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Prevalence of gingival overgrowth among patients at the periodontology clinic of Dental Hospital Universitas Airlangga

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Abstract

Background: The prevalence of dental and oral health problems in Indonesia, including periodontal disease and gingival overgrowth (GO), remains high and requires serious attention from health workers. This study aims to determine the prevalence of GO due to the existing data gap and public concern regarding this condition.

Objectives: To determine the prevalence of gingival overgrowth among patients at the periodontology clinic of Universitas Airlangga Dental Hospital.

Material and Methods: This study was conducted from August to September 2023 at the Dental and Oral Hospital (RSGM) Universitas Airlangga using a descriptive observational method with a cross-sectional design. The sample was calculated using total sampling from medical record data of patients at the Periodontics Clinic of the Dental and Oral Hospital (RSGM) Universitas Airlangga who met the inclusion criteria in 2022. The study variables included gingival overgrowth (GO), gender, age, and tooth region (sextant). Data were processed using Microsoft Excel and presented as a percentage (%). A descriptive data analysis was carried out to draw a conclusion.

Conclusion: The study found that 37.11% of patients at the Dental and Oral Hospital (RSGM) of Universitas Airlangga experienced gingival overgrowth. The percentage of male patients experiencing gingival overgrowth was higher than that of women, with the highest age group being 18-24 years. The tooth area that experienced the most gingival overgrowth was sextant 5, with a total of 29 samples.

Keywords: Gingival overgrowth; Periodontal disease; Prevalence; Age; Gender; Sextant

1. Introduction

Dental and oral health problems in Indonesia are increasing, with a prevalence reaching 57.6% in 2018[1]. WHO data reinforces the focus on periodontal disease as a major issue, noting that 10-15% of the world's population suffers from this disease. Research shows the hormonal impact on pregnant women, where up to 60% of them can experience Gingival Overgrowth (GO). People recognize dental and oral hygiene as key to body health, with factors such as oral hygiene behavior, eating habits, and regular dental check-ups affecting children's dental health [2].

Gingival overgrowth (GO) is defined as a condition where the size of the gingiva increases from normal, which can cause aesthetic and dental hygiene problems [3]. It involves changes in cell size, cell multiplication, gingival blood vessels, and extracellular matrix to varying degrees [4]. GO begins with a sign of protrusion around the papilla and gingival margin. The protrusion can increase in size to cover the crown [5]. This can occur locally or generally with slow progression and is painless. Severe GO often occurs in the anterior region of the upper and lower jaws. GO creates an anaerobic

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environment in the gingival socket, followed by microbial shifts and increased colonization of pathogenic bacteria that damage the soft and hard tissues of the teeth[6]

Gingival overgrowth causes more plaque buildup and inflammation. Thus, there is a possibility of transformation from gingival sulcus to a periodontal pocket. Periodontal treatment begins with an initial therapy phase that includes dental health education (DHE), scaling, root planning, and curettage if inflammation are present. GO does not necessitate surgical action on the gingiva [7]

However, the lack of public understanding of GO shows the need for more extensive data. Therefore, this study aims to disseminate the prevalence of GO in patients in Surabaya in 2023 through the collection of medical record data at the Periodontics Polyclinic, RSGM, Universitas Airlangga.

2. Material and methods

This study was conducted from August 2023 until September 2023 at the Dental and Oral Hospital Universitas Airlangga. This research employs an observational descriptive method with a cross-sectional design. Sample size calculation is conducted through total sampling using secondary data extracted from the medical records of patients at the Periodontology Clinic of Dental and Oral Hospital Universitas Airlangga, meeting the inclusion criteria of patients who visited in the year 2022, completed periodontal medical records and records signed by the Doctor in Charge of Service (DPJP). The research variables include gingival overgrowth (GO), gender, age, and tooth region (sextant). Data processing utilizes Microsoft Excel, which is presented in percentage (%). Descriptive data analysis is performed, followed by drawing conclusions.

3. Results and discussion

In 2022, RSGM Universitas Airlangga initially recorded 1,573 visits to the Periodontology Clinic. After data processing, the total was reduced to 716 patients. After sorting the records, 149 cases with complete periodontal supplements were identified. Then, exclusion was carried out based on several specific criteria in the form of medical records of visits other than 2022, incomplete periodontal supplements, medical records of individuals under 18 years old or no age information, and medical records of patients with fewer than 20 teeth. The results of the data exclusion showed that after processing, the number of medical records that met the sample or inclusion criteria was 97 samples.

3.1. Prevalence of Gingival Overgrowth Based on Individual Factors

Further data was processed to determine Gingival Overgrowth (GO) inpatient data inclusion. This was done to obtain positive GO (+) and negative GO (-).

Table 1 The prevalence of gingival overgrowth on individual factors.

No	Criteria	Visit Data	
		Total Data	Percentage (%)
1	+	36	37.11
2	-	61	62.89

The results of processing individual factor data GO (+) amounted to 36 samples (37.11%) of the total inclusion data. The GO (-) data criteria yielded 61 samples, accounting for 62.89% of the total inclusion data.

3.2. Prevalence of Gingival Overgrowth Based on Age Range

Riskesdas (2018) classified the prevalence of gingival overgrowth (GO) based on age groups using a total of 97 inclusion samples.

The data processing results for the age group factor of 18-24 years, which included 34 samples, yielded a GO of 15 samples (44.12%) per sample group. The age group of 25-34 years, consisting of 21 samples, yielded a GO of 8 (38.10%) per sample group. The age group of 35-44 years, consisting of 20 samples, yielded 7 GO samples (40%) per sample group. The age group of 45-54 years, consisting of 14 samples, yielded 6 GO samples (42.86%) per sample group.

Table 2 The prevalence of gingival overgrowth on Age Range

No	Age (Years)	Number of Patient	Gingival Overgrowth (n)	Gingival Overgrowth Percentage (%)
1	18-24	34	15	44.12
2	23-34	21	8	38.10
3	35-44	20	7	40
4	45-54	14	6	42.86
5	55-64	7	-	-
6	≥65	1	-	-

3.3. Prevalence of Gingival Overgrowth Based on Gender

On the prevalence of Gingival Overgrowth (GO) based on gender with a total of 97 inclusion samples.

Table 3 The prevalence of gingival overgrowth on gender

No	Gender	Number of Patient	Gingival Overgrowth	Gingival Overgrowth Percentage (%)
1	Male	39	18	46.15
2	Female	58	18	31.03

The results of GO data processing based on gender in the male group totaling 39 samples obtained GO of 18 samples, or 46.15% of the total of all inclusion samples. The female group, consisting of 58 samples, yielded GO from 18 samples, representing 31.03% of the total samples. The male group accounted for 46.15% of the GO based on gender, while the female group accounted for 31.03%.

3.4. Prevalence of Gingival Overgrowth Based on Tooth Area

The prevalence of Gingival Overgrowth (GO) based on tooth area has been grouped according to tooth area based on sextants 1, 2, 3, 4, 5, and 6, with a total of 97 inclusion samples.

Table 4 The prevalence of gingival overgrowth on tooth area

Tooth Area (Sextant)	Total Sampel GO (+)	Percentage (%)
1	8	8.25
2	24	24.74
3	8	8.25
4	8	8.25
5	29	29.90
6	2	2.06

The results of the data processing above, which obtained GO data based on the tooth area, were grouped into sextant 1, totaling 8 samples (8.25%) of the total inclusion samples. Sextant 2 comprises 24 samples, accounting for 24.74% of the total. Additionally, sextant 3 encompasses 8 samples, accounting for 8.25 percent of the total inclusion samples and in sextant 4, totaling 8 samples (8.25%) of the total inclusion samples. Moreover, sextant 5 encompasses 29 samples, accounting for 29.90% of the total inclusion samples. In sextant 6, 2 samples were included, accounting for 2.06% of the total inclusion samples.

The study has limitations, including substantial missing or inconsistent medical record data, incomplete periodontal supplements, and failure to meet criteria. These limitations affect the accuracy of the findings, which showed no fully representative gingival overgrowth status among patients at the periodontology clinic of RSGM Universitas Airlangga. A large sample size is needed to obtain more reliable and representative results.

4. Conclusion

The research findings reveal that 37.11% of patients at the Dental and Oral Hospital (RSGM) in 2022 suffered from gingival overgrowth. Male patients were potential than female patients to experience gingival overgrowth. The highest age group was 18-24 years old. The tooth area in the form of sextant that experienced the most gingival overgrowth was in sextant 5, with a total of 29 samples.

Compliance with ethical standards

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Disclosure of Conflict of interest

All the authors declare that there is not any conflict of interest with this document's release.

Statement of ethical approval

This research study was approved ethically by Dental Hospital Universitas Airlangga Health Research Ethical Clearance Commission, with an ethical clearance letter number: 31/UN3.9.3/Etik/2023

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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