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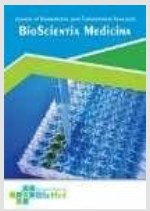

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The Prevalence of Bimaxillary Protrusion in Ethnic Malay, Medan, Indonesia

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A B S T R A C T

B**ackground**: Malocclusion is a deviation from the normal position of the teeth when the jaw is closed. The bimaxillary protrusion is the most prominent or most common of Angle's class I malocclusions. This study aimed to determine and present the prevalence of bimaxillary protrusion disorder in ethnic Malay adolescents in Medan, Indonesia. **Methods:** Descriptive observational study. A total of 35 research subjects were included in this study. An exploration of bimaxillary protrusion disorders was also carried out, and an exploration of demographic data was also carried out. Univariate analysis was carried out to determine the frequency distribution of each test variable with the help of SPSS version 25 software. **Results:** The majority of study subjects had bimaxillary protrusion angle class I malocclusion, namely 22 people (62.9%), while only 13 respondents (37.1%) had no bimaxillary protrusion malocclusion. The results of this study indicate that the prevalence of bimaxillary protrusion abnormalities in the Malay ethnicity is quite high, namely 62.9%. **Conclusion:** The prevalence of bimaxillary protrusion disorders in ethnic Malay is 62.9%.

1. Introduction

Malocclusion is a deviation from the normal position of the teeth when the jaw is closed. Malocclusion can occur due to dental, skeletal irregularities, or a combination of both, which can result in impaired function and facial esthetics. Malocclusion ranks third after dental caries and periodontal disease in dental and oral health problems in Indonesia, with a very high prevalence of around 80% of the total population. This is coupled with a low level of awareness of dental care and bad habits. Protrusive bimaxillary malocclusion is the most prominent or most common of Angle's class I malocclusions. This bimaxillary protrusion characteristic is characterized by protruded upper and lower incisors and a convex profile.[1-5]

One of the factors causing bimaxillary protrusion malocclusion is genetic or hereditary factors. Therefore, it is necessary to explore the role of race in Indonesia regarding malocclusion. The Indonesian population is mostly dominated by the Palemongoloid race or the Malay race. The Malay race is then divided into Proto-Malays and Deutro-Malays. The Proto-Malay race is Batak, Gayo, Sasak, and Toraja, while the Deutro-Malay race is descended from Aceh, Minangkabau, Coastal Sumatra, Rejang Lebong, Lampung, Java, Madura, Bali, Bugis, coastal Manado, eastern Sundanese, and Malay. Medan City is one of

the areas where there are quite a lot of Malay races.[6-10] Therefore, this study is an initial exploratory study to determine and present the prevalence of bimaxillary protrusion disorder in ethnic Malay adolescents in Medan, Indonesia.

2. Methods

This study was a descriptive observational study and used primary data from direct observation of research subjects. A total of 35 research subjects participated in this study. The research subjects met the inclusion criteria in the form of students aged 18-24 years at Universitas Sumatra Utara and Universitas Islam Negeri Sumatra Utara and were willing to take part in this study, which was marked by signing informed consent. This study was approved by the medical and health research ethics committee of the Faculty of Medicine, Dentistry and Health Sciences, Universitas Prima Indonesia, Medan, Indonesia.

This study presents sociodemographic data and clinical and medical data on bimaxillary protrusion disorder. Bimaxillary protrusion malocclusion is Angle's class I malocclusion characterized by protrusive upper and lower incisors and a convex profile. The examination was carried out on protrusion RA and RB incisors. Research subjects were declared bimaxillary protrusion if the facial profile was convex, while respondents with flat or concave faces were declared not to have a bimaxillary protrusion (Figure 1). Univariate data analysis was performed to present the distribution of data frequencies for each test variable. Data analysis was performed with the help of SPSS software version 25.

Figure 1. Bimaxillary protrusion.

3. Results

Table 1 presents the distribution of frequencies by gender. The majority of the research subjects were women, namely 20 people (57.1%), while the male respondents were only 15 people (42.9%).

Table 1. Frequency distribution by gender.

Gender	N	%
Male	15	42,9
Female	20	57,1
Total	35	100,0

Table 2 presents the distribution of bimaxillary protrusion frequencies of the study subjects. The majority of study subjects had bimaxillary protrusion Angle class I malocclusion, namely 22 people (62.9%), while only 13 respondents (37.1%) had no bimaxillary protrusion malocclusion. The results of this study indicate that the prevalence of bimaxillary protrusion abnormalities in the Malay ethnicity is quite high, namely 62.9%.

Table 2. Distribution of bimaxillary protrusion frequencies.

Bimaxillary protrusion	N	%
Yes	22	62,9
No	13	37,1
Total	35	100,0

4. Discussion

Malocclusion is the third most important oral health problem because it has the third highest prevalence after caries and periodontal disease. Bimaxillary protrusion malocclusion is one of the most common types of Angle class I malocclusion. The characteristics of this malocclusion are characterized by the presence of protruded maxillary and mandibular incisors accompanied by a convex facial profile. Class I malocclusion is a form of malocclusion with the highest prevalence based on race and age.[11-13]

The results of this study differ from previous studies, which stated that only 48% of Batak adolescents had malocclusion crowding. From the results of this study, it appears that most of the Batak high school student samples did not experience malocclusion. The results of this study are in line with research, which states that female respondents experience more bimaxillary protrusion malocclusion than males. The results of this study were also supported by other studies, which stated that women experienced more bimaxillary protrusion malocclusion with a percentage of 57.4% compared to only 42.6% of men.[14,15]

However, the results of this study are different from studies that show that the percentage of class I malocclusions is more experienced by male samples than females. Likewise, research states that the percentage of malocclusion in women in class I is lower when compared to malocclusion in men. The results of this study are also different from the theory, which states that women pay more attention to their appearance when socializing, while men are indifferent or pay less attention to their appearance. The more mature a person is, the more awareness of maintaining health and also appearance when socializing will increase.[16-18]

5. Conclusion

The prevalence of bimaxillary protrusion disorders in ethnic Malay is 62.9%.

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