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Individualized and humanized intervention for the treatment of stage III, grade A periodontitis in a patient with paranoid schizophrenia[1]

Intervenção individualizada e humanizada para tratamento de periodontite estágio III grau A em paciente com esquizofrenia paranoide

Intervención individualizada y humanizada para el tratamiento de la periodontitis en estadio III grado A en un paciente con esquizofrenia paranoide

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ABSTRACT

Periodontal disease (PD) has biofilm accumulation as one of its etiological factors and leads to the progressive destruction of the periodontal attachment complex. Mechanical plaque control is the primary method of prevention and treatment for PD and requires patient cooperation. The objective of this study is to reduce the O'Leary index and pocket depth through the use of individualized intervention in a psychiatric patient. A 41-year-old male patient from the School of Dentistry at the State University of Rio de Janeiro (FO-UERJ) presented with the chief complaint of "bleeding gums." He was under psychiatric treatment for paranoid schizophrenia and was being treated with lithium carbonate and olanzapine. Following a periodontal assessment, stage III grade A periodontitis was diagnosed. The clinical management plan consisted of professional mechanical control both supra- and subgingival, combined with motivational interviews in association with the O'Leary index, which was frequently reassessed. The O'Leary index score at the initial intervention visit was 81%. The patient reported forgetting to practice oral hygiene, so the strategy was to use WhatsApp twice a day to remind him and request that he send photos after brushing and flossing as a form of confirmation and reminder of the habit. Seven follow-up visits, spaced seven to fourteen days apart, were conducted for positive reinforcement and to ensure proper technique. The index decreased to 60%, then 59%, 43%, 37%, and 23%. There was a reduction in pocket depth of 2 mm at 5 sites. Based on the humanistic

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characteristics of patient care, tailoring interventions to the patient's individuality can help mitigate periodontal disease.

Keywords: Dental Plaque. Schizophrenia, Paranoid. Periodontitis.

RESUMO

Possuindo como um dos fatores etiológicos o acúmulo de biofilme, as doenças periodontais (DP) são responsáveis pela progressiva destruição do aparato de inserção periodontal. O controle mecânico da placa é a principal forma de prevenção e tratamento das DPs e demanda cooperação do paciente. O objetivo deste estudo é promover redução de índice de O'Leary e profundidade de bolsas com uso de intervenção individualizada em paciente psiquiátrico. Paciente da Faculdade de Odontologia da Universidade do Estado do Rio de Janeiro (FO-UERJ), homem, 41 anos, com queixa principal de "sangramento na gengiva". Fazia acompanhamento psiquiátrico para esquizofrenia paranoide e tratamento medicamentoso com carbonato de lítio e olanzapina. Após avaliação periodontal, diagnosticou-se periodontite estágio III grau A. A conduta clínica foi controle mecânico profissional supra e subgengival e implementação de entrevistas motivacionais associadas ao índice de O'Leary frequentemente refeito. O resultado do índice de O'Leary da consulta inicial da intervenção foi de 81%. Paciente relatava esquecer a higiene oral, então a estratégia foi usar o WhatsApp duas vezes ao dia para lembrá-lo e solicitar envio de fotos após escovações e uso do fio como forma de confirmação e lembrete do hábito. Sete consultas com periodicidade de sete a catorze dias foram realizadas para reforço positivo e adequação de técnicas. Houve redução do índice para 60%, 59%, 43%, 37% e 23%. Houve redução de profundidade de bolsas de 2mm em 5 sítios. A partir das características humanísticas do atendimento, a adequação das intervenções associada à compreensão da individualidade do paciente pode auxiliar na atenuação das DPs.

Palavras-chave: Biofilme Dentário. Esquizofrenia Paranoide. Periodontite.

RESUMEN

Las enfermedades periodontales, que tienen como uno de sus factores etiológicos la acumulación de biofilm, son responsables de la destrucción progresiva del aparato de inserción periodontal. El control mecánico de la placa es la principal forma de prevención y tratamiento de las enfermedades periodontales y requiere la colaboración del paciente. El objetivo de este estudio es promover la reducción del índice de O'Leary y de la profundidad de las bolsas mediante una intervención individualizada en un paciente psiquiátrico. Paciente de la Facultad de Odontología de la Universidad Estatal de Río de Janeiro (FO-UERJ), varón de 41 años, cuya queja principal era "sangrado en las encías". Estaba bajo seguimiento psiquiátrico por esquizofrenia paranoide y recibía tratamiento farmacológico con carbonato de litio y olanzapina. Tras la evaluación periodontal, se diagnosticó periodontitis en estadio III, grado A. El tratamiento clínico consistió en un control mecánico profesional supra y subgingival y la implementación de entrevistas motivacionales asociadas al índice de O'Leary, que se repetía con frecuencia. El resultado del índice de O'Leary en la consulta inicial de la intervención fue del 81 %. El paciente refería que se olvidaba de la higiene bucal, por lo que la estrategia consistió en utilizar WhatsApp dos veces al día para recordárselo y solicitarle que enviara fotos tras el cepillado y el uso del hilo dental como forma de confirmación y recordatorio del hábito. Se realizaron siete consultas con una periodicidad de entre siete y catorce días para reforzar positivamente el tratamiento y ajustar las técnicas. Se observó una reducción del índice hasta el 60 %, el 59 %, el 43 %, el 37 % y el 23 %. Se produjo una reducción de la profundidad de las bolsas de 2 mm en cinco sitios. Partiendo de las características humanísticas de la atención, la adaptación de las intervenciones, unida a la comprensión de la individualidad del paciente, puede contribuir a la atenuación de las enfermedades periodontales.

Palabras clave: Placa Dental. Esquizofrenia Paranoide. Periodontitis.

INTRODUCTION

Schizophrenia is defined as a group of chronic mental disorders characterized by symptoms such as hallucinations, disorganized communication, low motivation, and

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cognitive impairments (McCutcheon *et al*., 2025; Correll *et al*., 2022; Zhan; Wang; Shen, 2025), and it may be associated with comorbidities such as diabetes, heart disease, cancer, and other respiratory and neurological impacts (Wey *et al*., 2016; Zhan; Wang; Shen, 2025). Schizophrenia is also associated with reduced life expectancy (Urien *et al*., 2026; Zhan; Wang; Shen, 2025), with unhealthy lifestyles, limited access to health services, and suicidal behaviors being the main causes of mortality, resulting in a life expectancy 10 to 25 years shorter in these patients than in the general population (Zhan; Wang; Shen, 2025). However, oral conditions and their prevalence are not routinely addressed in studies (Wey *et al*., 2016; Urien *et al*., 2026).

The risk of developing schizophrenia is higher in men than in women, and its onset may range from late adolescence to early adulthood (Zhan; Wang; Shen, 2025). Its management commonly involves psychotropic medication and may also include cognitive-behavioral therapy and family management (Jin *et al*., 2020); it is directed toward controlling acute psychotic episodes and preventing relapse (Correll *et al*., 2022). The use of two medications in combination is common in these patients, potentially exacerbating cognitive decline and cardiovascular dysfunction, in addition to increasing salivary hypofunction (Urien *et al*., 2026).

Gingivitis, a precursor to periodontitis, is an inflammatory condition confined to the gingival epithelium and connective tissue (Serafini *et al*., 2022). Gingivitis begins with the accumulation of dental biofilm on healthy gingival tissues owing to the absence or inefficiency of oral hygiene practices. Unlike periodontitis, gingivitis can be reversed when toothbrushing and interdental cleaning habits are re-established or improved (Lang; Schätzle; Löe, 2009). Therefore, preventing gingivitis is one of the main means of preventing periodontitis and includes promoting oral hygiene through correct toothbrushing techniques and cleaning of interdental surfaces, as well as smoking cessation (Wey *et al*., 2016).

Periodontitis is part of periodontal diseases (Marques *et al*., 2025) and may be defined as a chronic inflammatory disease associated with dysbiotic biofilm and characterized by progressive loss of periodontal attachment (Papapanou *et al*., 2018). It is a public health problem (Papapanou *et al*., 2018; Villoria *et al*., 2024) and is considered one of the most common inflammatory diseases in humans (Villoria *et al*., 2024). Its main signs include clinical attachment loss, bone loss (commonly observed radiographically), periodontal pockets, and bleeding on probing (Herrera *et al*., 2022). It is currently

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considered a chronic noncommunicable disease (NCD) (Marques *et al*., 2025) and may therefore be associated with the development and maintenance of other NCDs, such as diabetes, arterial hypertension and other cardiovascular outcomes, cancer, and chronic diseases affecting the neurological system, such as Alzheimer disease (Villoria *et al*., 2024; Marques *et al*., 2025; Hu *et al*., 2025).

Patients with schizophrenia may be more susceptible to the development of periodontitis (Wey *et al*., 2016; Urien *et al*., 2026) because of factors such as medication-induced hyposalivation (Urien *et al*., 2026; Nazir, 2017), low motivation and self-care (Saha *et al*., 2005), and cognitive impacts (Jin et al., 2020; Correll *et al*., 2022) that may influence daily plaque-control skills. This study aims to describe a case of treatment of stage III grade A periodontitis (Papapanou *et al*., 2018) in a patient with paranoid schizophrenia at an undergraduate clinic at the State University of Rio de Janeiro, promoting a reduction in the O'Leary index and periodontal pocket depth through adapted strategies.

CASE REPORT

A 41-year-old male patient was treated at the undergraduate clinic of the Integrated Procedures Unit of the School of Dentistry, State University of Rio de Janeiro (UERJ). His chief complaint was "bleeding gums." During anamnesis, he reported a diagnosis of paranoid schizophrenia and psychiatric follow-up at Pedro Ernesto University Hospital (HUPE), also at UERJ. To manage this condition, he used lithium carbonate (900 mg) and olanzapine (20 mg) daily. He denied other associated diseases and denied smoking. When asked about oral hygiene habits, he reported not remembering the appropriate times for brushing, not using interdental cleaning devices such as dental floss, and having difficulty positioning the toothbrush at the ideal angle during hygiene because of cognitive/motor issues, particularly in the first quadrant.

In addition to the odontogram, the intraoral examination included a periodontal chart with measurements of pocket depth, clinical attachment level, and the O'Leary index using Eviplac plaque disclosing agent (Biodinâmica Química e Farmacêutica LTDA). Radiographic bone loss was assessed by comparing two panoramic radiographs taken five years apart (Figures 1 and 2).

Based on the periodontal chart (Figure 3), the patient was diagnosed with periodontitis due to the presence of two or more non-adjacent interproximal sites with

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clinical attachment loss. The diagnosis was stage III, grade A periodontitis, in which the site with the greatest interproximal clinical attachment loss presented 6 millimeters (mm). The diagnosis did not progress to stage IV because the patient did not present stage-modifying factors, such as the loss of five or more teeth due to periodontitis (a factor associated with disease severity), or local complexity factors, such as the need for complex rehabilitation attributed to masticatory dysfunction, secondary occlusal trauma, as well as grade 2 and 3 tooth mobility, among others described in the *Consensus report* (Papapanou *et al*., 2018). The grade, in turn, was changed from B (the category in which all patients are initially classified to allow risk factors to be assessed) to A through the analysis of direct evidence of progression: there was no significant radiographic bone loss based on the available longitudinal data. In addition, the patient was not affected by grade-modifying factors, as the patient was normoglycemic and a non-smoker. The O'Leary index at the first visit showed a score of 81.45%.

Figure 1 - Panoramic radiograph.



Source: Prepared by the authors (2026).

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Figure 2 - Panoramic radiograph after 5 years.



Source: Prepared by the authors (2026).

Figure 3 - Initial periodontal chart.

Tooth	18		17		16		15		14		13		12		11		21		22		23		24		25		26		27		28
Param.	PB	NI	PB	NI	PB	NI	PB	NI	PB	NI	PB	NI	PB	NI	PB	NI	PB	NI	PB	NI	PB	NI	PB	NI	PB	NI	PB	NI	PB	NI	AUS
MV	5	5	4	4	1	1	1	1	4	4	2	2	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	4	4	
V	1	1	1	1	1	1	1	1	1	1	1	1	2	2	1	1	1	1	1	1	2	2	1	1	1	1	1	2	2	4	
DV	2	2	5	5	4	4	2	2	1	1	5	5	2	2	3	3	1	1	2	2	2	2	3	3	2	2	5	5	2	2	
ML	2	2	2	2	2	2	3	3	4	4	2	2	2	2	2	2	1	1	2	2	3	3	5	5	3	3	4	4	2	-	
L	4	4	1	1	1	1	2	2	2	2	1	1	1	1	1	1	1	1	3	3	3	3	2	2	2	2	2	2	2	2	
DL	2	2	5	5	2	2	4	4	3	3	5	5	1	1	3	3	3	3	2	2	6	6	1	1	3	3	3	3	-	-	

Tooth	48		47		46		45		44		43		42		41		31		32		33		34		35		36		37		38	
Param.	PB	NI	PB	NI	PB	NI	PB	NI	PB	NI	PB	NI	PB	NI	PB	NI	PB	NI	PB	NI	PB	NI	PB	NI	PB	NI	PB	NI	PB	NI	PB	NI
MV	5	5	3	3	3	3	3	3	3	3	3	3	2	2	3	3	3	3	2	2	2	2	3	3	3	3	3	3	2	2	5	5
V	-	-	1	1	1	1	1	1	1	1	1	1	1	1	2	2	1	1	1	1	1	1	1	1	5	5	1	1	1	1	5	4
DV	-	-	5	5	3	3	2	2	3	3	4	4	3	3	2	2	2	2	2	2	2	2	2	2	5	3	3	3	5	5	6	6
ML	5	5	5	5	5	5	3	3	3	3	3	3	2	2	2	2	2	2	1	1	2	2	4	4	5	5	4	4	6	6	4	4
L	-	-	1	1	3	3	3	3	2	2	1	1	1	1	1	1	1	1	1	1	1	1	3	3	2	2	3	3	3	-	3	3
DL	-	-	6	6	5	5	5	5	3	3	3	3	2	2	2	2	1	1	1	1	3	3	4	4	4	4	6	6	4	4	4	4

Source: Prepared by the authors (2026). **Notes**: Param.: parameter; ABS: absent; MB: mesiobuccal; B: buccal; DB: distobuccal; ML: mesiolingual; L: lingual; DL: distolingual; blue: sites with interproximal attachment loss that assisted in defining the periodontal diagnosis; red: periodontal pockets to be treated with subgingival scaling.

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In addition to anamnesis, extraoral and intraoral examinations, and the patient's signing of the Informed Consent Form, oral hygiene instructions (OHI) were also provided at the first visit, using the modified Bass technique as the standard and addressing the use of dental floss or tape as the method for interdental cleaning. Treatment comprised a total of 7 appointments at intervals of 7 to 14 days. The treatment plan included supragingival scaling of surfaces affected by clinically visible calculus, quadrant-by-quadrant subgingival scaling at sites with periodontal pockets identified in the periodontal chart, reassessment of the O'Leary index at each visit in association with OHI emphasizing the difficulty reported by the patient, and motivational interviews.

At the second appointment, the O'Leary index was initially measured and was 81.45%. During the motivational interview, the patient reported that he still did not remember the need for plaque control during his routine, which justified an index result similar to the previous one. The strategy adopted to help the patient adhere to oral hygiene habits was to send WhatsApp messages twice daily to remind him of the need for hygiene and for the patient to send a photo as confirmation that brushing had been performed (Figure 4). Throughout treatment, the patient's concerns about new barriers to biofilm control were addressed so that the habit could be adapted.

The O'Leary index decreased progressively (Table 1), indicating that OHI and motivational interviews may have been effective in assisting the patient's plaque control. The first quadrant, a region that the patient reported not cleaning adequately because of motor issues, also improved over the course of the appointments (Figure 5).

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Figure 4 - Photographs sent by the patient to confirm toothbrushing.



Source: Prepared by the authors (2026).

Table 1 - Reduction in the O'Leary index throughout the appointments.

Appointment	1st	2nd	3rd	4th	5th	6th	7th
Score (%)	81.45	81.45	59.6	58.8	42.7	37	22.6

Source: Prepared by the authors.

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Figure 5 - Improvement in plaque control throughout the appointments.



Source: Prepared by the authors (2026).

A new periodontal chart was obtained approximately 45 days after subgingival scaling of the last quadrant. The new probing assessment showed a reduction in pocket depth at approximately 60.5% of sites with pocket depths greater than 3 mm. The difference in pocket depth (in mm) before and after subgingival scaling and OHI was analyzed using a t-test, with $p<0.00$.

Table 2 - Periodontal chart after treatment.

Tooth	18		17		16		15		14		13		12		11		21		22		23		24		25		26		27		28
Param.	PB		NI		PB		NI		PB		NI		PB		NI		PB		NI		PB		NI		PB		NI		PB		NI	AUS
MV	5	5	4	4	1	1	1	1	3	4	2	2	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	4		
V	1	1	1	1	1	1	1	1	1	1	1	1	2	2	1	1	1	1	1	1	2	2	1	1	1	1	1	2	2	2		
DV	2	2	5	5	3	4	2	2	1	1	3	5	2	2	3	3	1	1	2	2	2	2	3	3	2	2	4	5	2	2		
ML	2	2	2	2	2	2	3	3	3	4	2	2	2	2	2	2	1	1	2	2	3	3	4	5	3	3	3	4	2	2		
L	3	4	1	1	1	1	2	2	2	2	1	1	1	1	1	1	1	1	3	3	3	3	2	2	2	2	2	2	2	2		
DL	2	2	5	5	2	2	4	4	3	3	3	5	1	1	3	3	1	1	2	2	4	6	1	1	3	3	3	3	4	-		

Tooth	48		47		46		45		44		43		42		41		31		32		33		34		35		36		37		38	
Param.	PB		NI		PB		NI		PB		NI		PB		NI		PB		NI		PB		NI		PB		NI		PB		NI	
MV	5	5	3	3	3	3	3	3	3	3	3	3	2	2	3	3	3	3	2	2	2	2	3	3	3	3	3	3	2	2	3	5
V	-	-	1	1	1	1	1	1	1	1	1	1	1	1	2	2	1	1	1	1	1	1	1	1	3	5	1	1	1	1	2	4
DV	-	-	5	5	3	2	2	2	3	3	3	4	3	3	2	2	2	2	2	2	2	2	2	2	3	3	3	3	5	5	6	6
ML	5	5	4	5	4	5	3	3	3	3	3	3	2	2	2	2	2	2	1	1	2	2	3	4	5	5	3	4	5	6	5	4
L	-	-	1	1	3	3	3	3	2	2	1	1	1	1	1	1	1	1	1	1	1	1	3	3	2	2	3	3	3	3	3	3

Source: Prepared by the authors (2026). **Notes**: Param.: parameter; ABS: absent; MB: mesiobuccal; B: buccal; DB: distobuccal; ML: mesiolingual; L: lingual; DL: distolingual; red: pockets that persisted; orange: pockets reduced by 1 mm; pink: pockets reduced by 2 mm; yellow: pockets that increased.

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Table 3 - Difference in pocket depth before and after treatment.

Period	Mean	Standard deviation
Before subgingival scaling	4.7	0.6
After subgingival scaling	3.8	0.7

Source: Prepared by the authors (2026).

DISCUSSION

Due to the multifactorial nature of periodontitis (Papapanou *et al*., 2018), modulation of the host response is an important factor related to its progression (Löe; Theilade; Jensen, 1965). Nevertheless, biofilm plays a crucial role in both the development and maintenance of periodontal diseases, since periodontal inflammation is biofilm-dependent (Löe; Theilade; Jensen, 1965). Unlike classic infections, periodontitis includes, among its etiological factors, an infection caused by the local microbiota itself, which becomes potentially pathogenic when it is in disequilibrium. Classic infections are commonly acute, have a rapid onset, and their treatment is routinely directed at one or a few etiological agents in an almost specific manner (Socransky; Haffajee, 2002). Periodontitis has a chronic course (Papapanou *et al*., 2018), with a difference in bacterial flora that is mainly quantitative rather than qualitative/in its composition (Socransky *et al*., 1963); consequently, its first-line treatment is mechanical plaque control by the patient and professional, with the aim of restoring the balance of the local flora (Sanz *et al*., 2020).

Evidence indicates that individuals with schizophrenia may have a greater burden of periodontal diseases (Wey *et al*., 2016; Karaman *et al*., 2023), as well as tooth loss and, consequently, edentulism (Urien *et al*., 2026). The likely increased prevalence of these conditions is due to the multiple factors associated with these patients, such as medication-induced hyposalivation, less access to dental health services, greater susceptibility to unbalanced diets and alcohol or psychostimulant use, as well as lower motivation for personal care (Wey *et al*., 2016; Trindade *et al*., 2023; Zhan; Wang; Shen, 2025).

Among its functions, saliva has a self-cleansing capacity, acting against non-adherent bacteria, in addition to having protective factors due to the presence of antibodies and antimicrobial factors as components of the fluid (Vallabhan *et al*., 2020). The reduction in salivary flow in these patients (Urien *et al*., 2026), associated with the multiple factors that make them more vulnerable to the development of periodontitis, may indicate the need not only for therapeutic approaches such as scaling and root planing

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during the initial phases of treatment, but also for maintenance appointments at individualized intervals, given a greater tendency for plaque accumulation due to hyposalivation (Almstahl; Wikstrom, 1999).

The use of motivational interviewing, an approach widely used in this report, does not have strong consensus or a high level of evidence according to the European Federation of Periodontology, which classifies the quality of the available evidence (six randomized clinical trials lasting six months or longer in patients with untreated periodontitis) as uncertain, indicating the need for further research. Nevertheless, motivational interviewing consists of patient-oriented strategies, without confrontation regarding harmful habits and difficulties, using positive reinforcement during patient management and improvements in their habits throughout treatment (Zhan *et al*., 2024).

The long-term success of periodontal treatment may be associated with certain factors, such as the patient's attendance at maintenance appointments, smoking cessation when present, and motivation/continuation of oral hygiene habits established during appointments (Vallabhan *et al*., 2020). The aforementioned parameters may be related not only to treatment and the stability of the patient's oral condition, but also to the prevention of periodontitis in healthy patients (Wey *et al*., 2016).

There is insufficiently robust evidence demonstrating the greater effectiveness of electric toothbrushes over conventional toothbrushes (Sanz *et al*., 2020). Their use may, however, be strategically employed for patients with motor and cognitive difficulties, as well as to encourage adherence to the habit of plaque control. It is important to highlight, however, possible financial obstacles, since patients with mental disorders may more routinely experience financial difficulties resulting from job losses due to their pathological condition (Karaman *et al*., 2023).

FINAL CONSIDERATIONS

The improvement in the periodontal profile and plaque control of a patient with mental disorders and motor consequences appeared to be possible through an individualized and humanized dental approach, assessing their main difficulties and adapting plaque control procedures throughout the appointments. Thus, regarding the profile of graduates of the undergraduate Dentistry program, it is expected that they not only possess the techniques necessary for conventional treatment, but also demonstrate a

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humanistic approach and, therefore, be able to promote the comprehensive health of patients.

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