, year and country; objective; sample; evaluative instruments and main results found. The research included was published between 2009 and 2020, in the following countries: Hungary, Portugal, Brazil, Germany, Denmark and the United Kingdom. All articles were written in English, one with a clinical trial study design, four were case-control and four cross-sectional studies. Regarding the number of individuals who composed the samples of the studies, we observed the disparities in the number of participants ranging from 9 to 100, for both sexes, with the age group between 61 and 82, and none of them made a sample size calculation (Baumann *et al*., 2020; Lyra *et al*., 2020; Ribeiro *et al*., 2017; Barbe *et al*., 2016; Silva *et al*., 2015; Bakke *et al*., 2011; Packer *et al*., 2009).It is worth noting that the sample was obtained conveniently, which can generate selection bias and only four had a control group (Baumann *et al*., 2020; Barbe *et al*., 2017a; b; Bakke *et al*., 2011).

Table 1. Search strategies used for databases

Database	Search strategy
MEDLINE/PubMed	"Qualityoflife"[All Fields] AND "Oral Health"[All Fields] AND "Parkinson disease"[All Fields]
Scopus	("Qualityoflife") AND ("OralHealth") AND ("Parkinson disease")
Web of Science	TOPIC: (Qualityoflife) AND TOPIC: (Oral Health) AND TÓPICO: (Parkinson disease)
LILACS	(Qualityoflife) AND (Oral Health) *AND (Parkinson disease)*
SciELO	(Qualityoflife) AND (Oral Health) *AND (Parkinson disease)*

The inclusion criteria used in the search were: a) articles dealing with oral health and quality of life; and b) articles in English, Spanish and/or Portuguese. Studies of the monograph, dissertation, thesis, book,bookchapter, editorial, newspaper article, integrative or systematic review of literature, letter to the editor, reflective study, experience report, abstracts published in events, publications on websites, and advertisements published were excluded.The selection of studies was conducted in two stages: reading the titles/abstracts and later complete reading of the selected articles. The first was made by two researchers independently, based on inclusion and exclusion criteria, classifying potentially eligible ones and disregarding duplicate studies.In the second stage, the selected articles were thoroughly read and the divergences during the selection were resolved by consulting a third reviewer to solve them independently to ensure the reliability and validity of the study in question. In the data analysis stage, the information was obtained from the articles, which resulted in the elaboration of a synthesis framework with the characteristics of the included primary studies, such as: author(s), place, year of publication, objective(s), evaluation instruments, study design, sample and the main results related to QoLand oral health. After evaluating the studies, to verify the risk of bias of the articles, the CASP was applied. For each CASP item, the value 0 (zero for no) or 1 (one for yes) was assigned, with the result being the sum of the scores, whose maximum score is 10 points. After this moment, the results were classified according to the scores:level A – 6 to 10 points (good methodological quality and reduced bias) or level B – at least 5 points (satisfactory methodological quality, but with increased risk of bias). Case control articles were evaluated using the Case Control Study Checklist, cross-sectional observational studies were evaluated through the Cohort Control Study Checklist and the non-randomized clinical trial was evaluated by the Clinical Prediction Study Checklist (CASP, 2021). In addition to this instrument, the AHRQ was used to

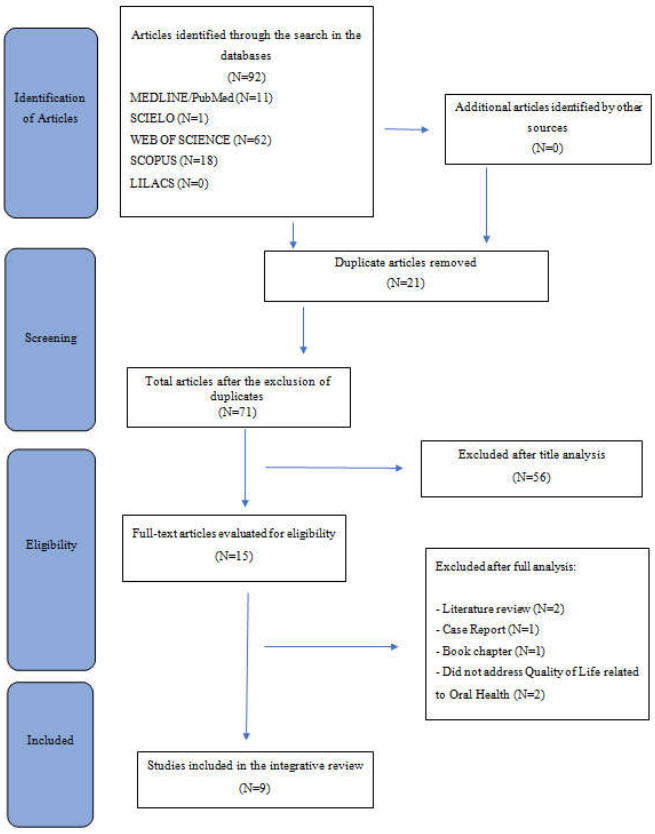

Figure 1. Flowchart of the steps of the selection process of the articles according to PRISMA

Table 2. Summary of the articles inserted in the integrative review according to journal, title, authors, year, country, objective, sample, evaluative instruments and results

Health Problems of Civilization	Temporomandibularjoint disorder in patients with Parkinson'sdisease – a pilot study	Baumann et al., 2020. Hungary	Determine whether there is a correlation between PD and TMD symptoms.	N:77 PD: 35 GC: 42	• Anamnesis; • Clinical examination; • OHIP-14; • SF-36; • Helkimo Index.	The results indicated that people with PD have a higher incidence of TMD and a worse quality of life.
Medicine	Parkinson's Disease, periodontitis, and patient-relatedoutcomes: across-sectional study	Lyra et al., 2020. Portugal	Assess the periodontal status of people with PD and verify its association with quality of life and self-perceived xerostomia.	N: 28 PD: 28	• **UPDRS;** • HYModified; • Periodontal examination; • PDQ-8; • OHIP-14; • SXI-5.	Periodontitis was highly prevalent in people with PD. They found that the advanced stages of the disease influenced periodontal health and oral hygiene habits. And xerostomia was significantly correlated with worsening overall quality of life.
The Journalof Prosthetic Dentistry	Influence of a removable prosthesis on oral health-related quality of life and mastication in elders with Parkinson disease	Ribeiro et al., 2017. Brazil	Evaluate the influence of oral rehabilitation with removable dental prosthesis on quality of life and masticatory efficiency in elderly with PD.	N: 34 PD: 17 GC: 17	• Clinical examination; • Dental treatment; • OHIP-49; • Artificial Test Optocal.	It was found that oral rehabilitation with removable prostheses improved quality of life related to oral health and masticatory efficiency in both groups. However, masticatory efficiency in elderly with PD remained below the expected levels of.
Gerodontology	Subjective and objective halitosis among patients with Parkinson's disease	Barbe et al., 2017a. Germany	Check for people with PD to suffer from halitosis and define correlations between halitosis and hyposalivation.	N:52 PD: 26 GC:26	• UPDRS-II; • OHIPG-14; • Visual analogscale for xerostomia.	People with PD suffer from subjective and objective halitosis, dry mouth and impaired oral health-related quality of life.
Oral Diseases	Hyposalivation and xerostomia among Parkinson's disease patients and its impact on quality of life	Barbe et al., 2017b. Germany	Check if xerostomia is correlated with hyposalivation and its impact on oral health quality of life.	N: 60 PD: 30 GC: 30	• UPDRS-II; • Community periodontal index of need for treatment; • Use of medication; • OHIPG-14; • Xerostomia self-assessment; • Visual analog saliva scale.	They found that PD patients underestimate their dry mouth symptoms. Almost all PD patients in the study showed hyposalivation, but only half of these people reported xerostomia. In addition, pd patients had a worse quality of life related to oral health.
Gerodontology	Self-assessment of oral health, dental health care and oral health-related quality of life among Parkinson's disease patients	Barbe et al., 2016. Germany	Investigate self-assessment dental care in people with PD, including the ability to perform oral hygiene, self-assessed xerostomia, drool and dysphagia problems, and the impact on oral health-related quality of life.	N: 100 PD: 100	-Self-prepared questionnaire with 5 sessions: -Current use of medicines; -Clinical characteristics of PD; -Self-assessment of oral hygiene; -Dental health situation; -Self-assessment of xerostomia/baba/dysphagia and frequency of nutritional intake (diet). • UPDRS-II; • OHIP-14.	People with PD in the sample suffered from oral health-related symptoms (xerostomia, salivation, and dysphagia) that impaired their oral health-related quality of life.
Journal of PhysicalTherapy Science	Impact in oral health and the prevalence of temporomandibular disorder in individuals with Parkinson's disease	Silva et al., 2015. Brasil	Investigate the prevalence of TMD in people with PD and analyze oral health according to the severity of the disease.	N:59 PD: 59	• FIM; • RDC/TMD; • OHIP-14; • HY.	The prevalence of TMD was 20.33% in the sample. And the impact of oral health was considered weak, but in the comparison between individuals with and without TMD, the highest scores in OHIP-14 were found among those who had TMD.
EuropeanJournal of Oral Science	Orofacial function and oral health in patients with Parkinsons disease	Bakke et al., 2011. Denmark	Perform a general assessment of orofacial function and oral health of people with PD.	N:30 PD: 15 GC: 15	• UPDRS; • NOTs; • Modified method ofAnastesSiadou& Heath (with chewing gum); • Oral stereognosis test; • Palpation of the elevator muscles of the jaw; • OHIP-49.	It was found that chewing, orofacial function and quality of life are impaired in moderate and advanced cases of PD.
Gerodontology	The potential benefits of dental implants on the oral health quality of life of people with Parkinson's disease	Packer et al., 2009. United Kingdom	Investigate how dental implants impact the quality of life of oral health of people with PD.	N: 9 PD: 9	• Clinical examination; • DIDDL;modified; • Implant treatment;	The quality of life of people with PD has been improved with the use of dental implants used to stabilize prostheses.

Abbreviations: DIDDL: evaluation of dental impact on daily performance; PD: Parkinson's disease; TMD: temporomandibular dysfunction; FIM: measure of functional independence; CG: control group; Modified HY: Modified Hoehn &Yahr Parkinson's disease classification scale; N: final sample; NOTs: Nordic orofacial screening test; OHIP-14: **instrument of impact profile on oral health;** PDQ-8:Parkinson's disease questionnaire-**8**;RDC/TMD: diagnostic criteria for the research of temporomandibular dysfunctions; SF-36:short-form health research; SXI-5: summary **xerostomia** inventory from Indonesia;UPDRS: unified Parkinson's disease assessment scale; UPDRS-II: Unified Parkinson's Disease Assessment Scale - Part II.

Table 3. Summary of the application of the CASP classification, and the AHRQ level of evidence of the articles included

Type of Study/ Authors	Item 1	Item 2	Item 3	Item 4	Item 5	Item 6	Item 7	Item 8	Item 9	Item 10	Item 11	Item 12	Score (CASP)	Classification (CASP)	Evidence level (AHRQ)
Case-Control															
Ribeiro et al., 2017	Y	Y	Y	Y	Y	a) Y b) Y	-	-	Y	NA	Y	-	8	A	IV
Barbe et al., 2017a	Y	Y	Y	Y	Y	a) Y b) Y	-	-	Y	NA	Y	-	8	A	IV
Barbe et al., 2017b	Y	Y	Y	Y	Y	a) NA b) Y	-	-	Y	Y	Y	-	8	A	IV
Bakke et al., 2011	Y	Y	Y	Y	N	a) N b) N	-	-	N	NA	Y		5	B	IV
Observational															
Bauman et al., 2020	N	Y	Y	Y	a) Y b) Y	a) NA b) NA	-	-	Y	Y	Y	NA	7	A	IV
Lyra et al., 2020	Y	Y	Y	Y	a) Y b) Y	a) NA b) NA	-	-	Y	Y	Y	Y	9	A	IV
Barbe et al., 2016	Y	Y	Y	Y	a) Y b) Y	a) NA b) NA	-	-	Y	Y	Y	Y	9	A	IV
Silva et al., 2015	Y	Y	N	N	a) Y b) N	a) NA b) NA	-	-	NA	N	N	N	2	B	IV
Clinical essay															
Packer et al., 2009	Y	Y	N	NA	N	Y	N	-	NA	NA	NA	-	3	B	III

Abbreviations: AHRQ: Agency for health care and research and quality; CASP: Critical appraisal skills programme;Y: Yes; N: No; NA: Does not apply.

Table 4. Instruments used to assess oral health and quality of life of people with Parkinson's disease present in studies that comprised a sample.

Oral health-related instruments	Study	Score
Research diagnostic criteria for temporomandibular disorders – RDC-TMD	DWORKIN, S. F.; LERESCHE, L. Research diagnostic criteria for temporomandibular disorders: review, criteria, examinations and specifications, critique. Journal of Craniomandibular Disorders. v. 6, n. 4, p. 301-55, 1992.	NA. It does not present a score but defines the clinical diagnosis through 3 groups: group I (muscle diagnoses), group II (disc displacement), and group III (arthralgia, arthritis and arthrosis).
Unified Parkinson's disease rating scale - UPDRS-II	MOVEMENT DISORDER SOCIETY TASK FORCE ON RATING SCALES FOR PARKINSON'S DISEASE. The unified Parkinson's disease rating scale (UPDRS): status and recommendations. Movement Disorders. v. 18, n. 7, p. 738-50, 2003.	Ranges from 0 to 52. Lower score: lower involvement by the disease. Higher score: greater impairment by the disease.
Visual analogue scale questionnaire for subjective assessment of salivary	PAI, S.; GHEZZI, E. M.; SHIP, J. A. Development of a Visual Analogue Scale questionnaire for subjective assessment of salivary dysfunction. Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology, and Endodontology. v. 91, n. 3, p. 311-6, 2001.	Ranges from 0 to 10. Lower score: absence of xerostomia. Highest score: symptoms of high dry mouth.
Helkimo dysfunction index - HDI	HELKIMO, M. Studies on function and dysfunction of the masticatory system. 3. Analyses of anamnestic and clinical recordings of dysfunction with the aid of indices. Svensk Tandlakare Tidskrift. v. 67, n. 3, p. 165-81, 1974.	Ranges from 0 to 25. Lower score: has no dysfunction/symptoms. Highest score: severe dysfunction.
Community periodontal index of treatment needs - CPITN	AINAMO. J.; BARMES, D.; BEAGRIE, G.; CUTRESS, T.; MARTIN, J.; SARDO-INFIRRI, J. Development of the World Health Organization (WHO) community periodontal index of treatment needs (CPITN). International Dental Journal.v. 32, n. 3, p. 281-91, 1982.	NA. It does not present a score for general clinical evaluation, but defines the prevalence, severity and needs of periodontal treatment.
Summated xerostomia inventory – SXI-5	THOMSON, W. M. et al. Shortening the xerostomia inventory. Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology, and Endodontology. v. 112, n. 3, p. 322-7, 2011.	Ranges from 5 to 20. Lower score: they never had a dry mouth. Highest score: always presented xerostomia.
Functional independence measure - FIM	GRANGER, C. V. Mesure de l'Inde´pendance Fonctionnelle. In Actes des 6° entretiens de l'Institut Garches. Arnette, Paris: 1993.p. 13–20.	Ranges from 18 to 126. Lower score: complete dependence. Highest score: complete/modified independence.
Modified AnastasSiadou & Heath method (with chewing gum)	ANASTASSIADOU, V.; HEATH, M. R. The development of a simple objective test of mastication suitable for older people, using chewing gums. Gerodontology. v. 18, n. 2, p. 79-86, 2001.	NA.

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Nordic orofacial test-screening - NOTs	BAKKE, M.; BERGENDAL, B.; MCALLISTER, A.; SJÖGREEN, L.; ASTEN, P. Development and evaluation of a comprehensive screening for orofacial dysfunction. Swedish Dental Journal. v. 31, n. 2, p. 75-84, 2007.	Ranges from 0 to 12. Lower score: less impaired orofacial function. Higher score: more impaired orofacial function.
Quality of life instruments	Study	Score
Dental impact on daily living assessment – DIDDL	LEAO, A.; SHEIHAM, A. The development of a socio-dental measure of dental impacts on daily living. Community Dental Health. v. 13, n. 1, p. 22-6, 1996.	Ranges from 10 to -10. Lower score: more oral impacts on daily life. Higher score: fewer oral impacts on daily life.
Oral health impact profile instrument – OHIP–14	SLADE, G. D. Derivation, and validation of a short-form oral health impact profile. Community dentistry and oral epidemiology. v. 25, n. 4, p. 284-90, 1997.	Ranges from 0 to 56. Lower score: high quality of life/low impact on oral health. Higher score: low quality of life/high impact on oral health.
Oral health impact profile instrument – OHIP–49	SLADE, G. D.; SPENCER, A. J. Development, and evaluation of the oral health impact profile. Community Dental Health. v. 11, n. 1, p. 3-11, 1994.	Ranges from 0 to 196. Lower score: high quality of life/low impact on oral health. Higher score: low quality of life/high impact on oral health.
Germany oral health impact profile instrument – OHIPG–14	JOHN, M. T. et al. German short forms of the oral health impact profile. Community Dentistry and Oral Epidemiology. v. 34, n. 4, p. 277-88, 2006.	Ranges from 0 to 56. Lower score: high quality of life related to oral health. Higher score: low quality of life related to oral health.
Parkinson's disease questionnaire – PDQ-8	JENKINSON, C.; FITZPATRICK, R.; PET0, V.; GREENHALL, R.; HYMAN, N. The PDQ-8: Development and validation of a short-form Parkinson's disease questionnaire. Psychology & Health. v. 12, p. 805-14, 1997.	Ranges from 0 to 100. Lower score: better perception of quality of life. Higher score: worse perception of quality of life.

Abbreviations: NA: does not apply.

According to the bias risk analysis using the CASP scale, six articles were classified as level A, with reduced bias risk. In addition, it was possible to observe that 89% of the studies that composed the sample presented level IV of evidence (Table 3). The main oral manifestations associated with PD in the studies were: temporomandibular dysfunction (TMD) (Baumann *et al*., 2020; Silva *et al*., 2015; Bakke *et al*., 2011), periodontal disease (Lyra *et al*., 2020), xerostomia (Barbe *et al*., 2017b), halitosis and salivation (Barbe *et al*., 2017a; Barbe *et al*., 2017b). It is worth noting that dysphagia was a symptom reported in direct relation to problems in the stomatognathic system (Barbe *et al*., 2017a). To synthesize the instruments used in PD to assess oral health (11) and quality of life (4) present in the studies, table 4 was elaborated, with the following information: instrument name, authors and total score. Among the studies present in this review, it was possible to observe the lack of agreement about the instruments that were used to measure oral health, because they were focused on different perspectives of oral manifestations present in PD.

DISCUSSION

The researched literature indicated that oral health care is of paramount importance for maintaining QoL in people who are affected by PD, because there are oral manifestations resulting from the disease and the drugs used that negatively affect it. To discuss the subject, two thematic categories emerged: 1) The impacts of Parkinson's disease on oral health and quality of life, and 2) Resources used in the practice of dental clinic.

The impacts of Parkinson's disease on oral health and quality of life: Regarding TMD, the study conducted by Silva and collaborators (2015) observed a prevalence of 20% of people with PD with TMD, the impact on oral health was considered mild, this can be explained by the fact that the sample of this study was composed of individuals in the mild stage of PD and are accompanied by a multidisciplinary team.On the other hand, the use of other assessment instruments reported that TMD was identified in people with PD in the moderate and advanced stages of the disease (Bakke *et al*., 2011). TMD was associated with a higher incidence in people with PD causing a worsening in QoL (Baumann *et al*., 2020). When left untreated, it can increase the negative impacts of PD, generating greater pain and orofacial dysfunction. Therefore, it is of paramount importance that TMD be investigated and treated (Martimbianco *et al*., 2021).

About the periodontal state, Lyraand collaborators (2020) identified a high prevalence with 75% in their study and most cases were identified as severe (46.4%). Upper extremity stiffness, hand posture and tremors were significantly correlated with a worse periodontal state. Xerostomia and sialorrhea were found as symptoms that affect oral health in people with PD in the research conducted by Barbe and collaborators (2016) the results showed that 49% had xerostomia, while 70% had the symptom of sialorrhea.Corroborating this study, another study reported that people with PD underestimated the symptoms of dry mouth, because all had hyposalivation and xerostomia. In addition, they reported worsening in QoL related to oral health, which was correlated with worsening of general QoL (Lyra *et al*., 2020).

A study conducted by Barbe *et al*. (2017a) identified that dry mouth was more present in people with PD than in the control group, informing that individuals with PD suffer from subjective and objective halitosis that results in impairing OHRQoL.Because it is a non-motor symptom, halitosis can be in the background in the perception of individuals with PD, either because it is not so relevant in relation to other related problems, or because the symptom is not strong (Barbe *et al*., 2017b). Barbe *et al*. (2017b) showed in their results that the objective rate of stimulated saliva does not reflect the degree of xerostomia of individuals with Parkinson's. In this population, an impaired OHRQoL was identified.Suggesting that more teams specifically investigate xerostomia, hyposalivation, and the oral health situation of this group, so that it is possible to develop a prevention and care plan based on the characteristic needs of these individuals. Thus, it would be feasible to reduce the risk of developing caries, periodontitis and tooth loss, thus resulting in improved QoL. In the research conducted by Barbe *et al*. (2016), 47% of the sample presented dysphagia, this was considered as one of the symptoms that harms the oral health and QoL of people with PD, because when the individual has difficulty eating and swallowing, oral and systemic health can be altered, especially when it affects the intake of medications. In addition, another common oral consequence of dysphagia is acid reflux that can cause tooth erosion, resulting in hypersensitivity.

Resources used in dental clinical practice: Dental implants were indicated as a viable rehabilitation procedure for improving OHRQoL (Packer, 2009). Corroborating a previous study, Heckman *et al*. (2000) reported that the use of dental implants in the mandibular region to stabilize prostheses in people with PD improves the functioning of the gastrointestinal tract.In addition, Ribeiro *et al*. (2017) reported as a more economical alternative of oral rehabilitation in people with PD. It is noteworthy that the dentist should be aware of the difficulties that the individual affected by PD will encounter during the use of the prosthesis, as in the case of its hygiene. The use of different brushes, one for the mobile prosthesis and the other for your teeth helps in the maintenance of oral health, as well as the brushing of teeth after meals.It should also be noted that it should not sleep with the prosthesis and should be placed in a container with water. In the case of fixed prosthesis, brushing should be performed using the Bass technique, which suggests the inclination of the brush to 45º in relation to the gum scan and the use of floss should also be encouraged (Nogueira, 2016).Thus, it is observed how the role of dentist is essential for the promotion of oral health and prevention of periodontal diseases that can be aggravated by the presence of PD, which can reduce the QoL, independence and autonomy of these individuals. There are tools that can be used in clinical practice to identify oral manifestations related to PD. However, these developed instruments observe a single problem, because there is not yet a questionnaire that addresses all relevant oral symptoms in PD. Thus, emphasizing the importance of dentist and team in the development of specific protocols aimed at these individuals seeking to improve their QoL (Barbe *et al*., 2017b). As a limitation of the study, we found that the fact that not all articles had the sample size calculation emerges as a limiting factor in the interpretation, generalization of the results and conclusion of this review. In addition, the evaluation instruments were different, indicating that there is a need to create more uniform protocols.

CONCLUSION

The present study revealed that there are oral manifestations that negatively impact the oral health of people with Parkinson's disease, such as temporomandibular dysfunction, periodontal diseases and xerostomia, which, if not prevented or treated, can impair quality of life. Thus, it was observed the continuous need of the dentist in the elaboration of prevention and treatment protocols for the maintenance of good oral health in people with Parkinson's disease.

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