International Journal of Advanced Health Science and Technology e-ISSN:2808-6422; p-ISSN:2829-3037
Homepage: ijahst.org Vol. 6 No.3, pp. 190-197, June 2026

RESEARCH ARTICLE OPEN ACCESS

Manuscript received April 10, 2026; revised May 26, 2026; accepted May 27, 2026; date of publication June 5, 2026
Digital Object Identifier (**DOI**): https://doi.org/10.35882/ijahst.v6i3.595

How to cite: Eva Mufida Ikhdati, Kusuma Astuti N.P., Agus Marjianto., "Oral Hygiene and Gingivitis Among Schizophrenic Patients at Karangkembang Regional General Hospital: A Cross-Sectional Study", International Journal of Advanced Health Science and Technology, Vol. 6 No. 3, pp. 190-197, June 2026.

Oral Hygiene and Gingivitis Among Schizophrenic Patients at Karangkembang Regional General Hospital: A Cross-Sectional Study

Eva Mufida Ikhdati, Kusuma Astuti N.P., Agus Marjianto

Department of Dental Health, Poltekkes Kemenkes Surabaya, Surabaya, Indonesia

Corresponding author: Eva Mufida Ikhdati (e-mail: evamufida85@gmail.com)

ABSTRACT Schizophrenia is a chronic mental disorder that can affect an individual's ability to maintain oral hygiene. This condition may lead to dental and oral health problems, such as gingivitis. An examination conducted in August 2024 on 30 patients with schizophrenia showed that 93% of them experienced gingivitis, indicating a high prevalence of gingivitis among patients with schizophrenia. This study aims to determine the relationship between oral hygiene and gingivitis in patients with schizophrenia at Karangkembang Regional Public Hospital, Lamongan Regency, in 2025. This research uses an analytical survey with a cross-sectional design involving 77 patients with schizophrenia. Data were collected through oral examinations to assess the patients' oral hygiene and gingival condition. Data analysis was conducted using the Spearman rank correlation test to determine the relationship between oral hygiene and gingivitis in patients with schizophrenia, with a significance level (α) = 0.05. If the analysis result shows a ρ-value < 0.05, then H1 is accepted. If the ρ-value > 0.05, then H1 is rejected. The result of the Spearman rank test showed a ρ-value of 0.000. This value is smaller than the predetermined significance level (α = 0.05), thus H1 is accepted. This means there is a relationship between oral hygiene and gingivitis in patients with schizophrenia at Karangkembang Regional Public Hospital, Lamongan Regency, in 2025. The correlation coefficient (ρ) is 0.531, indicating a strong relationship between oral hygiene and gingivitis in patients with schizophrenia.

INDEX TERMS OHI-S, Gingivitis, Schizophrenia, Gingival Index (GI), Oral Hygiene

I. INTRODUCTION

Oral diseases remain one of the most prevalent public health problems worldwide, affecting nearly 3.5 billion individuals and significantly influencing quality of life, healthcare expenditure, and social well-being [1], [2]. Among these conditions, gingivitis is recognized as one of the most common inflammatory diseases of the oral cavity, characterized by gingival redness, swelling, and bleeding caused primarily by the accumulation of dental plaque biofilm [3], [4]. If left untreated, gingivitis may progress into more severe periodontal diseases that can lead to irreversible tissue destruction and tooth loss [5]. Recent global evidence also indicates that oral health problems disproportionately affect vulnerable populations, including individuals with chronic mental disorders, due to limitations in self-care and access to healthcare services [6], [7].

Schizophrenia is a severe and chronic psychiatric disorder that affects cognition, perception, emotional regulation, and behavior [8]. Patients with schizophrenia frequently experience impairments in daily functioning, including difficulties in maintaining personal hygiene and oral health practices [9]. Cognitive deficits, reduced motivation, impaired executive function, and the adverse effects of antipsychotic medications, particularly xerostomia, contribute to increased plaque accumulation and periodontal inflammation among these patients [10], [11]. Previous studies have demonstrated that individuals with schizophrenia exhibit poorer oral hygiene status, higher rates of gingivitis, and greater tooth loss compared with the general population [12], [13]. In Indonesia, the 2023 Indonesian Health Survey reported that schizophrenia prevalence remains relatively high, particularly in East Java Province, emphasizing the importance of integrated healthcare approaches addressing both mental and oral health problems [14].

Several recent studies have attempted to improve oral health outcomes among patients with mental disorders through educational and community-based interventions. Agarwal et al. demonstrated that structured oral health education significantly improved oral hygiene status among schizophrenia patients [15]. Similarly, Kuo et al. reported positive behavioral changes through community-based oral

e-ISSN:2808-6422; p-ISSN:2829-3037
Vol. 6 No.3, pp. 190-197, June 2026

health promotion programs for individuals with severe mental illness [16]. Other investigations have explored the relationship between periodontal disease and schizophrenia, highlighting the influence of antipsychotic medication, salivary dysfunction, and psychosocial limitations on oral health deterioration [17], [18]. These studies represent the current state-of-the-art methods in oral health management among psychiatric populations, emphasizing preventive education, behavioral intervention, and integrated mental-dental healthcare services.

Despite the increasing attention given to oral health in psychiatric populations, several important research gaps remain unresolved. Most previous studies focused primarily on institutionalized patients or general oral health conditions without specifically examining the correlation between oral hygiene status and gingivitis severity using standardized clinical indices such as the Oral Hygiene Index-Simplified (OHI-S) and Gingival Index (GI) [19], [20]. In addition, evidence from Indonesian regional hospitals remains limited, particularly among outpatient schizophrenia populations receiving routine psychiatric treatment. Existing studies also rarely evaluate oral hygiene and gingival conditions simultaneously within the same clinical setting, resulting in limited evidence regarding the direct association between these variables among schizophrenia patients [21], [22].

Therefore, this study aims to determine the relationship between oral hygiene and gingivitis among schizophrenia patients at Karangkembang Regional General Hospital, Lamongan Regency. Specifically, this study assesses oral hygiene status using the OHI-S, evaluates gingival inflammation using the Gingival Index, and analyzes the correlation between both variables in schizophrenia outpatients.

This study contributes to the existing literature in several ways. First, it provides updated empirical evidence regarding oral hygiene and gingivitis among schizophrenia outpatients in Indonesia using standardized clinical assessment methods. Second, this study strengthens understanding of the relationship between oral hygiene status and gingival inflammation in vulnerable psychiatric populations. Third, the findings may support the development of integrated preventive oral healthcare programs involving mental health professionals, dental practitioners, caregivers, and family members to improve the quality of life of schizophrenia patients.

The remainder of this article is organized as follows. Section II describes the research methodology, including study design, sampling, variables, and data analysis. Section III presents the research findings related to oral hygiene status, gingivitis severity, and correlation analysis. Section IV discusses the interpretation of findings in relation to previous studies and theoretical perspectives. Finally, Section V concludes the study and provides recommendations for future research and healthcare practice.

II. METHOD

A. RESEARCH DESIGN

This study employed an analytical observational design with a cross-sectional approach to investigate the relationship between oral hygiene status and gingivitis among patients with schizophrenia. A cross-sectional design was selected because it enables the simultaneous measurement of exposure and outcome variables within a single observation period, thereby allowing researchers to identify correlations between variables efficiently and systematically [23]. In this study, oral hygiene status served as the independent variable, while gingivitis severity was treated as the dependent variable. The study did not involve randomization or experimental intervention because the objective was to observe naturally occurring conditions among schizophrenia outpatients receiving routine treatment at the hospital.

B. STUDY SETTING AND DURATION

The research was conducted at Karangkembang Regional General Hospital, particularly within the psychiatric outpatient clinic and dental examination unit. The hospital was selected because it provides integrated mental health services for schizophrenia patients and has a sufficient outpatient population suitable for this study. Data collection was carried out over a two-month period from March to April 2025. During this period, oral examinations and interviews were performed according to the outpatient visitation schedule of schizophrenia patients.

C. STUDY POPULATION AND SAMPLING TECHNIQUE

The target population consisted of all schizophrenia outpatients registered at the psychiatric clinic of Karangkembang Regional General Hospital. Based on hospital records from October 2024, the total outpatient population included 90 patients diagnosed with schizophrenia. The diagnosis of schizophrenia had previously been established by psychiatrists according to standard psychiatric diagnostic criteria.

Sampling was conducted using a non-probability consecutive sampling technique, in which every eligible patient attending the psychiatric clinic during the study period was recruited consecutively until the required sample size was achieved [24]. Consecutive sampling was considered appropriate because it allows the inclusion of all accessible participants meeting the eligibility criteria, thereby minimizing selection bias in clinical observational studies [25].

The minimum sample size was determined using the Slovin formula with a 5% margin of error, resulting in a required minimum of 74 respondents. However, a total of 77 schizophrenia outpatients were ultimately recruited because additional eligible participants attended the clinic during the study period. This sample size was considered adequate to support statistical analysis and improve the reliability of the findings.

D. INCLUSION AND EXCLUSION CRITERIA

The inclusion criteria for study participants were as follows:

e-ISSN:2808-6422; p-ISSN:2829-3037
Vol. 6 No.3, pp. 190-197, June 2026

1. Patients diagnosed with schizophrenia by a psychiatrist, including paranoid, catatonic, hebephrenic, or residual schizophrenia.
2. Patients aged between 18 and 65 years.
3. Patients willing to participate in the study and provide informed consent.
4. Patients physically and psychologically capable of undergoing oral examinations.
5. Patients-cooperative during the data collection process.

Meanwhile, the exclusion criteria included:

1. Patients experiencing acute psychiatric episodes during examination.
2. Patients with severe systemic diseases affecting oral examination procedures.
3. Patients wearing full dentures or orthodontic appliances that could interfere with oral hygiene assessment.
4. Patients refusing participation or withdrawing consent during the study.

E. VARIABLES AND OPERATIONAL DEFINITIONS

The independent variable in this study was oral hygiene status, assessed using the Simplified Oral Hygiene Index (OHI-S). The OHI-S evaluates the presence of debris and calculus on tooth surfaces to determine oral cleanliness levels [26]. OHI-S scores were categorized into good, moderate, and poor oral hygiene according to standard clinical criteria.

The dependent variable was gingivitis severity, measured using the Gingival Index (GI). The Gingival Index assesses gingival inflammation based on color changes, edema, and bleeding tendency during periodontal probing [27]. Gingivitis severity was classified into mild, moderate, and severe categories based on GI scores.

F. DATA COLLECTION AND PROCEDURE

Prior to data collection, examiner calibration was conducted to ensure measurement consistency and reliability. Two examiners underwent training supervised by a senior periodontist using repeated examinations on ten schizophrenia patients who were not included in the primary study sample. The inter-examiner reliability test produced a Kappa coefficient of 0.82, indicating strong agreement and acceptable measurement reliability [28].

Data collection was performed consecutively based on the order of patient arrival at the psychiatric outpatient clinic. Each participant underwent an oral examination before psychiatric consultation to minimize fatigue and anxiety. The examinations were conducted in a familiar clinical environment to improve patient cooperation.

Clinical examinations utilized sterile diagnostic instruments consisting of mouth mirrors, semi-circular probes, periodontal probes, disposable gloves, masks, and adequate lighting equipment. One examiner performed the OHI-S and GI assessments, while another assistant recorded the findings on standardized examination sheets.

The examination process lasted approximately 20–30 minutes per participant. To facilitate communication and emotional stability, most participants were accompanied by family members or caregivers during the examination process. Patients who appeared anxious or uncooperative were provided with short rest periods before continuing the examination. This approach was implemented to maintain participant comfort and ensure data accuracy [29].

G. DATA ANALYSIS

All collected data were processed and analyzed using Statistical Package for the Social Sciences (SPSS) software version 26. Descriptive statistics were used to present demographic characteristics, oral hygiene status, and gingivitis severity in the form of frequencies and percentages.

The relationship between oral hygiene status and gingivitis severity was analyzed using the Spearman rank correlation test because both variables were ordinal in nature and did not require assumptions of normal distribution [30]. A significance level of $\alpha = 0.05$ was applied in the statistical analysis. If the p-value was less than 0.05, the alternative hypothesis (H_1) was accepted, indicating a statistically significant relationship between oral hygiene and gingivitis among schizophrenia patients.

The strength of the correlation coefficient (ρ) was interpreted using the following criteria: 0.00–0.25 indicated a very weak correlation, 0.26–0.50 indicated a moderate correlation, 0.51–0.75 indicated a strong correlation, and 0.76–1.00 indicated a very strong correlation [30].

H. ETHICAL CONSIDERATIONS

This study received ethical approval from the Health Research Ethics Committee of Poltekkes Kemenkes Surabaya under approval number 045/Polkes/2024. All participants and caregivers received explanations regarding the study objectives, procedures, risks, and benefits prior to participation. Written informed consent was obtained from participants or legal guardians before data collection commenced. Confidentiality and anonymity of participant information were strictly maintained throughout the research process in accordance with ethical guidelines for human subject research [31].

III. RESULTS

TABLE 1
Operational Definition

Variable	Operational Definition	Indicators	Assessment Criteria	Measurement Scale
Oral Hygiene	Oral hygiene examination scores for schizophrenic patients based on the sum of the simplified debris index (DI-S) and simplified calculus index (CI-S) scores	*oral hygiene index simplified* (OHI-S)	Good: 0,0 – 1,2 Moderate: 1,3 – 3,0 Poor: 3,1 – 6,0	Ordinal scale

A. OVERVIEW OF RESEARCH OBJECT

The study was conducted at Karangkembang Regional General Hospital, located on Jl. Raya Babat–Jombang Km.

e-ISSN:2808-6422; p-ISSN:2829-3037
Vol. 6 No.3, pp. 190-197, June 2026

02, Babat, Lamongan Regency. This hospital is a government-owned healthcare facility classified as a type D hospital, providing a range of services including mental health care for schizophrenia patients. Over the past year, the number of outpatient visits from individuals with schizophrenia has remained relatively stable, with most patients typically accompanied by family members. This reflects both the hospital's important role in delivering mental health services to the local community and the significant involvement of families in supporting patient care.

Family involvement in the care of schizophrenia patients at this hospital is highly significant, as most patients routinely attend appointments accompanied by parents, spouses, or siblings. This strong family participation highlights the crucial role of relatives in the treatment and recovery process. Such involvement is essential, considering that individuals with schizophrenia require consistent supervision, adherence to medication, and assistance in managing daily behaviors that are often unstable. The active role of families, therefore, not only supports medical treatment but also contributes to improving patients' overall stability and quality of life.

The research was conducted from March to April 2025, involving 77 outpatient schizophrenia patients at Karangkembang Regional General Hospital. Most of these patients were long-term visitors who had been receiving regular treatment at the hospital, making them relatively cooperative during the research process. Their familiarity with the healthcare setting and established treatment routines contributed to smoother data collection and enhanced the reliability of the study's findings.

1. Respondent Characteristics

TABLE 2
Frequency Distribution of Schizophrenia Patient Characteristics at Karangkembang Regional General Hospital in 2025

No	Characteristics	Category	Frequency (n)	Percentage (%)
1	Gender	Male	42	54,5
		Female	35	45,5
2	Age	18-25	16	20,8
		26-35	31	40,2
		36-45	16	20,8
		46-55	11	14,3
		56-65	3	3,9

From TABLE 2 by gender, the majority of schizophrenic patients are male, with a total of 42 individuals (54.5%), while female patients account for 35 individuals (45.5%). In terms of age distribution, the largest group was patients aged 26-35 years, consisting of 31 individuals (40.2%). This was followed by patients aged 18-25 and 36-45 years, with 16 individuals (20.8%) each. Meanwhile, 11 patients (14.3%) were in the age group of 46-55 years, and only 3 patients (3.9%) were in the age group of 56-65 years. These findings suggest that schizophrenia is more common among young to middle-aged adults, with a slightly higher proportion observed in men.

B. RESEARCH RESULT

1. Distribution of Oral Hygiene Index (OHI-S) Scores among Schizophrenia Patients at Karangkembang Regional General Hospital

TABLE 3
Frequency Distribution of Oral Hygiene (OHI-S) in Schizophrenia Patients at Karangkembang Regional General Hospital in 2025

OHI-S Category	Frequency (n)	Percentage (%)
Good	5	6,5
Moderate	37	48,0
Poor	35	45,5

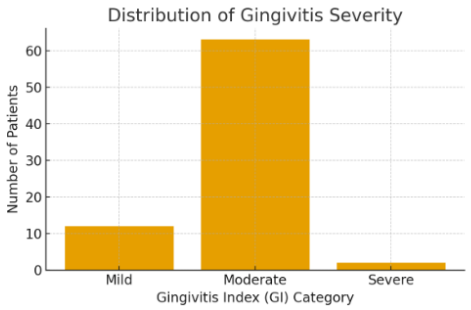

FIGURE 1. Distribution of Oral Hygiene (OHI-S) among Schizophrenia Patients

The oral hygiene assessment in TABLE 3 using OHI-S revealed that the majority of schizophrenic patients had oral hygiene in the moderate category, with a total of 37 individuals (48.0%). Meanwhile, 35 patients (45.5%) were classified in the poor category, and only 5 patients (6.5%) showed good oral hygiene. These results suggest that the vast majority of patients struggle to maintain optimal oral hygiene, with a sizable proportion falling into the poor category, highlighting the need for greater attention to oral care in this population.

2. Frequency Distribution of Gingivitis (GI) in Schizophrenia Patients at Karangkembang Regional General Hospital

TABLE 4
Frequency Distribution of Gingivitis (GI) in Schizophrenia Patients at Karangkembang Regional General Hospital in 2025

GI Category	Frequency (n)	Percentage (%)
Mild	12	15,6
Moderate	63	81,8
Severe	2	2,6

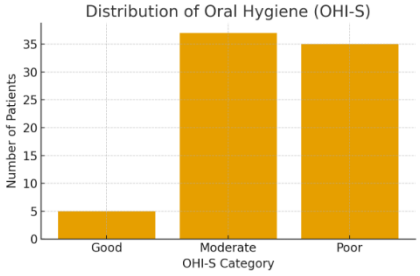

FIGURE 2. Distribution of Gingivitis Severity among schizophrenia patients

e-ISSN:2808-6422; p-ISSN:2829-3037
Vol. 6 No.3, pp. 190-197, June 2026

The evaluation of gingivitis based on the Gingival Index (GI) TABLE 4 showed that the majority of schizophrenic patients had moderate gingivitis, totaling 63 individuals (81.8%). In addition, 12 patients (15.6%) were classified in the mild category, while only 2 patients (2.6%) were found to have severe gingivitis. These findings suggest that gingivitis is very common among schizophrenic patients, with the majority of cases falling into the moderate category, underscoring the importance of preventive and therapeutic efforts to improve their oral health conditions.

3. The Relationship Between Oral Hygiene and Gingivitis in Schizophrenia Patients at Karangkembang Regional General Hospital

TABLE 5
Results of Analysis of the Relationship between Oral Hygiene and Gingivitis in Schizophrenia Patients at Karangkembang Regional General Hospital in 2025

ıriable	Spearmans Correlations		
	N	Correlations	*p* Value
Hygiene ;)	77	+0,531	0,000
itis (GI)	77	+0,531	0,000

TABLE 5 of the Analysis data yields a value ρ 0.000, which is smaller than the previously defined significance level ($\alpha = 0.05$). Therefore, H_0 was rejected, and H_1 was accepted, indicating a significant association between oral hygiene and gingivitis in schizophrenic patients at Karangkembang Hospital, Lamongan Regency. The correlation coefficient (ρ) is 0.531, indicating a strong relationship between the two variables. Since the coefficient is positive (+0.531), the relationship is in the same direction, which means that poorer oral hygiene is associated with a higher severity of gingivitis.

IV. DISCUSSION

In this study, poorer oral hygiene refers to higher OHI-S scores, which indicate greater plaque and calculus accumulation on tooth surfaces.Based on the results of the study, the majority of schizophrenia patients were found to have oral hygiene within the moderate category.

The prevalence of moderate gingivitis observed in this study (81.8%) is considerably higher than that reported in the general population, as well as in some previous studies involving non-psychiatric groups. This finding is consistent with studies conducted among schizophrenia patients in different settings, which also reported a predominance of moderate gingival inflammation. The higher prevalence in this population highlights the compounded effect of impaired self-care ability, long-term medication use, and limited access to preventive dental services.

This condition is likely influenced by their limited ability to independently maintain proper oral hygiene, including regular toothbrushing with the correct technique. The nature of schizophrenia itself may contribute to a lack of knowledge and low motivation in caring for their teeth and oral health. Furthermore, family support in maintaining oral hygiene, as well as dental health education specifically targeted at individuals with special needs such as schizophrenia patients, may be insufficient or not yet implemented effectively. This highlights the importance of both family involvement and tailored health education to improve oral health outcomes in this vulnerable group.

This finding is consistent with the study conducted by Nwizu et al. [15], which reported that the majority of patients with psychotic disorders had poor OHI-S scores. A similar result was also observed in the study by Wirza et al. [11], which revealed that the dental hygiene status of schizophrenia patients, particularly those with the residual type, at Aceh Mental Hospital was classified as poor. These parallel findings reinforce the evidence that individuals with severe mental disorders face significant challenges in maintaining oral hygiene, underscoring the need for targeted interventions and supportive care strategies to address their oral health needs.

The study conducted by Johnson et al. [16], reported that individuals with mental disorders, including schizophrenia, generally exhibit low levels of oral health knowledge, attitudes, and practices. The research highlighted that cognitive and psychosocial limitations, stigma, and the lack of integration of dental services within mental health care systems are major factors contributing to poor oral health among this population. These findings reinforce the assumption that insufficient knowledge and motivation among schizophrenia patients, limited family involvement, and the lack of tailored oral health education significantly contribute to the inadequate oral hygiene observed in this group.

However, there are studies that do not align with these findings. For instance, Agarwal et al. [17], demonstrated that structured educational interventions provided to patients with schizophrenia can significantly improve their oral hygiene. Through systematic training in tooth brushing techniques combined with routine educational sessions conducted over several weeks, patients showed a notable improvement in their Simplified Oral Hygiene Index (OHI-S) scores, shifting toward the category of good oral hygiene. This suggests that despite the common challenges faced by individuals with schizophrenia in maintaining personal health routines, targeted and continuous educational programs may play a crucial role in enhancing their oral health outcomes and overall quality of life [18].

A similar study was conducted by Kuo et al. [19], which reported that through community-based oral health promotion programs, patients with mental disorders were able to demonstrate positive behavioral changes in maintaining their oral health. The findings indicate that although individuals with schizophrenia face cognitive, motivational, or social barriers, appropriate and well-structured interventions can still improve their oral health behaviors.

Suboptimal oral hygiene in patients with schizophrenia can increase the risk of periodontal tissue damage, leading to gingivitis [20]. Research has shown that the majority of individuals with schizophrenia experience moderate gingivitis. Although considered a mild form of periodontal disease, untreated gingivitis may progress into more severe forms of periodontal disease, causing irreversible tissue damage [21]. Contributing factors include inadequate oral

e-ISSN:2808-6422; p-ISSN:2829-3037
Vol. 6 No.3, pp. 190-197, June 2026

hygiene practices, limited family involvement, and antipsychotic-induced xerostomia [22].

The findings of this study are consistent with those reported by Sherbaf et al. [23], who observed higher gum bleeding among schizophrenia patients. Hu et al. [24] also found that newly diagnosed schizophrenia patients showed early periodontal deterioration. These studies emphasize the heightened vulnerability of schizophrenia patients to gingival inflammation, suggesting the need for early intervention and continuous oral health monitoring [25]. Some studies, however, differ. Editha and Zubardiah [10] reported a lower gingivitis prevalence (41%) at Amino Gondohusodo Psychiatric Hospital. This variation may be due to differences in population characteristics, illness severity, or institution-based care practices.

Understanding the relationship between oral hygiene and gingivitis provides insight for designing preventive interventions. The strong positive correlation ($\rho = 0.531$) in this study suggests that poor oral hygiene is a major contributor to gingival inflammation among schizophrenia patients.

Referring to Lawrence Green's and Blum's models, behavioral determinants such as knowledge, attitudes, family support, and availability of health services play significant roles in oral health status [27]. Patients with schizophrenia experience cognitive and motor limitations affecting oral hygiene behavior, while limited access to tailored health education further worsens their condition. The findings of this study align with Andriani et al. and Bariyah et al. [28], who concluded that cognitive deficits and low social support negatively affect oral health in schizophrenia patients. Ismaturrahmi et al. [29] also found that family knowledge significantly influences oral hygiene levels in mentally ill patients.

Conversely, Turner et al. [30] highlighted the multifactorial nature of oral health in psychotic disorders, including medication effects, stigma, and unequal dental care access. Lee et al. [31] found that periodontal disease may also be related to hormonal biomarkers such as cortisol and DHEA. These findings suggest that gingivitis development in schizophrenia has multifactorial origins. Poor oral hygiene is also linked to cognitive deficits, low motivation, and impaired executive functioning in schizophrenia [16]. Antipsychotic-induced xerostomia further increases plaque accumulation [NEW–4: Zhang et al., 2022]. Studies confirm that schizophrenia patients experience higher gingivitis prevalence due to limited self-care and insufficient caregiver support [23–25]. Contrary evidence shows that planned oral health education can improve OHI-S scores in schizophrenia [17,18], suggesting that deficits are modifiable with structured interventions. The high gingivitis prevalence in this study aligns with Sherbaf et al. [23] and Hu et al. [24], highlighting the importance of early preventive care.

V. CONCLUSION

Based on the findings of the study on the relationship between oral hygiene and gingivitis in patients with schizophrenia at Karangkembang Regional Hospital, Lamongan Regency, several conclusions can be drawn. Most patients exhibited moderate oral hygiene, and a majority also experienced gingivitis at a moderate level. A strong and statistically significant correlation was observed between oral hygiene and gingivitis in this population, indicating that poorer oral hygiene increases the severity of gingival inflammation among schizophrenia patients.

These findings highlight the importance of addressing oral hygiene as an essential component of comprehensive care for individuals with schizophrenia. Therefore, dental healthcare providers are encouraged to develop structured promotive and preventive oral health programs specifically tailored for schizophrenia patients and their families or caregivers. Integrating routine oral health education, supervised toothbrushing sessions, and improved access to dental services may help reduce the burden of gingivitis in this vulnerable group.

For future research, studies with larger and more diverse populations are recommended to enhance generalizability. Further investigation is also needed to explore additional variables that may contribute to gingivitis severity, such as duration of illness, type and length of antipsychotic medication use, nutritional status, social support, and accessibility to dental care. Longitudinal or interventional study designs may provide deeper insights into causal relationships and the effectiveness of targeted oral health interventions for schizophrenia patients.

ACKNOWLEDGEMENTS

The author would like to express sincere gratitude to the supervising lecturer and to the staff and patients at Karangkembang Regional General Hospital, Lamongan Regency, for their guidance and cooperation, which made it possible to successfully conduct this research on the relationship between oral hygiene and gingivitis in patients with schizophrenia.

FUNDING

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

DATA AVAILABILITY

The data analyzed in this study were collected from patients with schizophrenia at Karangkembang Regional General Hospital, Lamongan Regency, who participated in completing the Oral Health Assessment Questionnaire.

AUTHOR CONTRIBUTION

Eva Mufida Ikhdati designed and formulated the research, collected data, and participated in data analysis and interpretation. Kusuma Astuti N.P. contributed to the development of research instruments, supervised the research process, and participated in writing and revising the manuscript. Agus Marjianto assisted in data analysis and interpretation and provided critical input on manuscript preparation. All authors reviewed and approved the final version of the manuscript and agreed to be accountable for all aspects of the research to ensure integrity and accuracy.

DECLARATIONS

e-ISSN:2808-6422; p-ISSN:2829-3037
Vol. 6 No.3, pp. 190-197, June 2026

ETHICAL APPROVAL

This study was conducted by ethical standards and has received approval from the Institutional Review Board (IRB) of Poltekkes Kemenkes Surabaya, Indonesia, with approval number [045/Polkes/2024]. Informed consent was obtained from the parents or guardians of all participating students, and confidentiality and anonymity of the participants were maintained throughout the research process. All procedures adhered to ethical guidelines for research involving human subjects.

CONSENT FOR PUBLICATION PARTICIPANTS.

Consent for publication was given by all participants

COMPETING INTERESTS

The authors declare no competing interests.

REFERENCE

[1] World Health Organization, Global Oral Health Status Report: Towards Universal Health Coverage for Oral Health by 2030. Geneva, Switzerland: WHO, 2022.

[2] A. M. Johnson, A. Kenny, L. Ramjan, T. Raeburn, and A. George, "Oral health knowledge, attitudes, and practices of people living with mental illness: A mixed-methods systematic review," BMC Public Health, vol. 24, no. 1, pp. 1–25, 2024, doi: 10.1186/s12889-024-19713-1.

[3] Z. G. Pontoluli, J. A. Khoman, and V. N. S. Wowor, "Kebersihan gigi mulut dan kejadian gingivitis pada anak sekolah dasar," e-GIGI, vol. 9, no. 1, pp. 21–28, 2021, doi: 10.35790/eg.9.1.2021.32366.

[4] A. Isnurhakim, B. Suhartono, and R. Putranto, "Comparison for Carica papaya and gengigel leaves extraction for gingivitis healing effectiveness in orthodontic application," Medali Journal, vol. 3, no. 1, pp. 29–33, 2021, doi: 10.30659/medali.v3i1.17055.

[5] S. Restuning, T. Widyastuti, and U. Utami, Epidemiologi Dental. Yogyakarta, Indonesia: PT Nasya Expanding Management, 2023.

[6] R. A. Aghasizadeh Sherbaf, G. M. Kaposvári, K. Nagy, Z. P. Álmos, Z. Baráth, and D. Matusovits, "Oral health status and factors related to oral health in patients with schizophrenia: A matched case-control observational study," Journal of Clinical Medicine, vol. 13, no. 6, p. 1584, 2024, doi: 10.3390/jcm13061584.

[7] D. G. Nayak, U. Ashita, and M. CP, Textbook of Periodontology and Oral Implantology, 2nd ed. New Delhi, India: Reed Elsevier India Pvt. Ltd., 2021.

[8] Dukungan Keluarga pada Pasien Skizofrenia, W. Freska, Dukungan Keluarga pada Pasien Skizofrenia. Indonesia: CV Mitra Edukasi Negeri, 2022.

[9] Pengantar Psikologi Abnormal, W. C. B. Pati, Pengantar Psikologi Abnormal: Definisi, Teori, dan Intervensi. Indonesia: PT Nasya Expanding Management, 2022.

[10] K.-F. Hu, P. S. Ho, Y.-H. Chou, J.-H. Tsai, C.-H. R. Lin, and H.-Y. Chuang, "Periodontal disease and effects of antipsychotic medications in patients newly diagnosed with schizophrenia: A population-based retrospective cohort," Epidemiology and Psychiatric Sciences, vol. 29, pp. 1–8, 2020, doi: 10.1017/S204579601900043X.

[11] R. A. Aghasizadeh Sherbaf et al., "Oral health status and factors related to oral health in patients with schizophrenia," Journal of Clinical Medicine, vol. 13, no. 6, pp. 1–13, 2024, doi: 10.3390/jcm13061584.

[12] E. U. Nwizu, B. N. Nweze, I. N. Nwaoziri, N. K. Onyejaka, E. A. Akaji, and N. P. Uguru, "Oral health status of outpatients with mental disorders in a specialist tertiary hospital in Enugu State, Nigeria," BMC Oral Health, vol. 25, no. 1, pp. 1–7, 2025, doi: 10.1186/s12903-025-05636-9.

[13] H. Boy, E. Veriza, and N. Valentina, "Asuhan kesehatan gigi dan mulut pada pasien skizofrenia di ruang rawat inap RS Jiwa Daerah Provinsi Jambi," Jurnal Kesehatan Gigi, vol. 7, no. 2, pp. 102–107, 2020, doi: 10.31983/jkg.v7i2.6534.

[14] Kementerian Kesehatan Republik Indonesia, Survei Kesehatan Indonesia (SKI) 2023 dalam Angka. Jakarta, Indonesia: Kemenkes RI, 2023.

[15] D. Agarwal, A. Kumar, M. B. C., S. Sethi, V. Yadav, R. Shyam, and V. Kumar, "Effectiveness of oral health education on oral hygiene status among schizophrenic patients: A randomized controlled study," Special Care in Dentistry, vol. 39, no. 3, pp. 255–261, 2019, doi: 10.1111/scd.12373.

[16] M. W. Kuo, S. H. Yeh, H. M. Chang, and P. R. Teng, "Effectiveness of oral health promotion program for persons with severe mental illness: A cluster randomized controlled study," BMC Oral Health, vol. 20, no. 1, pp. 1–9, 2020, doi: 10.1186/s12903-020-01280-7.

[17] E. Turner, K. Berry, L. Quinlivan, D. Shiers, V. Aggarwal, and J. Palmier-Claus, "Understanding the relationship oral health and psychosis: Qualitative analysis," BJPsych Open, vol. 9, no. 3, pp. 1–8, 2023, doi: 10.1192/bjo.2023.33.

[18] Y. Lee, C. Suk, S. Shin, and J. Hong, "Salivary cortisol, dehydroepiandrosterone and chromogranin A levels in patients with gingivitis and periodontitis and a novel biomarker for psychological stress," Frontiers in Endocrinology, vol. 14, pp. 1–12, 2023, doi: 10.3389/fendo.2023.1147739.

[19] M. S. Editha and L. Zubardiah, "Distribusi gingivitis pada pasien skizofrenia (Kajian pada RSJD Dr. Amino Gondohusodo Semarang)," Jurnal Kedokteran Gigi Terpadu, vol. 2, no. 1, pp. 31–36, 2020, doi: 10.25105/jkgt.v2i1.7520.

[20] H. Wirza, H. Febriani, M. Zuhra, and F. Asyura, "Status kebersihan gigi pada pasien skizofrenia di Rumah Sakit Jiwa Aceh Tahun 2023," Journal of Healthcare Technology and Medicine, vol. 9, no. 2, pp. 1316–1323, 2023.

[21] I. Bariyah, D. Rahayu, A. Karyus, N. Noviansyah, and E. Budiati, "Analisis faktor yang berhubungan dengan kesehatan gigi dan mulut pada pasien skizofrenia," Jurnal Ilmiah Kesehatan Media Husada, vol. 13, no. 1, pp. 34–48, 2024, doi: 10.33475/jikmh.v13i1.353.

[22] Ismaturrahmi, C. R. Keumala, and F. Asyura, "Hubungan pengetahuan keluarga dalam menjaga kebersihan gigi dan mulut pada pasien gangguan jiwa di wilayah kerja Puskesmas Muara Tiga," Journal of Healthcare Technology and Medicine, vol. 10, no. 1, pp. 668–676, 2024.

[23] A. M. Johnson et al., "Oral health knowledge, attitudes, and practices of people living with mental illness: A mixed-methods systematic review," BMC Public Health, vol. 24, no. 1, pp. 1–25, 2024, doi: 10.1186/s12889-024-19713-1.

[24] E. U. Nwizu et al., "Oral health status of outpatients with mental disorders in a specialist tertiary hospital in Enugu State, Nigeria," BMC Oral Health, vol. 25, no. 1, pp. 1–7, 2025, doi: 10.1186/s12903-025-05636-9.

[25] M. W. Kuo, S. H. Yeh, H. M. Chang, and P. R. Teng, "Effectiveness of oral health promotion program for persons with severe mental illness: A cluster randomized controlled study," BMC Oral Health, vol. 20, no. 1, pp. 1–9, 2020, doi: 10.1186/s12903-020-01280-7.

[26] Z. G. Pontoluli, J. A. Khoman, and V. N. S. Wowor, "Kebersihan gigi mulut dan kejadian gingivitis pada anak sekolah dasar," e-GIGI, vol. 9, no. 1, pp. 21–28, 2021, doi: 10.35790/eg.9.1.2021.32366.

[27] A. Faizah and I. Silmina, "Curettage as a follow-up treatment in lower anterior gingivitis cases: Case report," University Research Colloquium, pp. 1–6, 2021.

[28] R. A. Aghasizadeh Sherbaf et al., "Oral health status and factors related to oral health in patients with schizophrenia: A matched case-control observational study," Journal of Clinical Medicine, vol. 13, no. 6, p. 1584, 2024, doi: 10.3390/jcm13061584.

e-ISSN:2808-6422; p-ISSN:2829-3037
Vol. 6 No.3, pp. 190-197, June 2026

[29] I. Bariyah et al., "Analisis faktor yang berhubungan dengan kesehatan gigi dan mulut pada pasien skizofrenia," Jurnal Ilmiah Kesehatan Media Husada, vol. 13, no. 1, pp. 34–48, 2024, doi: 10.33475/jikmh.v13i1.353.

[30] E. Turner et al., "Understanding the relationship oral health and psychosis: Qualitative analysis," BJPsych Open, vol. 9, no. 3, pp. 1–8, 2023, doi: 10.1192/bjo.2023.33.

[31] World Medical Association, "World Medical Association Declaration of Helsinki: Ethical principles for medical research involving human subjects," JAMA, vol. 310, no. 20, pp. 2191–2194, 2021, doi: 10.1001/jama.2013.281053.