



## Dental Malocclusion Impact On Self-Esteem Levels Among Teenagers

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**Abstract:** In recent years, there has been an upsurge in research on the quality of life-related to dental health since this indicator gauges an individual's sense of well-being. Orthodontic treatments have significantly helped improve oral health-related quality of life. The impact of malocclusion on quality of life is substantial, with low self-esteem. Teenagers, particularly those still developing, are often concerned about their appearance and level of confidence. The study is aimed to determine the impact of dental malocclusion on self-esteem levels among teenagers attending a private dental college in Jeddah. A questionnaire was used to obtain the data. Nearly 75% of females and 25% of males consider oral health an integral part of general health and visit the dentist regularly. 70.5% of females, compared to 29.5% of males, think they need orthodontic treatment. The females responded that straight teeth make them popular (66.3%) and successful (60.1%). The potential effects of dental malocclusion and its correction on adolescents' general quality of life should also be considered. While orthodontic treatment can improve physical appearance and self-esteem, it may also cause discomfort, pain, and financial strain. Future research might explore the potential advantages and disadvantages of orthodontic treatment for adolescents to guide professional practice and patient decision-making better. Most female participants in the survey believed that orthodontic treatment was vital since having straight teeth contributed to one's success and popularity. To avoid being taunted about their teeth, the respondents believed they needed to straighten them.

**Keywords:** Dental Malocclusion, Self-esteem, Teenagers, Adolescents, Jeddah

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## 1. INTRODUCTION

Malocclusion is a term used to describe a deviation from the ideal occlusion; it is not an illness in and of itself. A correlation has been achieved between the necessity for treatment and the severity of malocclusion.<sup>1,2</sup> Numerous studies have examined how malocclusion affects social relationships, self-perception, and psychosocial well-being. Research findings on the question of whether or not malocclusion has any observable detrimental effects on long-term social and psychological well-being vary. Instead of being a result of malocclusion, it has been theorized that self-esteem may mediate how people react to it.<sup>3</sup> Orthodontic treatments have significantly helped improve oral health-related quality of life (OHRQoL). The impact of malocclusion on quality of life is substantial, with low self-esteem.<sup>4</sup> The idea of self-esteem is widely prevalent nowadays. People typically think that achievement demands a strong level of self-esteem in contexts like the classroom, the workplace, and social situations. For instance, a teacher's expectations and assessment of the student may be influenced by the teacher's opinion of the student's appearance.<sup>5</sup> Many people think that strengthening and preventing low self-esteem are crucial societal objectives to receive immediate attention.<sup>6,7</sup> It is also believed that oral health significantly impacts people's general health and well-being. Adolescent patients' oral health is acknowledged to have special requirements because of their association with high caries incidence, elevated risk of traumatic injury, heightened desire and regard for beauty, and exclusive social and psychological needs.<sup>8</sup> Social perceptions triggered by dental appearance may impact how kids relate to one another and develop emotionally and socially. It has been found that people with appealing dentofacial features are nicer, more engaging, more successful, and more socially adept. Contrarily, deviation from the norm can lead to stigmatization, and studies have identified a strong connection between victimization, malocclusion, and quality of life.<sup>9</sup> According to Agou et al., malocclusion significantly negatively influences quality of life and lowers self-esteem in children aged 11 to 14.<sup>10</sup> Teenagers, particularly those still developing, frequently worry about their physical appearance and self-confidence. Due to the psychological nature of self-esteem, even common dental conditions, including dental trauma, tooth loss, and untreated carious lesions, can have a detrimental effect on self-esteem and consequently worse quality of life.<sup>11</sup> The link between self-esteem and malocclusion or orthodontic treatment has yet to be established, and the results still need to be consistent throughout the literature, even though these associations are widely believed and known. The conclusions reached by Dann et al. and O'Brien et al. show this variation in consensus. However, Dann et al. showed a small rise in self-image during Class II therapy with an activator; the effects after orthodontic treatment were considered inconsequential. However, after using a Twin-block device to treat Class II Division I malocclusion, O'Brien et al. found that patients' self-concept and self-esteem significantly improved.<sup>12,13</sup> This Our study will investigate the relationship between malocclusion and teens' self-esteem because adolescence is a foundation for prospects. The study aims to determine the impact of dental Malocclusion on the self-esteem levels among teenagers attending a private dental school clinic in Jeddah.

## 2. MATERIALS AND METHODS

### 2.1 Type of study and location

The analytical study was conducted in a private dental school clinic in Saudi Arabia, the Makkah region. The study was completed over 4 months.

### 2.2 Sample size

The sampling was a convenience sample of patients from Ibn Sina Dental Hospital clinics. Using the Raosoft online sample size calculator, the sample size was estimated. (Margin of error 5 percent, Confidence level as 95 percent, considering the population size 20000 and response distribution as 50 percent). The data was collected from more respondents so that if any form needed to be filled properly, it would be discarded. The final sample of respondents was 500.

### 2.3 Study instruments and variables

#### 2.3.1 Self-reported instrument: Questionnaire

The questionnaire has been adapted from various related articles by De Baets et al.,<sup>4</sup> Kaur et al.<sup>8</sup> and Aghou et al.<sup>10</sup>. The questionnaire had 9 questions and 7 questions that have a three-point Likert scale and 2 questions based on the dichotomous response of yes and no from respondents. The questionnaire was distributed among 13 to 19 years old teenagers who had visited Ibn Sina National College Dental clinics. All the study participants who voluntarily consented to the study within the age of 13 to 19 years were included. Within the age group, the patients who attended the dental clinics and did not consent to the study were excluded. The method of collecting data was using a questionnaire.

#### 2.3.2 Measurement reliability

The reliability of the questionnaire was calculated using the kappa value, which was 0.96. Until the study's sample size was attained, all patients who went to dental clinics and fit within the selected age range and gave their consent were included.

### 2.4 Inclusion and exclusion criteria

The study's inclusion criteria were all respondents aged 13-19 years who had consented before responding to the survey questionnaire. The dental school clinic attendees who did not consent to the study were excluded.

### 2.5 Ethical statement

Ethical approval was taken for the study from the ethical committee of Ibn Sina National College for Medical Studies. The approval number is H-19102020. All the survey participants had given written consent after a detailed explanation of the study was explained to the participants.

## 3. DATA ANALYSIS

The statistical analysis was conducted using the IBM SPSS version 22. The numbers and percentages were calculated, and the chi-square test was used to see whether there was an association between the dependent and independent variables. A probability value of less than 0.05 was considered statistically significant.

#### 4. RESULTS

The study respondents are males, 25%, and females, 75%. The mean age of the participants is 17. The level of education is

above high school among 64%. The total number of respondents to the study is 517. Demographic characteristics are detailed in Table 1.

Demographic variables	Number (%)
<b>Gender</b>	
Male	128(25%)
Female	389(75%)
<b>Level of education</b>	
Primary school	26 (5%)
Middle school	160 (31%)
Secondary school	331 (64%)

288 out of 517 (55.7%) visited the dentist, and the number of times they visited within 1-6 months was 42%, 6-12 months 49%, and 9% more than 12 months. The reasons for the visit to the dentist were check up by 41%, cleaning the teeth by

28%, replacing teeth by 10%, and only when they had pain at 21%. 40% of the respondents have lost their teeth, and the reasons for the loss are caries among 74%, accidents by 15%, and other reasons 11%.

**Table 2: Percentages of the gender against independent variables on a three-point Likert scale.**

Variable	Gender	Yes %	To some extent %	No %	Chi-square value (p)
Do you think you need orthodontic treatment? *	Male	77 (29.5%)	18 (16.7%)	33 (22.3%)	7.430 (0.024)
	Female	184 (70.5%)	90 (83.3%)	115(77.7%)	
Are you satisfied with the way your teeth look?	Male	74(24.0%)	27(21.3%)	27(32.9%)	3.860 (0.145)
	Female	234(76.0%)	100(78.7%)	55(67.1%)	
Do you think having straight teeth makes you more popular? *	Male	60(33.7%)	22(21.2%)	46(19.6%)	11.769 (0.003)
	Female	118(66.3%)	82(78.8%)	189(80.4%)	
Do you think having straight teeth makes you successful in life? *	Male	59(39.9%)	19(21.8%)	50(17.7%)	26.005 (0.000)
	Female	89(60.1%)	68(78.2%)	232(82.3%)	
Have other people told you that you need to have your teeth straightened? *	Male	77(29.6%)	17(25.4%)	34(17.9%)	8.111(0.017)
	Female	183(70.4%)	50(74.6%)	156(82.1%)	
Have you been teased about your teeth? *	Male	55(36.2%)	12(19.4%)	61(20.1%)	15.105 (0.001)
	Female	97(63.8%)	50(80.6%)	242(79.9%)	
Do you avoid smiling to hide your teeth? *	Male	67(37.4%)	26(23.6%)	35(15.4%)	26.336 (0.000)
	Female	112(62.6%)	84(76.4%)	193(84.6%)	

\*p<0.05

Table 2 describes the percentages of the gender against independent variables on a three-point Likert scale. 70.5% of females, compared to 29.5% of males, think they need orthodontic treatment. The females responded that straight teeth make them popular (66.3%) and successful (60.1%).

Compared to males, 29.6% the females, 70.4% responded that people had been told to have their teeth straightened. Sixty-four percent of females have been teased about their teeth, and nearly the same percentage avoid smiling to hide their teeth.

**Table 3: Percentages of the gender against independent variables with dichotomous options of yes/no.**

Variable	Gender	Yes%	No%	Chi-square value (p)
Do you consider oral health to be a part of general health?	Male	112(24.5%)	16(27.1%)	0.199 (0.655)
	Female	346(75.5%)	43(72.9%)	
Do you visit the dental office regularly?	Male	68(23.6%)	60(26.2%)	0.459 (0.498)
	Female	220(76.4%)	169(73.8%)	

Table 3 describes the percentages of the gender against independent variables with dichotomous options of yes/no. Nearly 75% of females and 25% of males consider oral health an integral part of general health and visit the dentist regularly.

perceived oral aesthetics as measured by a questionnaire. Research utilizing the measure of aesthetic perception of adolescents by Kaur et al. in 2017 revealed that participants' views of dental malocclusion did significantly accord with their self-esteem. The study revealed that association between self-esteem and self-perceived aesthetics which would lead to being popular and successful.<sup>8</sup> According to Rosenberg M., in 2015, adolescence is a very important stage of life. It is necessary to recognize the numerous risk factors that impact

#### 5. DISCUSSION

The current study's findings revealed a link between the adolescents' self-perceived need for treatment and self-

self-esteem so that early intervention can aid in the growth of healthy adulthood.<sup>14</sup> Our research supports a 2010 study by Badran SA, whose findings indicated a substantial relationship between self-esteem and perceived oral aesthetics. Individuals who saw themselves as 'less attractive' had lower self-esteem than those who viewed themselves as 'attractive'.<sup>15</sup> In investigations on how teenagers view their smiles and dental aesthetics, Akpasa in 2022 and Recabarren in 2023 concluded that both are important variables that affect adolescents' feelings of self-worth in severe malocclusion.<sup>16,17</sup> On the other hand, research by Naseri in 2020 presented that there was a weak correlation between mild malocclusion and dental self-esteem. This implies that self-esteem might be affected by self-perceived aesthetics.<sup>18</sup> Hamdan, in 2012, concluded that perceptions could predict the demand among children for orthodontic treatment in patients with malocclusions (19). So, it is recommended that orthodontic treatment is done as it will help boost the self-esteem of individuals. It is critical to consider the primary justifications for seeking treatment. Adolescents' decisions to have braces may be strongly influenced by factors outside their control, such as their parents' preferences.<sup>15</sup> Similar to the results in our study, a 2019 study by Kaieda et al. found that satisfaction with dental appearance is related to variables such as gender.<sup>20</sup> Additionally, 30% of the teens in their survey expressed dissatisfaction with their dental aesthetics, corresponding to our study's findings. Children in the Ajayi study from 2011 assessed their teeth as being visually pleasing, although there were gender variations in the desire for orthodontic treatment.<sup>21</sup> A 2010 study by Badran found that self-esteem was strongly predicted by unhappiness with dental appearance. The results of the investigations mentioned above concur with those of our own.<sup>15</sup> Qualitative investigations should be carried out to comprehend how adolescents perceive malocclusion and self-esteem fully.<sup>20</sup> It is suggested that oral health promotional activities must be conducted to help adolescents with various coping mechanisms to boost their self-esteem. According to our study by Seehra et al. in 2011 and Size G in 2012, bullied individuals have a higher requirement for orthodontic treatment.<sup>22,23</sup> Bullied children with malocclusion also appear to report significantly lower levels of social competence, athletic competence, physical appearance related to self-esteem, and general self-esteem compared to non-bullied individuals. Within this sample, bullied participants with malocclusion reported significantly higher levels of oral symptoms, functional limitations, emotional and social impact from their oral condition, and overall negative impact on OHRQoL compared to non-bullied participants and a normal sample. Therefore, family and friends must give extra assistance to all the youngsters who have been bullied. Health education initiatives must be implemented to help them develop the necessary psychological fortitude to deal with such circumstances. The relationship between self-esteem, OHRQoL, and malocclusion is complex. In a longitudinal cohort study, there is no apparent association between self-esteem and the presence or absence of treatment for malocclusion. However, a relationship can exist individually, and OHRQoL is a factor that must be researched in depth.<sup>22</sup> The present focus on evidence-based clinical dental practice focuses on the requirement to create and use subjective and

normative metrics that reflect the preferences and viewpoints of practitioners and patients. It might be argued that various malocclusion issues may not necessarily require orthodontic treatment because they may not significantly impact a patient's OHRQoL. This, in turn, relies on the severity of the malocclusion and the individual's psychological makeup. Similar findings were found in our study and Anthony's 2018 study on adolescents' perceptions of malocclusion and how it impacts their oral health.<sup>24</sup> Additionally, malocclusion is a significant factor in their decision to receive orthodontic treatment. The aesthetic dissatisfaction caused by malocclusion seems connected to the requirement for orthodontic treatment. Recognizing the potential influence of parental and cultural pressures on adolescents' decisions to pursue orthodontic treatment is equally crucial. However, it's important to make sure that the decision to pursue orthodontic treatment is made for the right reasons, such as improving oral health and overall well-being, rather than to satisfy societal expectations or concerns about appearance. The potential effects of dental malocclusion and its correction on adolescents' general quality of life should also be considered. While receiving orthodontic treatment can enhance one's physical appearance and sense of self, it can also be painful, uncomfortable, and expensive. Future research may examine the potential benefits and drawbacks of orthodontic treatment for adolescents to direct professional practice and patient decision-making better.

## 6. LIMITATIONS

A drawback of this study is its limited sample size, which prevents generalizing the findings on young people to the overall population.

## 7. CONCLUSION

Most female participants in the survey believed that orthodontic therapy was vital since having straight teeth contributes to one's popularity and success. Because they have experienced dental teasing, the individuals believe they must have their teeth corrected and refrain from smiling.

## 8. AUTHORS CONTRIBUTION STATEMENT

The study's conception and design were the work of Dr. Shiba Roby. Then, from the patients visiting the dental clinics, Dr. Razan Sadaka Alsindi, Dr. Reyam Fouad Alyaqoub, Dr. Esraa Ahmad Alsaidi, and Dr. Fatimah Abdullah Aljizani collected the data. Rasha Abdullah Almaliki finalized the tables for the study's findings. Dr. Shanthi Vanka and Fatima Mohammed Hossain Abul Kasem curated the data and prepared the original draft of the study. Dr. Amit Vanka has overseen the entire research process in all its phases. Dr. Othman Wali provided valuable input in designing the manuscript. Ultimately, all authors read and approved the final version of the manuscript.

## 9. CONFLICT OF INTEREST

Conflict of interest declared none.

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