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by Acing Habibie Mude

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Prevalence and Severity of the Temporomandibular Disorder among Senior High School Students in Indonesia

Acing Habibie Mude[1*], Muhammad Ikbal[1], Irfan Dammar[1], Muhammad Irfan Rasul[2], Mila Febriany[3]

[1]Department of Prosthodontic, Faculty of Dentistry, Hasanuddin University, Makassar, Indonesia
[2]Department of Oral and Maxillofacial Surgery, Faculty of Dentistry, Hasanuddin University, Makassar, Indonesia.
[3]Department of Pediatric Dentistry, Faculty of Dentistry, Muslim University of Indonesia, Makassar, Indonesia
Corresponding Author: acinghabibie@unhas.ac.id

ABSTRACT
To investigate the prevalence of temporomandibular disorders (TMDs) and oral behavioral activity among students of Senior High School in Bone regency Indonesia. A total of 717 (450 female and 267 male) students of the Five Senior High School Bone regency have participated in this study. A questionnaire-based Fonseca Index was adopted to identify the severity of temporomandibular disorders. TMDs are classified with mild, moderate, and severe related to the final scores. Oral behavior activity was checked by using a questionnaire from RDC-TMD. According to the Fonseca Index, 75.2% of students are suffering from TMD in various stages. For females, 66.2% were mild, 12.0% moderate, and 1.1% severe, and for males, 55.8% were mild, 11.2% moderate, and 1.1% severe. A high number of TMD were found in Senior High School students, and the female was more dominant for TMD than the male students.

Keywords: Fonseca index, Prevalence, Oral behavior activity, Temporomandibular disorder.

Correspondence:
Acing Habibie Mude
[1]Department of Prosthodontic, Faculty of Dentistry, Hasanuddin University, Makassar, Indonesia.
Corresponding Author: acinghabibie@unhas.ac.id

INTRODUCTION

Temporomandibular disorders (TMD) syndrome is an umbrella term for clinical findings and symptoms that affect temporomandibular joint and masticatory muscles. American Dental Association (ADA) defined TMD as a group of orofacial disorders characterized by pain in the preauricular area, temporomandibular joint, or muscles of mastication, limitation of mouth movement, and joint sound during jaw function[1]. The etiology of TMDs has been referred to multiple factors, including traumatic injury, emotional stress, occlusal interferences, loss of teeth, postural changes, the problem in the masticatory muscle, pathological changes in TMJ structure, a parafunctional habit for example tooth clenching and bruxism.[2-5]

The prevalence of TMDs in the general population reported by several studies is high. Okeson found several 40%-60% [6]. A study in America reported 87% of subjects had at least one or more TMD symptoms [7]. Study in Brazil 33.2%[8]. The variability in the survey published may be attributed to differences in the race of the population, sampling design and criteria, as well as the methods used for collecting data.

To analyze TMD's epidemiological status, some of the previous studies used the questionnaire of the Fonseca Index and Research Diagnostic Criteria of TMD (RDC/TMD). However, in a large number of samples, the Fonseca Index is much more straightforward to use[9].

This study aimed to investigate the prevalence of TMD by using the Fonseca questionnaire in the five senior high school students in Bone regency Indonesia.

MATERIAL AND METHOD

The study sample came from those officially registered as students in 5th high school students in Bone Regency, South-Sulawesi province Indonesia. A total population of 717 students which were 450 (aged ± SD, 15.8 ± 0.9 years) female and 267 (aged ± SD, 16.2 ± 1.0 years) male participated in this study. Questionnaires of Fonseca index consist of ten questions were adopted to identify TMD conditions in all subjects. TMD severity classified into without dysfunction, score 0-15; light dysfunction score 20-40; moderate dysfunction score 45-65; and severe score 70-100. All subjects were explained the sentences of the form then fill the questionnaire truly. Data was collected and processed by using Microsoft excel 2013.

RESULTS

The present study was conducted in 5th Senior High School Bone regency, South-Sulawesi province Indonesia. All students, which include 1st to 3rd-year grade, have participated in this study. The questionnaire adopted in this study was Fonseca Questionnaire.

Based on questionnaire findings, a high number of TMD are found in the student population. The number of students with TMD is three times higher than a student without TMD. This result can be seen in Figure 1.

Figure 2 shows the degree of TMD status among students and differentiate it based on gender. It is seen that mild states were commonly found in both genders, followed by moderate and severe conditions. This finding may alert the student and dentist about the TMD risk among teenagers.

Most subjects are not aware of their night oral behavior. It clearly shown in table 1; the small value of bruxism may indicate that subjects are not familiar with their habit.

Chewing gum, snacking, chewing one side, and resting chin in hand is the activity the most frequently conducted by the subjects during awake (table 2). Grinding teeth during awake are rare according to information from the subjects.

DISCUSSION

As our limited knowledge, this is a Fonseca's study, might be the first study investigating TMD symptoms in teenagers or adolescence in Indonesia. It has characteristics of multidimensional evaluation, which have ten-question regarding TMD pain[10]. We hope this study may enrich TMD data in future research.

In the present study, we found a high number of TMD students, which reach 75.2% of students with TMD. This finding was quietly top with other reported studies. Epidemiology from Riyadh said that 46.8% of students experienced TMD[9]. Another investigator stated that 42-68% prevalence TMD[11]. The high number of TMD in

Indonesia may alert the clinician that this topic needs attention.

Females are more predominant in experiencing TMD and male. Most of the previous studies reported similar finding.[10,11] The psychological factor is suggested to correlate with TMD[12]; females have a high tendency to have anxiety or depression than males. This reason may be an answer highly prevalent in males than in females.

This study has a limitation as a questionnaire methodology; a subjective perspective may arise from respondents. However, we have tried to explain all questions more clearly so that respondents may understand it well.

CONCLUSION

According to the questionnaire result, our study concludes a high number of TMD in Five Senior High School of Bone regency Indonesia; we also reported that females were more frequent for TMD risk than males.

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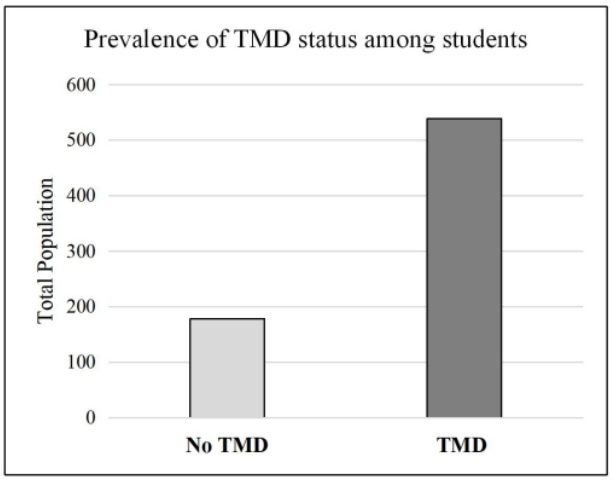

Figure 1. Prevalence of TMD and non-TMD students

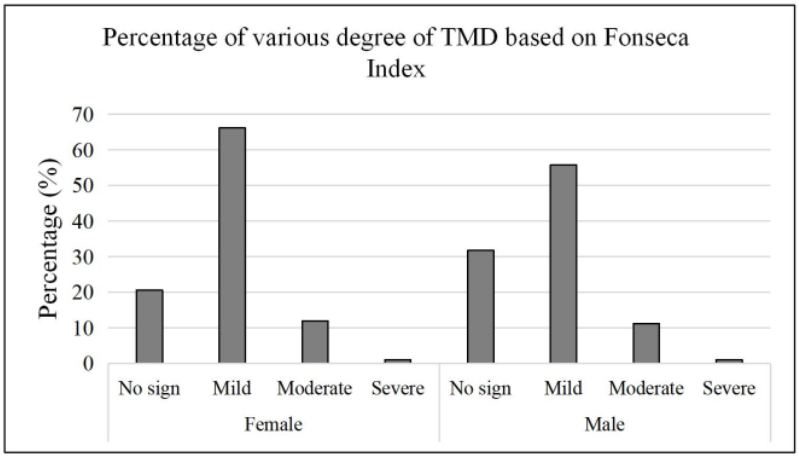

Figure 2. Various degree of TMD according to the Fonseca questionnaire

Table 1. Oral behavior activity during sleep

Activity during sleep hours	Gender		n	%
Bruxism	Male	Yes	19	7.1
		No	248	92.9
	Female	Yes	23	5.1
		No	426	94.7
Sleep position	Male	Yes	198	74.2
		No	69	25.8
	Female	Yes	351	78.0
		No	98	21.8

Table 2. Oral behavior activity during awake

Activity	Gender		n	%
Grinding	Male	Yes	97	36.3
		No	170	63.7
	Female	Yes	104	23.1
		No	345	76.7
Clenching	Male	Yes	177	66.3
		No	90	33.7
	Female	Yes	309	68.7
		No	140	31.1
Press tongue against teeth	Male	Yes	179	67.0
		No	88	33.0
	Female	Yes	338	75.1
		No	111	24.7
Place tongue between teeth	Male	Yes	168	62.9
		No	99	37.1
	Female	Yes	323	71.8
		No	126	28.0
Bite objects (pencils, pen, fingers)	Male	Yes	190	71.2
		No	79	29.6
	Female	Yes	365	81.1
		No	84	18.7
Chewing gum	Male	Yes	249	93.3
		No	18	6.7
	Female	Yes	419	93.1
		No	30	6.7
Resting the chin in the hand	Male	Yes	223	83.5
		No	44	16.5
	Female	Yes	427	94.9
		No	22	4.9
Chew on one side only	Male	Yes	225	84.3
		No	42	15.7
	Female	Yes	421	93.6
		No	28	6.2
Snacking	Male	Yes	241	90.3
		No	26	9.7
	Female	Yes	414	92.0
		No	36	8.0
Yawning	Male	Yes	238	89.1
		No	29	10.9
	Female	Yes	422	93.8
		No	27	6.0

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