DESCRIPTION OF PARTIALLY EDENTULOUS PATTERN AMONG PATIENTS AT RSGMP GUSTI HASAN AMAN IN BANJARMASIN

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ABSTRACT
Background: Partial edentulism is the process when single or multiple teeth is missing from the alveolar socket and it may become an indicator for oral health. Partial edentulism can occur since the age of six and the aging factor increases the risk. Partial edentulism can be caused by some factors including: ages, gender, economic level, education level, knowledge level, and the etiology of the tooth loss. **Purpose:** To describe the distribution of partially edentulous pattern from RSGMP Gusti Hasan Aman's patients in Banjarmasin. **Method:** This study was including patients from RSGMP Gusti Hasan Aman between the age of 17-45 years old in Banjarmasin using purposive sampling. Questionnaires were distributed to determined patient knowledge on oral health with Kennedy classification for the partially edentulous pattern. **Result:** Kennedy Class II was the most frequent edentulous pattern observed on the upper (37%) and the lower jaw (39%). In particular, the adolescent group had the highest percentage (43%) of partial edentulism based on age. Women had the highest percentage (57%) of partial eduntulism based on gender. Respondents with moderate economic status had the highest percentage (35%) of partial edentulism. Respondents that have high school or above education level were the highest percentage (87%) identified with partial edentulous. The most common etiology that identified with partial edentulous was the caries (52%). **Conclusion:** It can be concluded that Kennedy class III is the most confronted partially edentulous pattern among patients at RSGMP Gusti Hasan Aman in Banjarmasin.

Keywords: Partially Teeth Loss Pattern, Kennedy, RSGMP Gusti Hasan Aman
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INTRODUCTION

Partial edentulism is a condition that s characterized by partial or multiple missing of the teeth, and it may reflect poor condition of oral health.. In particular, partial edentulism can be defined as the missing of one or all of the teeth from the alveolar socket. Normally, partially edentulous can occur since the age of six. Partial edentulism in children is specified by the change of deciduous tooth into permanent dentition.[1]

Partial edentulism is caused by two factors which are caries and periodontal disease.[1] Periodontal disease is a condition that frequently suffered by adults (50%). Periodontal disease can cause disturbances in gingiva and other periodontal tissue. Moreover, severe periodontal disease can also cause mobility of the tooth and lead to further loosening.[1,2,3]

Partial edentulism is experienced by 43.6% of the world population. Riset Kesehatan Dasar (RISKESDAS) in 2018 shows that the prevalence of partial edentulism in Indonesia was 19%, whereas, specifically, in South Borneo was 17.8%. Partial edentulism can cause disturbances in mastication and aesthetic function. It is also the main reason why people visit the dentist.[4]

Partial edentulism can be classified with Kennedy classification. The Kennedy classification is based on the relationship between the partially edentulous area and other teeth. The Kennedy Classification classifies partially edentulous into four classes which are class I (Bilateral partially edentulous areas

located posterior to the natural teeth); Class II (unilateral partially edentulous area located posterior to the remaining natural teeth); Class III (unilateral edentulous area with natural teeth remaining both anterior and posterior to it); and class IV (A single, but bilateral (crossing the midline), the edentulous area located anterior to the remaining natural teeth).[3]

Rumah Sakit Gigi dan Mulut Pendidikan (RSGMP) Gusti Hasan Aman is one of the dental and oral health centres in Banjarmasin. The partially edentulous, class III of Kennedy classification in particular, is included in the ten most common dental diseases at RSGMP Gusti Hasan Aman. Thus, it increases the motivation to conduct a research for the identification of partially tooth loss pattern distribution in patients at RSGMP Gusti Hasan Aman Banjarmasin.

RESEARCH METHODS

This research used descriptive method with a cross-sectional design that had received ethics permission with number 030/KEPKG-FKGULM/EC/I/2020 by the Health Research ethics committee of Faculty of Dentistry, University of Lambung Mangkurat. The study was conducted at RSGMP Gusti Hasan Aman located in Banjarmasin on 2nd to 13th March 2020. The population sample of this study was collected from RSGMP Gusti Hasan Aman patients in Banjarmasin. Based on the calculation of descriptive categoric samples formula, the minimum sample in this study was 54 people. Sampling techniques in this study was performed by purposive sampling. The inclusion criteria in this study were obtained from RSGMP Gusti Hasam Aman Banjarmasin patients ranging from the age of 17 – 45 years old; and and experiencing edentulism on the maxilla, mandibular, or both. The exclusion criteria in this research were full edentulism of the maxilla, mandibular, or both.

The respondent's knowledge about teeth and oral health issues and after that, the partial edentulous examination. The oral health knowledge examination was done by filling out the questionnaire consisted of 20 questions. The results of the examination were classified as high, moderate, and low level. Then, the partially edentulous examination was done by intraoral examination using a dental mirror. The results of this examination were classified according to Kennedy Classification.

RESULTS

This study involved 54 samples that fullfilled the inclusion criteria. The result of this study is described in the Table 1.

Table 1. Characteristic Of Maxillary Partially Edentulous Pattern among Repondents.

No.	Partially Edentulous Pattern	Total	Percentage
1.	Non Edentulous	11	20%
2.	Class I	15	28%
3.	Class II	6	11%
4.	Class III	20	37%
5.	Class IV	2	4%
	Total	54	100%

Table 1 shows the most encountered partially edentulous classification at RSGMP Gusti Hasan Aman Banjarmasin which is the kennedy class III (37%). Next study result is shown in Table 2.

Table 2. Characteristic of Mandibulary Partially Edentulous Pattern among Respondents.

No.	Partially Edentulous Pattern	Total	Percentage
1.	Non Edentulous	8	15%
2.	Class I	16	29%
3.	Class II	9	17%
4.	Class III	21	39%
5.	Class IV	0	0
	Total	54	100%

Table 2 shows the most encountered partially edentulous classification at RSGMP Gusti Hasan Aman Banjarmasin is the kennedy class III (39%). Study result is further elaborated in Table 3.

Table 3. Characteristic of Partially Edentulous Pattern Based on Age.

		Partially Edentulous Pattern (%)	
		Maxilla	Mandibular
Age	Adolescent (43%)	Class III (52%)	Class III (48%)
	Early adult (24%)	Class III (43%)	Class III (57%)
	Late adult (33%)	Class I (56%)	Class I (44%)

Table 3 shows the late adult group is is mostly identified with partially edentulous pattern classification of kennedy class III on the maxilla (52%) and mandibula (48%).

Table 4. Characteristics of Partially Edentulous Classification Based on Gender.

		Partially Edentuulous Pattern (%)	
		Maxilla	Mandibular
Gender	Famale (57%)	Class III (54%)	Class III (46%)
	Male (43%)	Class I (53%)	Class I (47%)

Table 4 shows that females are mostly observed with partial edentulous classification of Kennedy class III on the maxilla (54%) and mandibula (46%).

Table 5. Characteristics of Partially Edentulous Classification Based on Economic Status.

		Partial Edentulous Pattern (%)	
		Maxilla	Mandibular
Economic status	Very high (20%)	Class I (50%)	Class I (50%)
	High (19%)	Class I (50%)	Class I (50%)
	Moderate (35%)	Class III (44%)	Class III (56%)
	Low (26%)	Class I (44%)	Class I (56%)

Table 5 shows the respondent with moderate economic status is mostly observed with partial edentulous classification of Kennedy class III on maxilla (44%) and mandibular (56%).

Table 6. Characteristics of Partially Edentulous Classification Based on Education level.

		Partial Edentulous Pattern (%)	
		Maxilla	Mandibular
Education level	No education (6%)	Class I (67%)	Class I (33%)
	Elementary school (9%)	Class I (25%)	Class I (75%)
	Junior high school (9%)	Class II (67%)	Class II (33%)
	High school or above (76%)	Class III (53%)	Class III (47%)

Table 6 shows the group of high school education or above education level as mostly presented with partially edentulous classification kennedy class III in maxilla (53%) and in mandibular (47%).

Table 7. Characteristics of Partially Edentulous Classification Based on Knowledge level.

		Partial Edentulous Pattern (%)	
		Maxilla	Mandibular
Knowledge level	High (87%)	Class III (50%)	Class III (50%)
	Moderate (13%)	Class II (40%)	Class II (60%)
	Low (0)	0	0

Table 7 shows the respondents with high oral health knowledge are most observed with partial edentulous classification of Kennedy class III on maxilla (50%) and mandibular (50%).

Table 8. Characteristics of Partially Edentulous Classification Based on Etiology

		Partial Edentulous Pattern (%)	
		Maxilla	Mandibular
Etiology of partially edentulous	Caries (52%)	Class III (46%)	Class III (54%)
	Periodontitis (20%)	Class I (64%)	Class I (36%)
	Trauma (9%)	Class III (50%)	Class III (50%)
	etc (19%)	Class III (57%)	Class III (43%)

Table 8 shows the repondent with caries are the most observed with partial edentulous of Kennedy class III on maxilla (46%) and mandibullar (54%).

DISCUSSION

The results of this study show that the most common partially edentulous pattern is Kennedy class III in both maxilla and mandibular especially for molar teeth. Kennedy class III can be defined as unilateral partially edentulous with natural teeth remaining both anterior and posterior to it.[3] Permanent molar teeth is the the first permanent teeth to erupt in the oral cavity. Permanent molar teeth have susceptible morphology to experience caries including deep pit and fissure. It makes the cleansing process to become harder than normal. Furthermore, this condition can cause accumulation of dental plaque in permanent molar teeth. Pit and fissure of the teeth can be classified into three types that include U type (open and wide type), V type (open and narrow type), and I type (bottle like). I type and V type are the susceptible type of pit fissure that will cause caries and will triggered partial edentulism.[5]

Moreover, in this study, the young adult is the most affected group with partial edentulism because of the aging effects. Aging condition is characterized as the structural and physiological that may induce injury and cell death.[6] Body condition will become more prone to diseases caused by the increasing age. The deterioration of body condition happens in all parts of human body which include cell, tissue, organ, and organ system. This deterioration is also occurred in the oral cavity ascribable to its structure, function, and elasticity. Additionally, aging in periodontal tissue will cause gingiva recession, periodontal attachment loss, and alveolar bone. Caries and periodontal disease may be developed as the result of aging in the oral cavity. These are the main etiology of partially edentulous which increased it severity along with the aging.[7,8,9]

Furthermore, female respondents have the highest prevalence for partial edentulous. It is influenced by many factors such as education level, job, and income that lower than the male respondents. The gap in female income will lead to female dependence on male whenever to receive dental treatment. Limitation of dental treatment in female will cause partially edentulism.[10] Higher susceptibility of caries among female occurs because they experience earlier tooth eruption than male. This condition will cause longer exposure of the teeth in the oral cavity. Female also tend to consume sweet foods. Sweet foods are one of the main etiologies of caries other than host, time and microorganism. Hormonal factors also take a role in partial edentulism in female. Hormonal factor in menstrual phase, puberty phase and pregnancy will cause a susceptible condition that lead to caries. It is related to biomechanics, flow and composition of saliva.[11]

Hormonal condition in female are related to the decreased saliva function and the development of xerostomia. The composition and the quantity of saliva are essential factors for self-cleansing process of the oral cavity. Decreased saliva flow can cause the reduction of self-cleansing process on tooth surface and furthermore cause the accumulation of dental plaque. Dental plaque is a biofilm where caries microorganism can grow to further cause the caries. This condition will cause tooth pain that is the main reason for tooth extraction, resuting in partial edentulism.[12]

Economic status also takes a crucial role that can cause partial edentulism. People with low economic status tend to have an oral health issue than people with high economic status.[13] Economic status also affect people dental health. People with low economic status assume that dental treatments are not necessary. It compels people to consume medication rather than receiving dental treatment to relieve the pain. People with low economic level also Could not receive a better dental treatment because of the impoverishment. This condition Can also generate partially edentulous condition.[14,15,16]

Education level is another factor that causes partial edentulism. High school or above is the most common education level that experienced partial edentulism in this study. Major reason for such condition is caries

(42.9%).[17] It is because of the lack of oral health knowledge and awareness. Oral health knowledge is influenced by the education level. People with high education level tend to have higher level of oral health knowledge. Education level also affect people behavior in prevention and rehabilitation related to its perception on health behaviour.[18,19]

Oral health knowledge level also has essential role that could generate partially edentulism. The high school or above level has the highest percentage to have partially edentulous. High level of knowledge without any awareness in oral health can lead to caries and furthermore triggers partial edentulism. Oral health knowledge level itself can not guarantee the exclusion of oral health issues. Thus, the oral health knowledge level must be supplemented with oral health attitude and action. Oral health knowledge level can be influenced by many factors including economic and environment. Oral health knowledge level is also related to education level because people with high education level are easier to understand and get the information about oral health.[15,20] High level of oral health knowledge also influenced by people health behavior. Health behavior is people behaviour on the preservation and improvement of health. Health behavior can be classified into three behaviors which are the healthy behavior, sick behavior, and role of the sick behavior. People with sick behavior defined as the person who prefers to choose curative treatment rather than promotive and rehabilitative treatment. People with sick behaviour may aggravate the severity of caries causing the impracticability of tooth restoration. This will lead to the extraction fo the teeth and present partial edentulism for the individual.[21]

Partial edentulism is caused by many factors including caries. Caries demonstrates the highest percentage to generate partial edentulism. Caries can be defined as a diseases that cause damage to dental tissue, starting from email, dentin, and extending to the pulpa. Caries is experienced by most people in the world. Severe caries will induce pain and lead to teeth extraction. [22,23] Caries also influenced by many factors such as behavioral factor. People are often unaware about the importance of dental health maintenance and ignoring this component will reduce individual productivity as the consequence of the pain resulted from it.

Reduction in individual productivity is caused by the decreased periodontal tissue elasticity. Caries can be a source of infection that can induce systemic disease that leads to partial edentulism. It is also influenced by age factor in which the increasing age can cause someone to be more susceptible to caries and generate partially edentulous arch.[24,25] It can be concluded that Kennedy Class III is the most confronted partially edentulous pattern in RSGM Gusti Hasan Aman's patients in Banjarmasin.

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