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LEVELS OF KNOWLEDGE AND ATTITUDES TOWARD PERIODONTAL DISEASE AMONG PARENTS OF DENTAL STUDENTS

(TINGKAT PENGETAHUAN DAN SIKAP ORANGTUA MAHASISWA FAKULTAS KEDOKTERAN GIGI TENTANG PENYAKIT PERIODONTAL)

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ABSTRACT

Periodontal disease is a chronic condition with a high global burden that affects both oral and systemic quality of life. Epidemiological trends indicate a rising incidence and a strong association with systemic conditions such as diabetes mellitus and cardiovascular disease, positioning it as a significant public health concern with both clinical and preventive urgency. Preventive efforts are largely influenced by the level of public knowledge, attitudes, and behaviors toward periodontal health; however, a gap in the literature persists regarding family-level knowledge and attitudes, particularly among populations with close proximity to dental education institutions. Therefore, this study aims to analyze the level of knowledge and attitudes toward periodontal health among parents of dental students and to identify factors contributing to periodontal literacy. This study employs a quantitative approach with a cross-sectional design, in which data are collected using a structured questionnaire assessing knowledge, attitudes, and sociodemographic characteristics. Descriptive statistical analysis is applied to evaluate data distribution and examine relationships between variables. The expected outcomes include the provision of baseline data on periodontal literacy within family groups that have indirect access to academic information, as well as strategic recommendations for family-based educational interventions. Furthermore, the findings are anticipated to contribute to academic advancement through national or international scientific publications and to support the development of periodontal health promotion programs at both institutional and community levels.

Keywords: Periodontal disease; level of knowledge parents, attitude parents, student of dentistry

ABSTRAK

Penyakit periodontal merupakan kondisi kronis dengan beban global yang tinggi dan berdampak pada kualitas hidup oral maupun sistemik. Tren epidemiologis menunjukkan peningkatan insidensi serta keterkaitannya dengan kondisi sistemik

seperti diabetes melitus dan penyakit kardiovaskular, sehingga menjadikannya sebagai isu kesehatan masyarakat yang memiliki urgensi klinis dan preventif. Upaya pencegahan sangat dipengaruhi oleh tingkat pengetahuan, sikap, dan perilaku masyarakat terhadap kesehatan periodontal. Namun demikian, masih terdapat kesenjangan dalam literatur terkait pengetahuan dan sikap pada tingkat keluarga, khususnya pada mahasiswa kedokteran gigi yang memiliki kedekatan dengan institusi pendidikan kedokteran gigi. Oleh karena itu, penelitian ini bertujuan untuk menganalisis tingkat pengetahuan dan sikap terhadap kesehatan periodontal pada orang tua mahasiswa kedokteran gigi serta mengidentifikasi faktor-faktor yang berkontribusi terhadap literasi periodontal. Penelitian ini menggunakan pendekatan kuantitatif dengan desain potong lintang (cross-sectional), dengan pengumpulan data melalui kuesioner terstruktur yang mencakup variabel pengetahuan, sikap, dan karakteristik sosiodemografis. Analisis statistik deskriptif dilakukan untuk mengevaluasi distribusi data serta hubungan antarvariabel. Penelitian ini menghipotesiskan bahwa meskipun memiliki kedekatan dengan lingkungan pendidikan kedokteran gigi, masih terdapat variasi tingkat pengetahuan dan sikap terhadap kesehatan periodontal yang dipengaruhi oleh faktor sosiodemografis. Luaran yang diharapkan meliputi tersedianya data dasar mengenai literasi periodontal pada kelompok keluarga dengan akses informasi tidak langsung melalui lingkungan akademik, serta rekomendasi strategis untuk intervensi edukasi berbasis keluarga. Selain itu, hasil penelitian ini diharapkan dapat memberikan kontribusi akademik melalui publikasi ilmiah nasional maupun internasional serta mendukung pengembangan program promosi kesehatan periodontal di tingkat institusi pendidikan dan masyarakat.

Kata kunci: Penyakit periodontal; tingkat pengetahuan orangtua, sikap orangtua, mahasiswa kedokteran gigi

INTRODUCTION

Periodontal disease is a chronic inflammatory disease that affects the supporting tissues of the teeth, including the gingiva, periodontal ligament, and alveolar bone. This disease is a major contributor to oral health disorders globally and has shown an increasing epidemiological burden in recent years.^{1,2} In its early stages, periodontal disease often develops without obvious symptoms, often going undetected and potentially leading to tooth loss.³

A recent report from the World Health Organization states that periodontitis is a group of

chronic diseases with a high prevalence in various populations and impacts quality of life both orally and systemically.⁴ Furthermore, recent scientific evidence suggests a link between periodontitis and a number of systemic conditions, such as diabetes mellitus, cardiovascular disease, and pregnancy complications, through interconnected mechanisms of inflammation and immune responses.⁵

Prevention of periodontal disease depends heavily on community knowledge and attitudes toward oral health, including oral hygiene practices, regular dental visits, and utilization of dental health services.^{6,7} Parents of dental students are an

interesting group to study because they have indirect access to health information through academic settings, but they have not been widely studied in the context of periodontal literacy.

On the other hand, there remains a gap in the literature regarding families' knowledge and attitudes toward periodontal health, particularly among populations close to dental educational institutions. Therefore, this study employs a quantitative cross-sectional design using a structured questionnaire to assess knowledge, attitudes, and sociodemographic characteristics among parents of dental students. The aim of this study is to evaluate the level of periodontal health knowledge and attitudes and to identify factors associated with periodontal literacy. It is hypothesized that, despite their proximity to dental education environments, variations in knowledge and attitudes toward periodontal health still exist and are influenced by sociodemographic factors.

METHOD

This study used a quantitative approach with a cross-sectional design to measure the level of knowledge and attitudes regarding periodontal health among parents of dental students and to analyze the determinants of family-based periodontal literacy. Prospective data collection was conducted from parents of active students at the Faculty of Dentistry, Universitas Muhammadiyah Semarang, using a questionnaire via Google Forms consisting of three parts: a demographic data form, a knowledge data form, and an attitude data form. This study was conducted in January-February

2026. The main research instrument was a questionnaire guide. Questions in the knowledge questionnaire were made in the form of questions with True and False answer options. If correct, a score of 1, and if incorrect, a score of 0. Meanwhile, the attitude questionnaire used a Likert scale.

RESULT

This study received ethical clearance with approval number 047/KE/01/2026 from the Faculty of Health Sciences, Universitas Muhammadiyah Semarang. The characteristics of the respondents are described as follows:

Respondent Characteristic

The characteristics of the respondents in this study are presented in descriptive form, representing the data obtained during the study. The research data were obtained directly from the respondents, using a research questionnaire prepared by the researcher. Each respondent responded differently to the research instrument, requiring a classification of respondents to obtain general information about their identities, such as age, gender, education level, and occupation. In this study, 102 respondents answered the research instrument, as described below.

Table 1. Respondent Characteristic Result

Respondent Characteristics	Frequency	Percentage
Age		
< 40 years	23	22.5%

40–49 years	44	43.1%
50–59 years	30	29.4%
≥ 60 years	5	4.9%
Gender		
Male	27	26.5%
Female	75	73.5%
Highest Education Level		
Elementary School	2	2.0%
Junior High School	2	2.0%
Senior High School	22	21.6%
Diploma/Bachelor's Degree	60	58.8%
Postgraduate Degree	16	15.7%
Occupation		
Pharmacist	1	1.0%
Occupation		
Dentist	1	1.0%
General Practitioner	1	1.0%
Freelancer	1	1.0%
Housewife	16	15.7%
Student	15	14.7%
Retired	2	2.0%
Civil Servant	38	37.3%
Police Officer	1	1.0%
Private Sector Employee	8	7.8%
Entrepreneur	18	17.6%
Total	102	100%

As presented in the table above, most respondents were between 40 and 49 years of age, accounting for 44 participants (43.1%). Female respondents predominated the study population, with 75 individuals representing 73.5% of the sample. Regarding educational attainment, the largest proportion of respondents had completed a diploma or bachelor's degree, comprising 60 participants (58.8%). In terms of occupation, civil servants constituted the largest occupational group, with 38 respondents (37.3%).

Univariate

Univariate analysis was performed to provide an overview of the characteristics of each variable included in the study. This type of analysis summarizes the collected data into a concise and interpretable form, allowing the main features of the dataset to be clearly described. Descriptive statistics were employed as part of the univariate analysis to present the distribution and characteristics of the research variables without examining relationships between them. By organizing the data into summary measures and frequency distributions, descriptive statistics facilitate a straightforward interpretation of the findings. The frequency distribution of the variables analyzed in this study is presented in the following table.

Table 2. Knowledge Frequency Distribution Results

Knowledge Level	Frequency	Percentage
Good	73	71.6%
Fair	13	12.7%
Poor	16	15.7%
Total	102	100%

Based on the table above, information was obtained that respondents with good knowledge were 73 people with a percentage of 71.6%, sufficient knowledge were 13 people with a percentage of 12.7%, and insufficient knowledge were 16 people with a percentage of 15.7%.

Table 3. Frequency Distribution Results of Attitudes

Attitude	Frequency	Percentage
Positive	63	61.8%

Negative	39	38.2%
Total	102	100%

Based on the table above, information was obtained that respondents with a positive attitude were 63 people with a percentage of 61.8%, while respondents with a negative attitude were 39 people with a percentage of 38.2%.

Bivariate Chi-Square

The Chi-Square statistic is used when the variables to be used are categorical. The Chi-Square statistic is used to determine the relationship between two variables by testing the difference in the proportion between the observed value and the expected value. The hypotheses used in the Chi-Square test are as follows:

Research Hypotheses:

H0: There is no statistically significant relationship between the independent variable and the dependent variable.

H1: There is a statistically significant relationship between the independent variable and the dependent variable.

Basis for Decision Making:

If the p-value is <0.05 , H0 is rejected, and H1 is accepted.

If the p-value is >0.05 , H0 is accepted, and H1 is rejected.

The following are the results of the analysis to determine the relationship between the independent and dependent variables.

Table 4. Relationship between Knowledge and Attitude

Know- ledge	Attitude				Total		P Va- lue
	Positive		Nega- tive				
	n	%	n	%	n	%	
Good	4	52.9	19	18.6	73	1.6	0.000
Enough	6	5.9	7	6.9	13	12.7	
Less	3	2.9	13	12.7	16	15.7	
Total	3	61.8	39	35.8	102	100	

Based on the table above, information is obtained that the relationship between knowledge and attitude shows that respondents with good knowledge are 73 people with details of 54 people (52.9%) having a positive attitude and 19 people (18.6%) having a negative attitude. In sufficient knowledge, there are 13 people with details of 6 people (5.9%) having a positive attitude and 7 people (6.9%) having a negative attitude. In less knowledge, there are 16 people with details of 3 people (2.9%) having a positive attitude and 13 people (12.7%) having a negative attitude. In addition, a sig. value of $0.000 < 0.05$ is obtained, so H0 is rejected, and H1 is accepted, which means there is a significant relationship between Knowledge and Attitude.

DISCUSSION

This study evaluated parental knowledge and attitudes toward periodontal health among the parents of dental students and examined the association between these two variables as measures of family-based periodontal literacy. The results

revealed that most participants demonstrated an adequate level of periodontal knowledge accompanied by favorable attitudes toward periodontal health. In addition, statistical analysis showed ²⁶ a significant positive relationship between knowledge and attitudes, suggesting that respondents with better periodontal knowledge were more likely to exhibit positive attitudes toward maintaining periodontal health.

The present findings are supported by well-established behavioral health theories that describe the relationship between knowledge and attitudes. Notoatmodjo explains that knowledge constitutes the primary cognitive component underlying the development of attitudes and subsequent behaviors. Individuals with a stronger understanding of health-related information tend to adopt more positive attitudes, which ultimately influence their decisions and engagement in preventive health practices. This concept is further reinforced by the PRECEDE-PROCEED framework developed by Green and Kreuter, in which knowledge and attitudes are recognized as predisposing factors that enhance an individual's motivation and preparedness to adopt healthier behaviors. Applied to periodontal health, a comprehensive understanding of the causes of periodontal disease, its associated risk factors, and available preventive strategies may encourage individuals to develop more favorable attitudes toward ⁴ oral hygiene practices and the utilization of preventive dental services.⁸

The positive ⁴ association between periodontal knowledge and attitudes identified in the present study is consistent with findings reported in recent international research. A cross-sectional study from China demonstrated that participants with greater knowledge of periodontal disease were significantly more likely to exhibit favorable attitudes and engage in appropriate preventive behaviors related to periodontitis.⁹ Comparable findings were reported by Li et al. (2024), who showed that parental oral health literacy directly influenced oral health behaviors within the family environment. These findings emphasize the important role of parents in fostering positive oral health attitudes and establishing healthy oral care practices among family members.¹⁰

Studies conducted in Indonesia have also reported comparable findings. Anggraini et al. (2024) demonstrated ⁶ a significant correlation between oral health knowledge and periodontal status among adults, suggesting that improved knowledge contributes to better periodontal awareness and preventive attitudes. These results reinforce the concept that literacy in oral and periodontal health is a key determinant of positive health attitudes across different sociocultural settings.¹¹

Despite the predominance of respondents with good knowledge and positive attitudes, a proportion of participants in this study still exhibited inadequate knowledge or negative attitudes. This finding suggests that knowledge alone may not be sufficient to ensure favorable attitudes. Other factors, such as personal experience, cultural beliefs, social norms, access to dental services, and perceived

susceptibility to periodontal disease, may also influence attitude formation. This observation is supported by previous studies indicating that misconceptions and low risk perception regarding periodontal disease remain prevalent, even among populations with moderate levels of health knowledge.⁸

Furthermore, inadequate awareness and unfavorable attitudes toward periodontal health are associated with poor preventive behaviors and increased risk of periodontal disease. Therefore, educational interventions should not only focus on improving knowledge but also aim to address cognitive and affective components of attitude formation through continuous, family-centered, and context-specific health promotion strategies.¹²

Overall, the results of this study highlight the importance of enhancing periodontal health knowledge as a foundation for developing positive attitudes within families. Strengthening family-based periodontal literacy through targeted education programs may serve as an effective strategy for improving preventive behaviors and supporting long-term periodontal health outcomes.

CONCLUSION

This study found that parents of dental students generally exhibited good periodontal health knowledge and positive attitudes. ⁶ A significant association between knowledge and attitudes indicates ⁶ that higher levels of knowledge are linked to more favorable attitudes toward periodontal health. These findings support health behavior theories that identify knowledge as a key

predisposing factor in attitude formation and readiness for preventive behavior. The results underscore the importance of strengthening family-based periodontal literacy, as parents play a central role in shaping health perceptions within the household. Targeted and continuous educational interventions are therefore essential to enhance periodontal awareness and promote sustainable preventive behaviors at the family level.

CONFLICT OF INTEREST

⁵ No potential conflict of interest was reported by the authors

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