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**ORAL HYGIENE INDEX-SIMPLIFIED IN MENTALLY DISORDERED PATIENTS
 AT SAMBANG LIHUM PSYCHIATRIC HOSPITAL**

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ABSTRACT

Background: Oral hygiene is a risk factor for oral health, particularly in individuals with mental disorders. The prevalence of oral health issues in Indonesian society has increased from 25.9% to 57.6%. The Dental Hygiene Index Simplified (OHI-S) is a clinical instrument employed to assess dental hygiene status. According to the World Health Organization, approximately 24 million individuals worldwide are afflicted with schizophrenia, 35 million individuals are afflicted with melancholy, 60 million individuals have bipolar disorder, and 47.5 million individuals have dementia. It was shown that the percentage of mental disorders increased from 1.7% in 2013 to 7% in 2018. **Objective:** To ascertain the oral hygiene status of patients with mental disorders in the inpatient chamber of Sambang Lihum Mental Hospital by utilizing the Oral Hygiene Index-Simplified (OHI-S). **Methods:** This study was a quantitative descriptive study using a cross-sectional design. The sampling was carried out by purposive sampling based on inclusion and exclusion criteria. The total sample for this study was 54 individuals. **Results:** 29 people (53.70%) of the patients examined had a poor OHIS category. The OHIS score for mental patients was inadequate in all age categories. Men had a score of 3.2 (poor), while women had a score of 2.7 (fair). The mental patients' aggregate OHIS score was 3.10, which is classified as "poor." **Conclusion:** The OHIS measurement of mental patients at Sambang Lihum Mental Hospital is poor.

Keywords: Mental Disorder, OHIS, Sambang Lihum Mental Hospital

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INTRODUCTION

According to WHO (2022), 2 billion people suffer from dental caries.¹⁻³ The 2018 Basic Health Research (Riskesdas) showed that oral health problems among Indonesians increased from 25.9% to 57.6%.⁴ Oral health is related to oral hygiene.⁵ Manurung stated that there is a significant relationship between oral hygiene and oral infection. The higher oral hygiene will improve oral health.^{5,6} The Simplified Dental Hygiene Index (OHI-S) is a clinical tool employed to assess dental hygiene status. OHI-S is the outcome of the calculus and detritus indexes.⁷

Oral hygiene is relatively challenging for mental patients. According to the World Health Organization (WHO), approximately 24 million individuals worldwide are diagnosed with schizophrenia, 35 million are afflicted with depression, 60 million have bipolar disorder, and 47.5 million have dementia.^{8,9} Currently, Indonesia is home to 236 million individuals who suffer from mental disorders.¹ Based on the 2018 Riskesdas, the prevalence of mental disorders has risen from 1.7% in 2013 to 7% in 2018. South Kalimantan is one of the provinces that has achieved the 100% objective for mental health services.⁴ However, the absence of data on oral hygiene in mentally ill patients at Sambang Lihum Mental Hospital complicates the process of establishing the appropriate oral health policy for these patients.

METHODS

This study was conducted after obtaining ethical approval from Sambang Lihum Mental Hospital rules standard with Certificate Number Eligibility Ethics Study 000.9.2/5482/RSJ-SAMLIH/2024. This study was analytical observational study with a *cross-sectional design* that collected data at any time.² The oral hygiene of patients with mental disorders at Sambang Lihum Mental Hospital was the subject of this research. Patients with mental disorders who were hospitalized at Sambang Lihum Mental Hospital comprised the population of this investigation. This research included patients with mental disorders who were hospitalized at Sambang Lihum Mental Hospital and satisfied the inclusion and exclusion criteria. The sampling technique used purposive sampling, which is a sampling technique based on inclusion and exclusion criteria.

$$n = \frac{89}{1 + (89 \times 0,1^2)}$$

$$n = 39,02 \cong 47 \text{ patients}$$

Based on the sample size calculation, the minimum number obtained was 47 people, and to avoid any samples withdrawing, $a = 52,22 \cong 53$ patients were used. Fisher's Exact Test was used to analyze the categorical data of OHIS and mental health diagnosis.

RESULTS

This study was conducted on 54 respondents from August to September in the Inpatient Room of Sambang Lihum Mental Hospital in Jalan Gubernur Syarkawi, Gambut District, Banjar Regency, South Kalimantan Province.

Table 1. Characteristics of Respondents of Oral Hygiene Status through *Oral Hygiene Index-Simplified (OHI-S) Examination Mental Disorder Patients in Inpatient Room Sambang Lihum Mental Hospital*

Characteristics	Amount Respondents	Percentage (%)
Category age		
Adolescence (17-25 years)	7	12.96
Adulthood (26-35 years)	24	44.44
Late Adulthood (36-45 years)	18	33.33
Early Elderly (46-55 years)	5	9.26
Gender		
Man	44	81.48
Woman	10	18.52
Level of education		
ELEMENTARY SCHOOL	25	46.3
JUNIOR HIGH SCHOOL	12	22.22
SENIOR HIGH SCHOOL	13	24.07
No school	4	7.41
Marital status		
Marry	9	16.67
Single	33	61.11
Divorce Life	10	18.52
Divorce by Death	1	1.85
Unknown	1	1.85
Work		
Not Yet/ Not Working	20	37.04
housewife	1	1.85
Farmer	2	3.7
Self-employed	2	3.7
Private	16	29.63
Laborer	2	3.7
Unknown	11	20.37
Diagnosis		
F15	2	3.70
F19	2	3.70
F20	45	83.33
F23	2	3.70
F29	1	1.85
F06	1	1.85
Combination	1	1.85

Table 1 shows that the characteristics of respondents based on the most are the early adult group (age 26-35 years) as many as 24 people (44.44%), male Gender 44 people (81.48%), the last education is elementary school

25 people (46.3%), unmarried status 33 people (61.11%), unemployed status 20 people (37.04%), and the most common diagnosis is 48 people (88.89%) who suffer from schizophrenia.

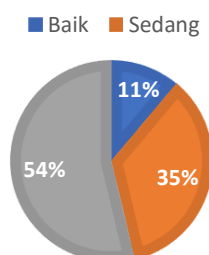


Figure 1. OHIS Category Respondent Percentage

Figure 1 shows the percentage of categories of oral hygiene status through OHIS parameters in patients with mental disorders at Sambang Lihum Mental Hospital, and the largest category was poor, with as many as 29 people (53.7%).

Table 2. Average Oral Hygiene Status through *Oral Hygiene Index-Simplified* (OHI-S) Examination Mental Disorder, Patients in Inpatient Room Sambang Lihum Mental Hospital

Debris Index	Calculus Index	Oral Hygiene Index- Simplified
1.79 (Moderate)	1.30 (Moderate)	3.0 (Poor)

Based on the table above, the average OHIS score is 3.10, which means poor oral hygiene.

Table 3. Oral Hygiene Status Through Oral Hygiene Index-Simplified (OHI-S) Examination of Mental Disorder Patients in the Inpatient Room of Sambang Lihum Mental Hospital Based on Age Category.

Table 3 shows poor oral hygiene status based on OHIS parameters in all age categories.

Category Age	Debris Index		Calculus Index		OHIS	
	Score	Category	Score	Category	N	Category
Late Teenagers	1.98	Poor	1.1	Moderate	4.17	Poor
Early Adulthood	1.89	Moderate	1.34	Moderate	3.23	Poor
Late Adulthood	1.58	Moderate	1.4	Moderate	2.98	Poor
Early Elderly	1.87	Moderate	1.13	Moderate	3	Poor

Table 4. Oral Hygiene Status through *Oral Hygiene Index-Simplified* (OHI-S) Examination Mental Disorder Patients in Inpatient Room Sambang Lihum Mental Hospital based on Gender

Gender	Debris Index		Calculus Index		OHIS	
	Score	Category	Score	Category	Score	Category
Man	1.88	Moderate	1.32	Moderate	3.2	Poor
Woman	1.42	Moderate	1.27	Moderate	2.7	Moderate

Based on Table 4, male OHIS is in the poor category with a score of 3.2, and females are in the fair category with a score of 2.7.

The Fisher's Exact Test was used to conduct statistical analysis, and the results showed a significant value of 0.364 ($p > 0.05$), indicating that there is no statistically significant association between OHIS and mental health in this study population, although the majority of participants had poor oral hygiene.

DISCUSSION

Based on the distribution of oral hygiene status of mental patients at Sambang Lihum Mental Hospital as measured by the Oral Hygiene Index-Simplified, 29 people (53.70%) had poor oral hygiene. Based on the average score, the patient's oral hygiene was classified as poor, with an average score of 3.10. Based on age, all age

categories have poor OHIS status. Research at the Aceh Mental Hospital showed that as many as 49 patients (81.16%) with mental disorders had poor oral hygiene.¹⁰ In a study conducted in Pakistan, patients with psychosocial stress, as many as 59% had periodontal pockets ≥ 4 mm, and 66.1% had poor oral hygiene.¹¹ However, in contrast to research on depressed patients who found an oral hygiene score of 2.6 at the age of 19-40 years and 3 at the age of >40 years.¹²

Poor oral hygiene and poor oral health are associated with socioeconomic status, such as low income and low education.¹³ The majority of patients with mental and psychological disorders experience difficulty maintaining oral hygiene as a result of the side effects of psychotropic medications, which promote the formation of plaque and calculus. Furthermore, mentally ill patients have an apathetic perception towards oral health care.¹⁴

Schizophrenia is the most prevalent diagnosis among patients admitted to Sambang Lihum Mental Hospital. Poor oral hygiene and health are associated with schizophrenia. In schizophrenia patients, the ability to consciously maintain oral hygiene can be impaired due to negative symptoms, including intellectual disability, lack of interest, difficulty in regulating emotions, and loss of life motivation. The implementation of effective oral hygiene activities is a challenge for hospitalized patients with schizophrenia, as they have cognitive impairment and limited oral care capacity, which worsens the management of their oral health.¹⁵

The fine motor skills of schizophrenic patients are impacted by the consumption of antipsychotic medications, which makes it challenging for patients to hold a toothbrush and floss correctly and effectively. Furthermore, the administration of anticholinergics and antipsychotics results in xerostomia and hypofunction of the salivary glands. This can result in the accumulation of detritus, which can lead to the loss of its self-cleaning function. Additionally, it can lead to the progression of dental caries, dysphagia, speech difficulties, and the proliferation of *Candida albicans*.^{16,17,18}

Dental health problems that are frequently found in patients with mental disorders are periodontal disease, tooth decay, mouth ulcers, dysphagia, and candidiasis.^{17,18} Biomolecularly, the development of periodontal disease in mental patients can be caused by inflammatory cell changes, cytokine gene polymorphisms, and dysregulation of proinflammatory cytokines resulting in increased levels of IL-1, IL-6, IL-9, TNF α , TNF β , PGE2, and CRP in schizophrenia patients. Neurologically, this can be explained by hypothalamic-pituitary-adrenal (HPA) dysregulation and sympathoadrenal dysregulation (the physiological relationship between the sympathetic nervous system and the adrenal medulla). When this dysregulation occurs, an array of inflammatory mediators, neurotransmitters, and hormones are secreted. This leads to an imbalance of oral flora, leading to decreased immunological function and changes in salivary phenotype that will promote the development of various oral disorders, including dental caries and periodontal disease. Inflammation of the nerves in people with schizophrenia can also lead to severe periodontal disease or oral abscesses when oral bacteria and their toxins invade the blood and/or cranial nerves.^{16,19}

Patients with mental disorders have difficulty in accessing a dentist. Therefore, the dental health service is just done in an emergency or just for tooth extraction, which will have a negative impact in terms of psychosocial and quality of life because of decreased chewing ability in patients with mental disorders. In addition, dentists consider patients with severe mental disorders like schizophrenia difficult to handle and sometimes choose action tooth extraction rather than a complex therapeutic intervention.²⁰

Based on Gender, the oral hygiene status of male mental patients at Sambang Lihum Mental Hospital was in the poor category, while women were in the fair category. Ogunsuji's (2021) research stated that women have lower OHI-S scores than men, although both are in the moderate category.²¹ A study that examines periodontal disease in schizophrenia patients found that men suffered more gingivitis with a percentage of 60.97% compared to women who were only 39.02%.²² Gender is an independent risk factor for gingival bleeding and poor oral hygiene practices.²³ Women pay more attention to oral health and dental appearance and follow oral hygiene instructions more actively daily than men. Women have more positive attitudes towards dental health services, better oral health scores, better self-care behaviors, more proactivity in visiting the dentist, and higher oral health literacy than men.^{24,25} There are still pros and cons in OHIS based on Gender. Conflicting studies show that 18-25 year old men have better oral hygiene status than 18-25 year old women. However, this was not statistically significant. Men have better oral health-seeking behaviors than women, and there are better oral hygiene status outcomes in men.²⁵

Although the statistical analysis did not confirm a significant relationship between OHIS and mental health, the results of the study, it can be concluded that the oral hygiene status of mentally ill patients in the inpatient room of Sambang Lihum Mental Hospital through the Oral Hygiene Index-Simplified (OHI-S) examination was poor, with an average value of 3.10, Oral hygiene of mentally ill patients in the inpatient room of Sambang Lihum Mental Hospital was inadequate in all age categories. The OHIS status of men was poor, with an average OHIS value of 3.2, while women were in the moderate category, with an average OHIS value of 2.7.

It is expected that hospital management can provide socialization regarding the latest guidelines to all doctors and psychiatrists regarding the appropriate use of drugs in patients with mental disorders. Dentists are expected to manage the treatment of dental diseases, such as xerostomia, in individuals with schizophrenia and are advised to maintain open communication and discussion with doctors and psychiatrists. Psychiatrists need to consider the

patient's oral health when prescribing antipsychotics so that the patient's fine motor function can still maintain optimal oral hygiene. Physiotherapists are expected to help improve the fine motor function of patients with mental disorders that have decreased due to the psychotic drugs they consume. Room nurses are expected to be able to accompany mentally ill patients optimally during visits to the dentist and provide support, assist communication, and help address patient needs and concerns. The nurse in the room is expected to help promote oral hygiene practices and ensure patient oral care compliance. Dietitians are expected to help provide nutrition education that can contribute significantly to improving oral health.

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