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**THE RELATIONSHIP BETWEEN ORAL HEALTH MAINTENANCE
 KNOWLEDGE AND ORAL HYGIENE AMONG INMATES (WBP) IN CLASS IIA
 PRISON BANJARMASIN**

Sabilal Arief^{1)*}, Galuh Dwinta Sari²⁾, Alexander Sitepu³⁾, R. Harry Dharmawan Setyawardhana⁴⁾, Diana Wibowo⁵⁾

¹⁾Faculty of Dentistry, Lambung Mangkurat University, Banjarmasin, South Kalimantan, Indonesia

²⁾Departement of Psychology, Faculty of Dentistry, Lambung Mangkurat University, Banjarmasin, Indonesia

³⁾Departement of Public Dental Health, Faculty of Dentistry, Lambung Mangkurat University, Banjarmasin, Indonesia

⁴⁾Departement of Public Dental Health, Faculty of Dentistry, Lambung Mangkurat University, Banjarmasin, Indonesia

⁵⁾Departement of Orthodontics, Faculty of Dentistry, Lambung Mangkurat University, Banjarmasin, Indonesia

ABSTRACT

Background: Knowledge is the basis for the formation of behavior. Limited access to information for inmates causes their knowledge of dental and oral health to decrease. The 2022 Annual Report of the Directorate General of Corrections recorded that 6,312 people were diagnosed with dental disease and were included in one of the five diseases that are often experienced by prisoners. Dental and oral diseases have a high ranking suffered by inmates, which is one of the indicators that the dental and oral hygiene of prisoners is not maintained. **Objective:** This study aims to know the relationship between oral health maintenance knowledge and oral hygiene in class IIA Banjarmasin prison inmates. **Method:** This study uses an observational analytical method with a cross sectional research design. The measurement of knowledge variables used a dental and oral health maintenance knowledge questionnaire, while the measurement of dental and oral hygiene used the Oral Hygiene Index Simplified (OHI-S). **Result:** The results of the somers'D test produced data with a significance value of 0.001 ($p < 0.05$). The correlation coefficient value in the study was obtained at -0.463, indicating the relationship between the two moderate and negative variables, so that it has a reciprocal relationship. **Conclusion:** There is a relationship between oral health maintenance knowledge and oral hygiene among inmates (WBP) in class IIA Prison Banjarmasin

Keyword: knowledge, oral hygiene, inmates.

***Correspondeen:** Sabilal Arief ; Faculty of Dentistry, Lambung Mangkurat University, Jl. Veteran No. 128B, Banjarmasin, South Kalimantan, Indonesia; E-mail: sabilalarief10@gmail.co

INTRODUCTION

Oral and dental diseases represent a significant public health issue in Indonesia. This is supported by data indicating a high prevalence of these conditions in the general population, as well as the fact that such diseases are among the ten most commonly encountered health problems in the community.¹ Data Riset Kesehatan Dasar (Riskesdas) shows that the level of oral health problems in Indonesia has increased significantly from 25.9% in 2013 to 57.6% in 2018.^{2,3} South Kalimantan is one of the provinces with the highest level of oral health problems at 59.6%¹

The city of Banjarmasin based on Riskesdas data in 2018 is one of the areas with the highest rate of dental and oral problems in South Kalimantan, which is 52.67%.⁴ Blum's theory (1974) in Ariyanto (2018) states that the oral health status of an individual or community is influenced by four factors, namely heredity, environment, behavior, and health services.⁵ A study conducted by Smith et al. (2007) demonstrated that a good level of knowledge about dental health has a positive impact on individuals' attitudes and behaviors in maintaining oral hygiene.⁴

Lack of hygiene causes plaque and calculus that damage dental health.^{6,7} Oral hygiene can be measured using the Oral hygiene Index Simplified (OHI-S) index. OHI-S is an indicator of the clinical status of a person's oral hygiene obtained during an examination. This index consists of two main components, namely the Debris

Index (DI) and Calculus Index (CI), which together reflect the amount of soft and hard debris such as debris, plaque, and calculus on the tooth surface.^{8,9}

Every Indonesian citizen, including inmates, has an equal right to access oral health care and maintenance services. However, limited access to information within correctional facilities is one of the contributing factors to the low level of knowledge among inmates regarding oral and dental health.¹⁰ Knowledge is the basis for the formation of behavior. Good knowledge leads to improved behavior in maintaining oral and dental health, which in turn enhances one's oral hygiene status.¹¹

According to the 2022 Annual Report of the Directorate General of Corrections, a total of 6,312 inmates were recorded as suffering from dental diseases, making it one of the five most common health conditions among inmates. Dental and oral diseases have a high ranking suffered by correctional prisoners to be one indicator that the dental and oral hygiene of correctional prisoners is not maintained.¹²

Based on the description of the problem above, the researcher is interested in conducting a study entitled "The Relationship Between Oral Health Maintenance Knowledge and Oral Hygiene among Inmates (WBP) In Class IIA Prison Banjarmasin."

MATERIALS AND METHODS

This study has obtained ethical approval from the Health Research Ethics Commission of the Faculty of Dentistry, Lambung Mangkurat University with number 048/KEPKG-FKGULM/EC/XII/2024. This study used an analytic observational method with a cross sectional research design.

The population in this research consisted of inmates serving their sentences at Class IIA Banjarmasin Prison, totaling 2,148 individuals. A sample of 92 inmates was selected for this study using a purposive sampling technique.

The inclusion criteria in this study are: 1. The inmates who are serving a minimum detention period of 3 months in Banjarmasin Class IIA Prison. 2. The inmates who are willing to fill out informed consent and questionnaires. 3. The inmates who have dental segments according to the OHI-S assessment criteria. 4. The inmates who are cooperative. 5. The inmates who are able to read, write and communicate well. 6. The inmates who are in good physical condition. 7. The inmates who do not have psychiatric diseases recorded in medical history or are currently on medication.

Tools used in the implementation of the study include informed consent forms, questionnaires, mouth rinses, mineral water, mouth glasses, nierbeken, masks, medical gloves (handscoon), personal protective equipment (PPE) in the form of gowns, examination sheets, and periodontal probes. Materials included tissues and stationery such as pencils and pens.

Primary data were collected directly from respondents through physical examination using the OHI-S index and respondents filled out a questionnaire on oral health knowledge. The results of the questionnaire were categorized into three levels, namely: poor category with a score of 0-6, moderate category with a score of 7-12, and good category with a score of 13-19. The collected data were analyzed using non-parametric tests, namely the somers'D test method.

RESULTS

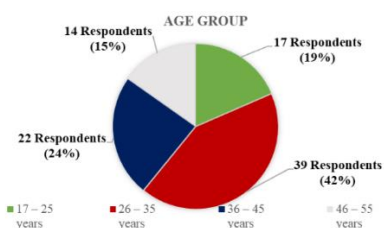


Figure 1. Frequency of Respondents Based on Age

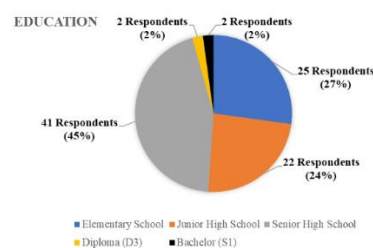


Figure 2. Frequency of Respondents Based on Education Level

Figure 1 shows that the frequency of respondents based on age is dominated by those aged 26–35 years, with a total of 39 individuals (42%). Figure 2 shows that the frequency of respondents based on education level is dominated by those with a Senior High School/equivalent education, with a total of 41 individuals (45%). Figure 3 shows that the highest level of oral and dental health maintenance knowledge is found in respondents with a moderate level of knowledge, totaling 38 individuals (43%). Figure 4 shows that the frequency of respondents based on the OHI-S (Oral Hygiene Index – Simplified) is dominated by respondents with poor oral hygiene, totaling 45 individuals (49%).

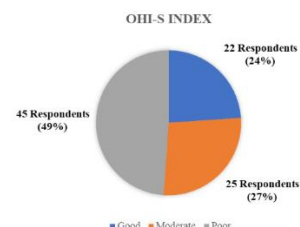


Figure 3. Frequency of Respondents Based on Knowledge Level. **Figure 4.** Frequency of Respondents Based on OHI-S Index

Table 1. Knowledge Based on Age

Age Group	Knowledge			Total
	Good	Moderate	Poor	
17-25 Years	7 (7,6%)	10 (10,9%)	0 (0%)	17 (18,5%)
26-35 Years	12 (13%)	14 (15,2%)	13 (14,1%)	39 (42,4%)
36-45 Years	7 (7,6%)	8 (8,7%)	7 (7,6%)	22 (23,9%)
46-55 Years	4 (4,3%)	6 (6,5%)	4 (4,3%)	14 (15,2%)

Table 2. Knowledge Based on Last Education Level

Education Level	Knowledge			Total
	Good	Moderate	Poor	
Elementary School	3 (3,3)	15 (16,3%)	7 (7,6%)	25 (27,2%)
Junior High School	8 (8,7%)	8 (8,7%)	6 (6,5%)	22 (23,9%)
Senior High School	17 (18,8%)	13 (14,1%)	11 (12%)	41 (44,6%)
Diploma (D3)	1 (1,1%)	1 (1,1%)	0 (0%)	2 (2,2%)
Bachelor (S1)	1 (1,1%)	1 (1,1%)	0 (0%)	2 (2,2%)

Table 3. Oral Hygiene Based on Age

Age Group	Oral hygiene			Total
	Good	Moderate	Poor	
17-25 Years	5 (5,4%)	3 (3,3%)	9 (9,8%)	17 (18,5%)
26-35 Years	10 (10,9%)	10 (10,9%)	19 (20,7%)	39 (42,4%)
36-45 Years	3 (3,3%)	9 (9,8%)	10 (10,9%)	22 (23,9%)
46-55 Years	4 (4,3%)	3 (3,3%)	7 (7,6%)	14 (15,2%)

Table 4. Oral Hygiene Based on Education Level

Education Level	Oral hygiene			Total
	Good	Moderate	Poor	
Elementary School	5 (5,4%)	6 (6,5%)	14 (15,2%)	25 (27,2%)
Junior High School	9 (9,8%)	3 (3,3%)	10 (10,9%)	22 (23,9%)
Senior High School	8 (8,7%)	13 (14,1%)	20 (21,7%)	41 (44,6%)
Diploma (D3)	0 (0%)	2 (2,2%)	0 (0%)	2 (2,2%)
Bachelor (S1)	0 (0%)	1 (1,1%)	1 (1,1%)	2 (2,2%)

Table 1 shows that good oral and dental health maintenance knowledge is most commonly found among respondents aged 26–35 years, totaling 12 individuals (13%). Table 2 shows that good oral and dental health maintenance knowledge is most commonly found among respondents with a Senior High School/equivalent

education level, totaling 17 individuals (18.8%). Table 3 shows that poor oral hygiene is most commonly found among early adults (26–35 years), totaling 19 respondents (20.7%). Table 4 shows that poor oral hygiene is most commonly found among respondents with a Senior High School/equivalent education level, totaling 20 respondents (21.7%). Table 5 shows that the statistical analysis using Somers' D test resulted in a significance value of 0.001 ($p < 0.05$), which means that H_0 is rejected. Therefore, there is a significant relationship between the level of knowledge of oral and dental health maintenance and oral hygiene among inmates at Class IIA Prison Banjarmasin.

Table 5. Oral Hygiene Based on Knowledge Level

Knowledge Level	Oral hygiene			r	p value
	Good	Moderate	Poor		
Good	16 (17,4%)	6 (6,5%)	8 (8,7%)	-0,463	0,001
Moderate	6 (6,5%)	15 (16,3%)	17 (18,5%)		
Poor	0 (0%)	4 (4,3%)	20 (21,7%)		

DISCUSSION

Oral Health Maintenance Knowledge

Knowledge serves as a fundamental basis for shaping behavior. A lack of knowledge regarding oral and dental health can have a negative impact on an individual's oral health condition.¹³ In this study, the majority of respondents had a moderate level of knowledge, totaling 38 individuals (43%). This finding is consistent with a study conducted by Ratih et al (2019), which showed that most inmates at the Gianyar Detention Center had a sufficient level of knowledge, with a total of 17 individuals.¹⁴

The moderate knowledge level among inmates indicates limited understanding of proper brushing techniques, the use of oral hygiene tools, and the importance of replacing toothbrushes every three months.¹⁵ A study conducted by Anang and Robbihi (2021) revealed that an individual's level of knowledge regarding oral and dental health is influenced by various factors, one of which is exposure to mass media. Individuals who frequently access or are exposed to mass media tend to have higher levels of knowledge compared to those with limited exposure.^{13,16, 17}

Age also influences knowledge, with younger individuals generally better at understanding information and possessing higher levels of knowledge.¹⁶ This aligns with the characteristics of respondents in this study, where no individuals aged 17–25 years had poor knowledge levels. Another influencing factor is education level. This study noted that only three respondents with an elementary school/equivalent education had good knowledge.¹³ Prayoga et al. (2022) stated that sources of information have a greater impact on oral and dental health maintenance knowledge than education level.¹⁸

Oral Hygiene of Inmates

The Oral Hygiene Index Simplified (OHI-S) is an indicator of a person's clinical oral hygiene status, consisting of two components: the Debris Index (DI) and the Calculus Index (CI).¹⁹ The results of this study show that the frequency of respondents based on the OHI-S Index was dominated by those with poor oral hygiene, totaling 45 individuals (49%), while the least were those with good oral hygiene, totaling 22 individuals (24%). A study by Kondratyev et al. in 2019 in Russia stated that the average OHI-S score among inmates was 3.11, categorized as poor.²⁰

Poor OHI-S scores are caused by the limited availability of oral health maintenance tools and materials in prisons, such as the absence of toothbrushes and toothpaste provided to maintain oral hygiene.¹⁴ This study also shows that 41% of respondents with a high school education (SMA/equivalent) had poor oral hygiene, totaling 20 individuals. Research by Kondratyev et al. (2019) in Russia also stated that the higher the level of education, the worse a person's OHI-S score. The OHI-S scores were: junior high school level (3.6), senior high school level (2.7), and diploma/bachelor level (1.6).²⁰ Education level affects a person's perception and behavior; individuals with higher education levels are generally expected to have better reasoning skills.²¹

The Relationship Between Oral Health Maintenance Knowledge and Oral Hygiene Among Inmates

The results of this study show a moderate relationship between oral health maintenance knowledge and oral hygiene among inmates at the Class IIA Correctional Facility in Banjarmasin. The statistical test using Somers' D revealed a significance value of 0.001 ($p < 0.05$). A study conducted by Abdat et al. (2018) stated that oral health knowledge is related to a person's oral hygiene.²² One of the factors influencing this relationship is the limited freedom experienced by inmates. For instance, the restricted space available in prisons poses a challenge for inmates in maintaining proper oral hygiene.²³

A preliminary interview revealed that Class IIA Prison in Banjarmasin is the largest prison in terms of population in South Kalimantan. Overcrowding in prisons can negatively impact both physical and mental health, leading to neglect in oral hygiene, inconsistent brushing habits, lack of oral hygiene supplies, and limited access to oral health services.²³

A study by Nagarale (2014), cited in Sharma (2023), stated that 98% of inmates do not receive dental and oral health services while incarcerated.²³ The shortage of healthcare workers, including dentists and dental nurses in prisons, makes it difficult for inmates to receive regular and proper oral care. Another issue is restricted access to information.²⁴ Limited access to information among inmates results in a decrease in their knowledge about oral and dental health.¹⁰

Based on the findings of this study, it can be concluded that there is a significant relationship between oral health maintenance knowledge and oral hygiene among inmates in Class IIA Prison Banjarmasin, with a significance value of 0.001 ($p < 0.05$) and a moderate correlation ($r = -0.463$).

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