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ORIGINAL ARTICLE

THE CORRELATION BETWEEN POOR ORAL HYGIENE AND ORAL HEALTH-RELATED QUALITY OF LIFE AMONG DRUG USERS

Hubungan Antara Kebersihan Gigi dan Mulut Terhadap Kualitas Hidup Pada Pengguna Narkoba

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ABSTRACT

Background: The quality of life among drug users has become an increasingly important public health issue. One of the factors suspected to contribute to this is poor oral hygiene, which may result from reduced saliva production due to long-term use of psychotropic substances. This condition warrants special attention, particularly in Banjarbaru City, which has the highest rate of drug abuse in South Kalimantan Province, with a proportion of 26.64%. **Purpose:** The purpose of this study is to analyze the correlation between drug users' quality of life and their dental and oral hygiene. **Methods:** This study employed a cross-sectional design and was conducted on a representative sample of drug users undergoing rehabilitation. A total of 38 respondents were selected using a simple random sampling method. Data on dental and oral hygiene were collected using the Oral Hygiene Index Simplified, while quality of life was measured using the OHIP-14 questionnaire. The data were then analyzed using appropriate statistical methods to determine the correlation between the variables. **Results:** Dental and oral hygiene for drug abusers have an average score of 3.38 and an average quality of life score of 21.25. Poor oral hygiene is associated with poor quality of life in drug abusers (r = 0.572, p-value <0.000). Regression analysis showed that poor oral hygiene was a predictor of poor quality of life (β: 3.936; R2: 0.328; p <0.000). **Conclusion:** This study emphasizes how crucial it is to practice proper dental hygiene in order to improve drug users' quality of life.

ABSTRAK

Latar Belakang*: Kualitas hidup di kalangan pengguna narkoba telah menjadi isu kesehatan masyarakat yang semakin penting. Salah satu*

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faktor yang diduga berkontribusi terhadap hal ini adalah kebersihan gigi dan mulut yang buruk, yang mungkin disebabkan oleh penurunan produksi saliva akibat penggunaan zat psikotropika jangka panjang. Kondisi ini memerlukan perhatian khusus, terutama di Kota Banjarbaru yang memiliki angka penyalahgunaan narkoba tertinggi di Provinsi Kalimantan Selatan dengan proporsi sebesar 26,64%. ***Tujuan****: Tujuan dari penelitian ini adalah untuk menganalisis hubungan antara kualitas hidup pengguna narkoba dengan kebersihan gigi dan mulut mereka.* ***Metode****: Penelitian ini menggunakan desain potong lintang dan dilakukan pada sampel representatif pengguna narkoba yang sedang menjalani rehabilitasi. Sebanyak 38 responden dipilih menggunakan metode simple random sampling. Data mengenai kebersihan gigi dan mulut dikumpulkan menggunakan Oral Hygiene Index Simplified, sedangkan kualitas hidup diukur menggunakan kuesioner OHIP-14. Data yang diperoleh dianalisis menggunakan metode statistik yang sesuai untuk mengetahui hubungan antara kedua variabel.* ***Hasil:*** *Kebersihan gigi dan mulut pada penyalahguna narkoba memiliki rata-rata skor sebesar 3,38 dan rata-rata skor kualitas hidup sebesar 21,25. Kebersihan gigi dan mulut yang buruk berhubungan dengan buruk kualitas hidup pada penyalahguna narkoba (r = 0,572, p-value < 0.000). Analisis regresi menunjukkan bahwa kebersihan gigi mulut yang buruk merupakan prediktor kualitas hidup yang buruk (β: 3,936;R2: 0,328;p < 0,000).* ***Simpulan:*** *Penelitian ini menunjukkan bahwa menjaga kebersihan gigi dan mulut penting untuk mendukung kualitas hidup pengguna narkoba.*

INTRODUCTION

A person's complete well-being, including their social, psychological, and physical functioning, is included in their quality of life, which is a complicated notion. Because it immediately affects a person's capacity to chew, speak, smile, and interact with others, oral health is a significant factor in determining quality of life. An individual's perspective of how the state of their teeth, gums, oral mucosa, and other oral structures impacts their everyday activities, comfort, social interactions, and general well-being is reflected in the multifaceted notion of oral health-related quality of life (OHRQoL) (1). A standardized instrument within OHRQoL, the Oral Health Impact Profile (OHIP), assesses the social impact of oral conditions by taking into account physical functions, pain, psychological well-being, social interactions, and satisfaction with oral health in addition to the presence or absence of disease (2).

Reduced productivity, diminished psychological well-being, social disengagement, and compromised physical performance are just a few of the many effects of a low quality of life. Those who suffer from substance use disorders face these difficulties in particular. Because long-term drug use has both physiological and psychological effects, drug users frequently see a decrease in their quality of life (3).

One of the most concerning worldwide health concerns in recent decades has been drug abuse. Even though doctors prescribe some drugs for specific purposes, their abuse or non-medical usage has had detrimental effects on people's health and society (4). An estimated 275 million people worldwide, or roughly 5.60 percent of the world's population between the ages of 15 and 64, reported using drugs at least once in 2016 (5). This comprises 192 million users of cannabis, 34 million users of opioids, 34 million users of prescription stimulants and amphetamines, 21 million users of ecstasy, 19 million users of opiates, and 18 million users of cocaine (5).

Drug usage is becoming more common in Indonesia every year. Over the same time period, lifetime prevalence rose from 2.40% to 2.57%, and yearly prevalence rose from 1.80% in 2019 to 1.95% in 2021 (6). One of the areas where drug misuse is significantly on the rise is South Kalimantan Province. In 2012, there were 1,188 drug users in the province; by 2019, that figure had risen to 59,000, or 1.81% of the total population (7). The province's highest rate of drug addiction in 2020 was 26.64% in Banjarbaru City, followed by

Banjarmasin City (20.72%) and Balangan District (15.78%) (7).

Drug use has a wide range of adverse health effects. Drug use has been connected to immune system suppression and psychological difficulties, which impair the body's capacity to fight against infections, including those that damage the tissues of the mouth (3). Many drug users often adopt changed lifestyles that include neglecting oral hygiene, eating poorly, and receiving little dental treatment. Long-term use of psychotropic drugs can decrease salivation, which increases plaque accumulation and results in poor oral hygiene (8,9). As a result, poor dental hygiene contributes to drug users' deteriorating quality of life.

Despite the well-established link between drug use and poor oral health, there is currently little data on the prevalence of oral hygiene issues and how they directly affect drug users' OHRQoL in Indonesia. According to international research, drug users frequently suffer from periodontal disease, poor oral hygiene, and other oral health issues that have a detrimental impact on their OHRQoL. According to a study conducted in Iran, for example, 64% of opium users had periodontal disease and 78% had poor oral hygiene, both of which had a significant negative influence on their OHRQoL (10). Substance use disorders have also been linked to increased rates of dental caries, periodontal disease, xerostomia, and plaque formation, all of which lower OHRQoL, according to a systematic review (11,12). Additionally, a meta-analysis that focused on drug users revealed that their burdens of periodontal disease and dental caries were consistently higher than those of the general population (11). However, no local study in Indonesia, especially in South Kalimantan, has explicitly assessed the connection between drug users' OHRQoL and oral hygiene markers such as OHI-S, plaque accumulation, or periodontal condition. A crucial study gap is highlighted by the dearth of context-specific evidence, which also emphasizes the necessity of region-specific data to guide focused oral health interventions in rehabilitation settings.

Numerous studies have shown a strong correlation between oral health and quality of life. The effect of oral health on quality of life is frequently measured using instruments like the OHIP-14 (8). Drug users frequently do not receive enough attention regarding their dental health issues, despite the recognized associations, even though taking care of this issue might significantly improve their general well-being (8).

The Griya Pemberdayaan Rehabilitation Center, a community-based rehabilitation facility approved by the Republic of Indonesia's Ministry of Social Affairs, is located in Banjarbaru City, a city known for its high drug misuse rate. For drug addicts in the province of South Kalimantan, the institution offers social rehabilitation services. Upon initial observation, the center's clientele had a variety of oral health concerns. Given this, the purpose of this study is to examine the relationship between drug users' oral hygiene and their quality of life in relation to oral health at the Griya Pemberdayaan Rehabilitation Center in Banjarbaru City.

METHODS

The study's sample consisted of 38 respondents who were drug abusers at IPWL Griya Pemberdayaan Banjarbaru, selected from a total of 50 individuals undergoing rehabilitation at the facility. Simple random sampling is employed. The following were the study's inclusion criteria: drug abusers who have teeth according to the OHI-S criteria, namely, teeth 16, 11, 26, 36, 31, and 46. If these teeth are not present, they can be replaced with replacement teeth according to the OHI-S index criteria, and there are at least two index teeth that can be examined. Participants were willing to be cooperative respondents and signed an informed consent. They were drug abusers who had been at the Griya Pemberdayaan Rehabilitation Centre for at least seven days and had completed the isolation stage. The exclusion criteria in this study were as follows: respondents who were experiencing pain when the research was carried out, respondents who were in the isolation period, and respondents who could not participate in the research until it was finished.

The Oral Health Impact Profile (OHIP-14) questionnaire, which includes dimensions of functional limitations, physical pain, psychological discomfort, physical disabilities, psychological disabilities, social limitations, and inhibitions, was used to measure the quality of life associated with dental and oral health. The Oral Hygiene Index Simplified (OHIS) was used to evaluate dental and oral hygiene. Data analysis in this study used the Pearson correlation test to determine the correlation between dental and oral hygiene and quality of life. Linear regression analysis was used to determine the predictive model for quality of life scores related to dental and oral health based on dental and oral hygiene status.

The Ethics Committee of the Faculty of Dentistry, University of Lambung Mangkurat, granted ethical approval for this study (Approval No. 064/KEPKG-FKGULM/EC/IV/2023), and all procedures adhered to established ethical standards for research involving human participants.

RESULTS

The characteristics of the 38 research participants were examined to ascertain their diversity, and they were subsequently described based on gender, age, educational attainment, and occupation. Table 1 provides a summary of the attributes of the participants.

Table 1
Characteristics of Respondents

Variables	n (%) / Mean ± SD
Total respondents	31 (100)
Gender	
Male	27 (71.05)
Female	11 (28.95)
Age	
17-25 years	27 (71.05)
26-35 years	11 (28.95)
Level of education	
Low (No formal education or only elementary)	11 (28.95)
Moderate (Junior high school)	25 (65.79)
High (Senior high school or higher)	2 (5.26)
type of work	
Private sector worker	14 (36.84)
Student	6 (15.79)
Laborer	3 (7.90)
Housewife	8 (21/05)
Unemployment	7 (18.42)
OHIS score	3.38 ± 1.44
OHIP-14 score	21.55 ± 9.94

The respondents' sex was primarily male, namely 27 people (71.05%), and female, only 11 people (28.95%). Most respondents were in the 17–25 years age category, with 27 people (71.05%), and the least were in the 26–35 years age category, with 11 people (28.95%). The education level was classified into three categories: low (no formal education or only elementary school), moderate (junior high school), and high (senior high school or higher). The moderate educational level was the most common, namely 25 people (65.79%), and the least was in the higher education category, two people (5.26%). The most common type of work for respondents was in private jobs, namely 14 people (36.84%), and the least common was in labor types, three people (7.90%). The average and standard deviation of drug abusers' dental hygiene status (OHI-S) were 3.38 ± 1.44. The evaluation of the quality of life score of IPWL drug users at Griya Pemberdayaan Banjarbaru City showed an average score of 21.55, where a higher score indicates a lower quality of life and a lower score indicates a better quality of life.

Compared to men, women have a greater average dental and oral hygiene status. The average value of hygiene status for women is 3.63, while for men, it is 3.29. Dental and oral hygiene status in the 17–25 years age category is higher than that in the 26–35 years age category. The average value of dental and oral hygiene status at the age of 17–25 years is 3.45, while at the age of 26–35 years, it is 3.22.

Compared to individuals with low or intermediate levels of education, those with higher levels of education also had better oral and dental hygiene. High-education respondents' average dental and oral hygiene status is 2.88, falling into the category of moderate dental and oral hygiene status. The dental and oral hygiene status of respondents with medium and low educational levels has an average value of 3.44 and 3.36, respectively, and falls into the bad category. Respondents who have this type of labour occupation have the highest average oral hygiene status score compared to other types of work, which is 3.97. This shows that respondents who have labour-type jobs have worse dental and oral hygiene status compared to respondents who have other types of jobs.

The average quality of life is higher for women than for men. This shows that the quality of life for men is better than for women. The average quality of life for women is 26.36, while for men it is 19.59. The quality of life in the 17–25-year age category is higher than in the 26–35-year age category. This shows that the quality of life at the age of 26–35 years is better than at the age of 26–35 years. The average value of quality of life at the age of 17–25 years is 22.22, while at the age of 26–35 years it is 19.90. These results are presented in Table 2.

Respondents with high levels of education have a better quality of life when compared to respondents who have low or moderate levels of education. For individuals with a high degree of education, the average quality of life score is 20. The average quality of life scores for respondents with medium and low levels of education are 20.36 and 24.55, respectively. Respondents who have private jobs have the best quality of life compared to other types of work, with a value of 17.07. The type of work that has the worst quality of life is that of a student with an average score of 28.17.

Table 2
Dental and Oral Hygiene Status and Quality of Life by Respondents' Characteristics with Correlation Analysis

Variables	OHIS (Mean ± SD)	OHIP-14 (Mean ± SD)	r	p-value
Gender				
Male	3.29 ± 1.46	19.59 ± 10.20		
Female	3.63 ± 1.44	26.36 ± 7.71		
Age				
17-25 years	3.45 ± 1.85	22.22 ± 10.37		
26-35 years	3.22 ± 1.70	19.90 ± 9.05		
Level of education				
Low (No formal education or only elementary)	3.36 ± 0.88	24.55 ± 6.52		
Moderate (Junior high school)	3.44 ± 1.61	20.36 ± 10.90		
High (Senior high school or higher)	2.88 ± 2.54	20 ± 15.56		
Type of work				
Private Sector Worker	3.12 ± 1.66	17.07 ± 11.82		
Student	3.68 ± 0.86	28.17 ± 8.91		
Laborer	3.97 ± 0.47	21.67 ± 0.58		
Housewife	3.59 ± 1.47	25.75 ± 6.41		
Unemployment	3.17 ± 1.79	17.07 ± 11.82		
Correlation between OHI-S and OHIP-14			0.572	0.000

The analysis's findings indicate a correlation value of 0.572 and a p-value of 0.000. This indicates a reasonably substantial correlation between drug users' quality of life and their oral and dental hygiene. The relationship between dental and oral hygiene status and quality of life is positive, meaning that if an individual's OHIS score rises, their quality of life score will also rise, or the worse their oral hygiene status, the lower their quality of life.

OHIP-14 score prediction utilizing linear regression analysis based on drug abusers' oral and dental health conditions. Table 3 shows the prediction analysis of the OHIP-14 score according to oral and dental health status. The results of the regression analysis indicate that for every one-point increase in OHI-S score, the OHIP-14 score is expected to increase by 3.936 points, indicating a decline in oral health–related quality of life. This association was statistically significant ($p < 0.05$). The coefficient of determination (R^2) was 0.328, which means that approximately 32.8% of the variation in OHIP-14 scores among respondents can be explained by their OHI-S scores. The remaining 67.2% is attributable to other factors not included in the model. The prediction model equation is OHIP-14 = 8.232 + 3.936 (OHI-S).

Table 3
Prediction Analysis of The OHIP-14 Score Based on Dental and Oral Health Status

Variables	B	SE	P value	R^2
Constant	8.232	3.452	0.022	0.328
OHIS	3.936	0.94	0.000	

DISCUSSION

According to this study, female drug users had worse oral and dental hygiene than their male counterparts, and this discrepancy was linked to a lower quality of life (OHRQoL) related to oral health. Pain, decreased function, and psychological distress are all consequences of poor dental hygiene that lower OHRQoL. Evidence currently available

indicates that even when clinical status is comparable to men, women tend to perceive a greater negative impact of oral conditions on their quality of life (13,14). Additionally, female substance users in low- and middle-income countries experience disproportionate psychosocial burdens, including higher rates of psychological distress, social vulnerability, and reduced support, which may further hinder oral self-care and motivation (15,16).

Twenty-seven respondents (71.05%) in this study were between the ages of 17 and 25, which equates to late youth to early adulthood, in contrast to older individuals. Additionally, they displayed poorer dental and oral hygiene. This outcome aligns with the understanding that Adolescence is a period of physical and mental development. (17). Adolescence correlates with increasing hormone levels that lead to total sexual maturity, which is indicated by physical remodelling of adipose tissue and muscle, expansion of the genitalia, and the development of secondary sexual traits (18). Adolescents experience personal growth as a result of social, cognitive, and emotional experiences, in addition to physical development (19). Like every other area of the body, the oral cavity is impacted by the physical and psychological changes associated with the developmental phase of Adolescence. The makeup of subgingival bacterial flora can be changed by the rise in sex hormones throughout puberty. Gram-negative bacteria that use estrogen and progesterone as growth factors, like Porphyromonas intermedius and Prevotella intermedia, become more prevalent (19). These bacteria's growth is linked to plaque buildup, gingival irritation, and the development of black stains, all of which are indicators of worse oral hygiene as shown by higher OHI-S scores. Oral health-related quality of life (OHRQoL) may be adversely affected by poor oral hygiene, which is associated with functional limits, pain, and psychosocial issues. This demonstrates how variations in oral microbiota affect people's quality of life more broadly in addition to clinical oral health markers (19).

The effects of drug use, which often begin in Adolescence, are evident in the oral cavity and include decreased salivary flow and pH, erosion and ulceration of the oral mucosa, taste disturbances, and inflammation of the periodontal tissues as a result of poor oral hygiene and an inadequate diet (20). These oral health problems can cause pain, impaired chewing, altered taste perception, and aesthetic concerns, which may interfere with daily activities, reduce self-confidence, and limit social interactions, thereby lowering oral health-related quality of life (OHRQoL) (20). One of the most dangerous consequences of drug use is head and neck cancer, a condition that can severely affect both physical function and psychosocial well-being (19,21).

The study found that highly educated drug addicts had better dental and oral hygiene than those with low or moderate education. According to the study findings, drug users with poor dental health had significantly lower levels of education (22). Drug users who worked as laborers had the lowest dental and oral hygiene scores when compared to those in other occupations. Dental health-related quality of life (OHRQoL) can be directly lowered by functional limits, pain, and psychological effects brought on by poor dental hygiene. Although access to dental treatment and understanding of oral health practices may be influenced by income and education, their significance for this study rests in their impact on oral hygiene behaviors, which in turn have an impact on OHRQoL. Therefore, any differences in drug users' oral health-related quality of life are also reflected in the correlation between employment status and oral hygiene. (23).

The results of the study showed a connection between drug users' quality of life and dental hygiene. The link's direction is likewise favorable, suggesting that poor oral and dental cleanliness would also affect eating habits, which would reduce drug users' quality of life. One's quality of life may suffer as a result of poor dental hygiene. A multifaceted term that takes into account the social, psychological, and physical effects of oral health, oral health-related quality of life (OHRQoL) is used to evaluate the full impact of oral health on quality of life (13). According to an Australian study, methamphetamine use was linked to a poorer OHRQoL; other characteristics that were linked to a worse OHRQoL were unemployment, female gender, and lower educational attainment (13). Previous studies on the quality of life of drug users found that they had poorer dental health than the general population (22).

The results showed that the majority of participants had poor oral hygiene status and significant plaque accumulation, which are known risk factors for dental caries and periodontal disease among drug users, even though this study did not explicitly examine dental caries (11). Substance abuse has been linked to xerostomia, inflammatory alterations, and dysbiosis of the oral microbiome, all of which diminish oral health resilience and lower OHRQoL (24–26). Our participants' deficiencies in oral hygiene underscore the

necessity of focused preventative measures in rehabilitation environments to slow the advancement of oral diseases and lessen their detrimental effects on quality of life.

Methamphetamine mouth refers to the condition of caries among drug addicts. Caries on the front teeth are uniformly distributed or resemble rampant caries. Caries in the oral cavity will cause physical, psychological, and social problems. This is caused by caries, particularly those that have affected the root canal. Pain, food disorders, sleep difficulties, inability to function normally, inability to control emotions, inability to concentrate adequately on anything, psychiatric disorders, and hurdles to resuming daily activities will result from exposure to stimuli (27).

CONCLUSION

Drug users' quality of life and dental and oral hygiene were found to be significantly correlated in this study, with lower OHRQoL being linked to worse cleanliness. The direct consequences of drug use and restricted access to dental care services in rehabilitation settings may be related to drug users' disregard for their oral health. In order to improve oral hygiene and, consequently, the quality of life for drug users, rehabilitation facilities should undertake focused oral health education and prevention programs. Practical methods for incorporating dental care into addiction treatment programs should be the subject of future research.

CONFLICT OF INTEREST

The research was conducted without any conflicts of interest. Beginning with the licensing, funding, and data collection of research, followed by the creation of research reports.

AUTHOR CONTRIBUTIONS

RH is responsible for data analysis, research results presentation, and publication. IWP gathers and analyzes data, performs ethical research, evaluates the reliability and validity of tools, and creates reports. AS offers feedback on research findings and assists in organizing research ethics testing.

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