

Psychosocial Impact of Malocclusion among Adolescents

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Abstract: Introduction: Adolescence is a transitional period into adulthood from childhood. During the time of growth and development, adolescents will often be facing an oral health problem. One of the problems encountered by them will be a malocclusion. Malocclusion is defined as an occlusion which deviates from the standard categorized as normal. Malocclusion may be caused setbacks to the person which will affect the psychosocial condition of the adolescents. Methods: The aim of this research is to determine the effect of malocclusion towards the psychosocial condition based on Aesthetic Component and PIDAQ among senior high school adolescents. Chi-square test was used in this research. This is descriptive analytics research. The population of this research was the student's senior high school with a total of 963 people who were then selected by simple random sampling method. The sample size of the research is 100 people. Conclusion: This shows that no effect was found between malocclusion and psychosocial condition among adolescents.

1 INTRODUCTION

Adolescence is a transitional period into adulthood from childhood. During the time of growth and development, adolescents will often be facing oral health problem such as malocclusion. (Wagiran et al., 2014; Laguhi et al., 2014) Malocclusion is defined as an occlusion which deviates from the standard categorized as normal. A normal occlusion is defined when the tooth arrangement in the arch is well organized and there is a harmonious relationship between the upper and lower teeth.

Malocclusion is not a disease but if left untreated will cause disruption in the mastication, ingestion, speech and facial symmetry resulting in both physical and mental disorders. (Laguhi et al., 2014). Malocclusion is not a disease secondary to microorganism, bacteria, and virus but a disharmonious relationship between upper and lower arch or an irregular dental arch arrangement. Malocclusion happened due to skeletal factor, a genetic factor that includes facial type, racial influence, growth and development patterns, and habits. (Wagiran et al., 2014)

Based on the national basic health report (Riskesdas) in the year 2013, as much as 14 provinces were facing oral health problems which make up 25.4%. The prevalence of malocclusion in Indonesia

is still high which is around 80% of the total population, therefore can be classified as a major oral health problem. This is aggravated by the low awareness towards the dental treatment and bad oral habits such as thumb sucking because the number and severity of malocclusion will increase therefore it must be prevented or handle. The research about malocclusion helps in orthodontic treatment planning and also evaluating health services. (Laguhi et al., 2014).

Malocclusion can be caused disturbance for the patients. From the psychic aspect, malocclusion can affect esthetics, causing low self-esteem and low satisfaction towards facial appearance. In the individual facing malocclusion, bad impression and negative reactions from the patients which can affect the self-esteem of the patients. (Wagiran et al., 2014)

Based on the research conducted by Kustiawan (2003), non-attractive facial appearance has a negative impact towards the individual psychological development, especially during the adolescents period. (Wagiran et al., 2014)

Based on the results by Dewi (2008) regarding the relationships between the gender and quality of life shows that there is a significant relationship between gender and psychic discomfort, inability in terms of psychic and social. Female adolescents complain more frequently compared to male ($p < 0.05$). This is

mainly due to the females which are more sensitive to the changes in life, especially towards the esthetic problems. (Dewi, 2007). In the research done by Anosike et al also stated that there is a significant difference between malocclusion and quality of life based on gender. In their research showed that the males were showing more attention about themselves (22.3%), lower psychological condition towards the malocclusion happened (17%) and more embarrassed by their oral cavity (18.7%).⁵

Based on the research by (De Paula et al., 2009) regarding the *Psychosocial Impact of Dental Esthetics on Quality of Life in Adolescents* from 301 adolescents with age ranged from 13 to 20 years old from the public school in the city of Goiania, Brazil, can be concluded that oral health condition not only affecting the oral functions and appearance only but also affecting from the psychology point of view. The results of the research proved that there is a verbal defect in the oral health problem which is the decline in social interaction due to oral health is reported by 88% of the adolescents, 98.3% of the total subjects showed a few stages of psychosocial effects and 72% from the samples showed dissatisfaction with a few parts of the body. (Deswita et al., 2013). The research conducted by (Paula DF et al., 2011) showed that PIDAQ score was the highest in the subjects with high *Dental Aesthetic Index* (DAI) score, high smile line and unsatisfactory with the appearance of the teeth.⁷

In the research by (Bellot - Arcis et al., 2015) on the adolescents aged 12-15 years old showed that average total PIDAQ score was 32.2, with average DSC (*Dental Self-Confidence*) score of 11.3, average SI (*Social Impact*) score of 6.1, average PI (*Psychological Impact*) score of 5.9, average AC (*Aesthetic Concern*) score of 7.44. The highest PIDAQ score was found in the subjects with large overjet dan overbite, the disturbed eruption of the tooth, and *displacement teeth*. The results also showed that there is no difference in PIDAQ score between the male and female besides that PI score where the females have higher score compared to the males. Therefore, they concluded that the higher the severity of malocclusion in an individual, the higher the effect towards the psychosocial status. (Bellot - Arcis et al., 2015)

Based on the description above, malocclusion can affect the psychosocial condition of the adolescents, therefore the author is interested in determining the effect of malocclusion towards the psychosocial condition based on the *Aesthetic Component* and PIDAQ among the senior high school adolescents in SMAN 14 Medan.

2 METHODS

This is descriptive analytical research with cross-sectional design. Examination of malocclusion and psychosocial condition was done on the senior high school adolescents in SMAN 14 Medan. The total sample was 100 people consists of 50 males and 50 females. Criteria of the sample in this research include full permanent dentition except for the third molar, having malocclusion, none or having orthodontic treatment, no history of trauma in the face and neck, no congenital disorder and compliance to become respondents. Simple random sampling method was used in obtaining samples.

This research was done by taking intraoral photometry. First, cheek retractor was put on in the mouth of the samples, then the patient was instructed to gulp to achieve centric occlusion. Then a digital camera was used to capture photos. Then the photo is printed in 3R size on photo print paper with the measurement of 7.5cm x 10.5 cm. The photo is measured in accordance with the Aesthetic Component (AC) scale. Then the author gives a brief explanation to the subjects which fulfilled the inclusion criteria about the procedures in filling the questionnaire. Then the adolescents who were chosen to be the subjects will fill the questionnaire on the data sheet. Then, the author will begin the data collection of the questionnaire. Analysis of the questionnaire data will be done using the SPSS program. The data collected will be presented in the table form with the results presented in number form.

3 RESULTS

Table 1: Frequency Sample Distribution based on Gender

Gender	Frequency (n)	Percentage (%)
Male	50	50 %
Female	50	50 %
Total	100	100%

Table 1 shows total samples of 100 people where 50 people (50%) were males whereas 50 people (50%) were females.

Table 2: Frequency Sample Distribution of Orthodontic Treatment Needs to be based on AC

Orthodontic Treatment Needs	Frequency (n)	Percentage (%)
No Need	75	75%
Moderate Need	2	2%
Great Need	23	23%
Total	100	100%

Table 2 above shows the distribution of samples in which orthodontic treatment need was measured based on AC. The samples with no need of Orthodontic Treatment consists of 75 people (75%), the moderate need of Orthodontic Treatment consists of 2 people (2%) and great need of Orthodontic Treatment consists of 23 people (23%).

Table 3: Frequency Sample Distribution of Orthodontic Treatment Needs To be Based on AC in Different Genders

Orthodontic Treatment Needs	Gender	
	Male	Female
No Need	34	41
Moderate Need	1	1
Great Need	15	8
Total (%)	50 %	50 %

Table 3 shows the distribution of a sample of Orthodontic Treatment Needs to be based on AC in different genders. Samples which possesses no need of Orthodontic Treatment among the males consists of 34 people (34%) whereas among the females consists of 41 people (41%), in moderate need of Orthodontic Treatment among the males and females were the same which consists of 1 people each (1%), and in great need of Orthodontic Treatment among the males were 15 people (15%) whereas among the females were 8 people (8%).

Table 4: Average PIDAQ score among the senior high school adolescents SMAN 14 Medan based on Gender

Average PIDAQ Score	Gender		Total Average PIDAQ Score
	Male	Female	
Dental Self-Confidence (DSC)	10,54	12,10	11,32
Social Impact (SI)	8,60	8,56	8,58
Psychological Impact (PI)	9,40	9,90	9,65
Aesthetic Concern (AC)	2,58	1,98	2,28
Total	31,12	32,54	31,83

Table 4 above shows that average PIDAQ score among the adolescents of both genders in SMAN 14 Medan with Orthodontic Treatment Needs to be based on AC. The average score of Orthodontic Treatment Needs to be based on AC among the senior high school adolescents in SMAN 14 Medan were DSC 11.32; SI 8.58; PI 9.65; and AC 2.28. The average total score of DSC in the males was 10.54 whereas the females were 12.10. The average total score of SI in the males was 8.60 whereas the females were 8.56. The average total score of PI in the males was 9.40 whereas the females were 9.90. The average total score of AC in the male was 2.58 whereas the females were 1.98.

Table 5: Psychosocial condition with Orthodontic Treatment Needs to be based on AC among the senior high school adolescents in SMAN 14 Medan based in Different Genders.

Psychosocial Condition of Adolescents	Gender		Total (%)
	Male	Female	
Good	28	22	50 %
Moderate	19	28	47 %
Bad	3	0	3 %
Total			100%

Table 5 above shows that the psychosocial condition of adolescents in SMAN 14 with Orthodontic Treatment Needs to be based on AC in different genders. From 100 samples, there were 50 people (50%) having good psychosocial status, 47 people (47%) having moderate psychosocial status and 3 people (3%) having bad psychosocial status. Total samples having good psychosocial condition among the males were 28 people (28%) whereas among the females were 22 people (22%). Total samples having moderate psychosocial condition among the males were 19 people (19%) whereas among the females were 28 people (28%). Total samples having bad psychosocial condition among the males were 3 people (3%) whereas none among the females.

Table 6: Frequency Sample Distribution with Orthodontic Treatment Needs to be based on Ac and Psychosocial Condition based on PIDAQ among the adolescents in SMAN 14 Medan in Different Genders

Orthodontic Treatment Needs	Psychosocial Condition					
	Good		Moderate		Bad	
	Male	Female	Male	Female	Male	Female
Mild	18	20	13	21	3	0
Moderate	1	0	0	1	0	0
Great	9	2	6	6	0	0
Total	28 (28%)	22 (22%)	19 (19%)	28 (28%)	3 (3%)	0 (0%)
	50%		47%		3%	
	100%					

Table 6 above shows that the distribution of samples in which the Orthodontic Treatment Needs to be based on AC with the psychological condition based on genders. From the 50 adolescents having good psychosocial status, 28 people (28%) were males whereas 22 people (22%) were females. From the 47 adolescents having a moderate psychosocial status, 19 people (19%) were males whereas 28 people (28%) were females. From the 3 adolescents having the bad psychosocial status, 3 people (3%) were males and none were females (0%).

Table 7: Effect of Malocclusion towards the Psychosocial Condition among the senior high school adolescents in SMAN 14 Medan.

Orthodontic Treatment Needs	Psychosocial Condition						Analysis Test
	Good		Moderate		Bad		
	Male	Female	Male	Female	Male	Female	
No Need	18	20	13	21	3	0	0,877
Moderate Need	1	0	0	1	0	0	
Great Need	9	2	6	6	0	0	
Total	28 (28%)	22 (22%)	19 (19%)	28 (28%)	3 (3%)	0 (0%)	
	50%		47%		3%		
	100%						

Table 7 above shows that results from the Chi-Square test, p coefficient of 0.877 were obtained, where $p < 0.05$, therefore, H_0 was accepted. Based on the statistical analysis, it can be concluded that there is no

effect on the analytical variables. This showed that there is no effect between malocclusion towards psychosocial condition among the senior high school adolescents in SMAN 14 Medan.

4 DISCUSSION

Psychosocial condition of 100 subjects with a level of orthodontic treatment needs based on AC were 50 samples having the good psychosocial condition, 47 samples having the moderate psychosocial condition, and 3 samples having the bad psychosocial condition, it can be seen in Table 5. The results of this study are proportional to the results of the study from Sambeta on 50 students of SMAN 1 Luwuk, where the good psychosocial condition were 23 people, the moderate psychosocial condition were 23 people, and 4 people having the poor psychosocial condition (Sambeta et al., 2016). The results of this study are also supported by the results of research by Puspitasari on 96 students from FEB University of Muhammadiyah Surakarta with age ranged from 20-25 years, where 47 people having the good psychosocial condition, 46 people having the moderate psychosocial condition, and 3 people having a bad psychosocial condition. (Puspitasari, 2014). The results from this research are slightly different from the results of the research by Liling DT on 214 junior high school students in Makassar, where 94 people having good psychosocial status, 55 patients having moderate psychosocial status and 65 people having poor psychosocial status. (Liling, 2013). This difference may be due to the differences in sample size and population and age of the samples between both of the studies.

The level of orthodontic treatment needs to be based on AC grouped with psychosocial conditions in adolescents SMAN 14 Medan. The sample distribution measured by the level of orthodontic treatment needs to be based on AC with the psychosocial conditions based on sex can be seen in Table 6. From the 50 students with good psychosocial status, 28 people were male (28%) and 22 people were female (22%). From the 47 students with moderate psychosocial status, 19 were male (19%) and 28 were females (28%). From the 3 students with poor psychosocial status, 3 were male (3%) and none were females (0%).

Levels of orthodontic treatment needs based on AC were then associated with psychosocial conditions among the senior high school adolescents SMAN 14 Medan, can be seen in Table 7. Based on the statistical chi-square test, there is no effect of malocclusion towards psychosocial condition among

the senior high school adolescents in SMAN 14 Medan. The subjects from this study who had poor psychosocial status were only 3% compared with those with good and moderate psychosocial status with a percentage of 50% and 47% respectively. The results of this study is supported by the research of De Paula et al on 301 adolescent samples with the age ranged from 13 to 20 years in which they found that despite the dissatisfaction with dental appearance was strongly related to the severity of the tooth structure, it was not uncommon to find some patients with severe malocclusion, feeling satisfied with their dental aesthetic.(De Paula et al., 2009)

The authors 'opinion on the phenomenon is due to the lacking of students' knowledge and awareness in SMAN 14 about malocclusion, thus affecting their subjective perception of malocclusions. This situation is also influenced by other factors such as the location of the school and the economic conditions of the study subjects. This is seen in some respondents with a moderate and great orthodontic treatment needs to consider their teeth to be more attractive than not having any treatment. This opinion is in line with Dewi's research on 413 students in Medan and found that 82.6% of the respondents studied were confident that their teeth arrangement were in the good category.(Dewi,2007)

5 CONCLUSION

Ap coefficient of 0.877 was obtained from the test results, therefore it can be concluded that the H0 was accepted. This shows that no effect was found between malocclusion and psychosocial condition among the senior high school adolescents in SMAN 14 Medan.

COMPETING INTEREST

There is no conflict of interest.

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