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A comparison of self-esteem between patients undergoing fixed orthodontic treatment, to those not receiving orthodontic treatment

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Abstract

Objective: Comparison of the self-esteem between patients undergoing fixed orthodonticc treatment in the past 6 months or more, to those not receiving orthodontic treatment or the time passed since the commencement of their treatment has been less than six months. **Materials and methods**: The participants of this study were divided into two groups, group A and group B. The sample size of each group was 75 making the total 150 aged between 16 to 25 years. The malocclusion severity was assessed with the index of orthodontic treatment need aesthetic component (IOTN-AC) which was 6 or more for both groups. Group A involved patients currently receiving no orthodontic treatment or the time elapsed since the start of the treatment was less than 6 months. Group B on the other hand, comprised of patients undergoing orthodontic treatment in the past 6 months or more. Questionnaires were administered among both group A and group B where self-esteem was measured using the Rosenberg Self-esteem (RSE) Scale. Independent Sample T test was applied on both of these variables. **Results**: The results did not show any statistically significant association between self-esteem and "the time elapsed since the start of the treatment". Likewise, the additional factors i.e., Age, Education and Gender too had no impact on the Rosenberg score. **Conclusion**: No association was found between self-esteem of the patients undergoing fixed Orthodontic treatment, to those not receiving it.

Keywords: Orthodontic treatment, Self-esteem, Cross-sectional and prospective study.

INTRODUCTION

Patients centered care is an idea that has been presented currently in health care systems. Among the principle components are the need to understand the patient's treatment needs, satisfaction, experiences and perceived overall quality of health care system [1]. Now a days there is an increase tendency for adult patients to look for orthodontic treatment [2, 2]. Esthetics are significant in individual's lives and facial appearance has an impact on personal attractiveness and confidence since it influences wellbeing and resounds in social, emotional and professional relationships [2].

Self-esteem refers to the evaluative aspect of the self-concept that corresponds to an overall view of the self as worthy or unworthy [4]. Undeniably, over the past number of years researchers have considered it as a powerful predictor of certain outcomes including academic accomplishments, contentment, relationship bliss and behavior. Thus, it can immensely influence all spheres of one's life including the psychological and mental health of the individual [4]. One of the goals of orthodontic treatment is to offer cosmetic benefits and superior dental aesthetics which may have a considerable role in influencing the self-esteem. Self-perception and social background impacts are significant factors which play a vital role on an individual's self-esteem towards malocclusion. A few patients with serious malocclusion are indifferent and satisfied about their esthetics while others with minor abnormalities are a lot worried about their esthetics. That is the subjective and normative need of the individual can vary in terms of orthodontic treatment. Studies on social psychology on the impact of actual appearance on self-concept and social acknowledgment of people have prompted positive discoveries [5]. In view of such discoveries, orthodontics suppose that an esthetic dental appearance would lead to a greater social- wellbeing and self-esteem.

Numerous researches regarding orthodontic treatment need and self-esteem have been conducted before [6, 7]. However, only few researches probe the direct association between the two variables that are

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"orthodontic treatment" and "self-esteem". On study on self-concept changes during orthodontic treatment revealed no lifelong effects on self-esteem.[8] However, another study indicated that a high self-esteem could be associated to orthodontic concern [6]. In order to objectify treatment needs some indices have been evolved. Among these, the Index of Orthodontic Treatment Needs (IOTN) has been suggested by Brook and Shaw 1989 [9] is widely used now a days because of its efficient and practical application. Our study aimed to compare the self-esteem between patients undergoing fixed orthodontic treatment in the past 6 months or more, to those not receiving orthodontic treatment or the time passed since the commencement of their treatment has been less than six months.

MATERIALS AND METHODS

The participants of this cross-sectional and prospective study were divided into two groups, group A and group B. The sample size of each group was 75 making the total 150 aged between 16 to 25 years. The malocclusion severity was assessed with the index of orthodontic treatment need aesthetic component (IOTN-AC). All the patients chosen were from the Department of Orthodontics of Islamic International Dental Hospital, Islamabad (IIDH).

The inclusion criteria of group A comprised of the patients having IOTN aesthetic component (IOTN-AC) of 6 or more. Moreover, group A involved patients currently receiving no orthodontic treatment or the time elapsed since the start of the treatment was less than 6 months. The exclusion criteria included the patients having IOTN aesthetic component (IOTN-AC) of less than 6 and the patients in whom the time elapsed since the beginning of the treatment was more than 6 months.

Group B on the other hand, comprised of patients undergoing orthodontic treatment. Inclusion criteria in group B included patients receiving orthodontic treatment in the past 6 months or more. Also, their IOTN aesthetic component (IOTN-AC) was 6 or more as similar to Group A. Exclusion criteria comprised of patients receiving orthodontic treatment since less than 6 months and IOTN-AC of less than 6.

Questionnaires were administered among both group A and group B where self-esteem was measured using the Rosenberg Self-esteem (RSE) scale.

Statement	Strongly Agree	Agree	Disagree	Strongly Disagree
1. On the whole, I am satisfied with myself.				
2. At times I think I am no good at all.				
3. I feel that I have a number of good qualities.				
4. I am able to do things as well as most other people.				
5. I feel I do not have much to be proud of.				
6. I certainly feel useless at times.				
7. I feel that I'm a person of worth, at least on an equal plane with others.				
8. I wish I could have more respect for myself.				
9. All in all, I am inclined to feel that I am a failure.				
10. I take a positive attitude toward myself.				

The score calculated using Rosenberg SES corresponded to the self-esteem of each subject. The data collected from both the groups was incorporated into SPSS software version 23 and thereby analyzed. The main study variables were "time elapsed since the start of the treatment" and "Rosenberg Score". Independent Sample T test was applied on both of these variables. Additional variables on which this test was applied included Age, Education and Gender. The variable that remained constant was "Rosenberg score". Furthermore, the frequency of Age, Education, Gender, Time elapsed and all the questions of the Rosenberg SES was calculated separately.

RESULTS

Time elapsed since the start of the treatment" had no effect on the "Rosenberg score". Likewise, the additional factors i.e. Age, Education and Gender too had no impact on the Rosenberg score. T test was applied on only two groups of "Rosenberg score" i.e. 21-30 and 31-40 as only negligible number of subjects (0.7%) scored in the group 11-20 and none fell under the category of group 0-10. (table 1,2)

Table 1: showing means and Rosenberg score according to demographics.

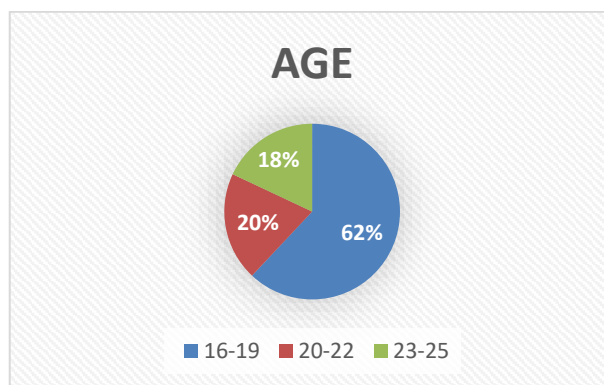| Column1	Rosenberg score	N	Mean
IOTN	21-30	86	1
	31-40	62	1
Age	21-30	86	1.5
	31-40	62	1.6
Education	21-30	86	3.1
	31-40	62	3.1
Gender	21-30	86	1.7
	31-40	62	1.7
Time Elapsed since start of treatment	21-30	86	1.5
	31-40	62	1.5

Age

Figure 1: Representing the age of participants

Table 2: Showing responses of the participants

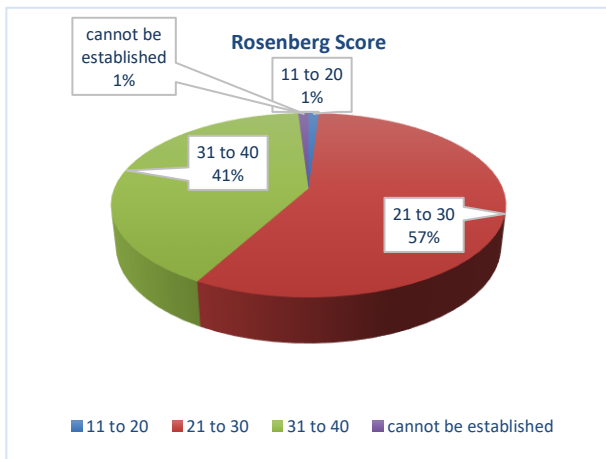|	Strongly Agree(%)	Agree (%)	Disagree %	Strongly disagree %
I am satisfied with myself	30%	66%	4%	
At times I think I am no good at all	3%	27	45	25
I feel I have number of good qualities	29	63	6	2
I am able to do things as well as others	30	61	7	1
I feel I don't have much to be proud of	5	20	56	19
I feel useless at times	4	27	51	18
I feel I have number of good qualities	29	63	6	2
I feel I am a person of worth	27	61	12	
I wish I could have more respect for myself	26	46	25	3
I am inclined to feel that I am a failure		7	62	31
I take a positive attitude to myself	32	56	11	1

Figure 2: Representing Rosenberg score

DISCUSSION

Over the past number of years numerous studies have been conducted to find association between fixed orthodontic treatment and self-esteem [10, 11]. Self-esteem refers to "an individual's sense of his or her value or worth or the extent to which a person values, approves of, appreciates, prizes, or likes him or herself" (Blascovich & Tomaka, 1991) [12]. A number of different scales have been used to measure the self-esteem. However, "Rosenberg Self-esteem scale" (RSES), developed by Dr Morris Rosenberg in late 1960s remains the gold standard for measuring self-esteem and is extensively used in social-science research. It is a ten-item uni-dimensional scale which measures global self-worth by measuring both positive and negative feelings about the self. All the questions are answered with a 4-point Likert scale format starting from strongly agree to strongly disagree [13]. Self-esteem refers to an individual's overall feeling of excellence and acknowledgment. It has become a family word. Teachers, guardians, advisors and others have focused efforts on improving self-esteem, as high self-esteem will cause positive consequences and advantages. Individuals high in self-esteem guarantee to be more likable and alluring, to have better connections, and to establish preferable connections with others over individuals with low confidence [14].

Majority of the participants were of the age group 16-19 (Group 1 in "age") indicating that this age group seeks more orthodontic care in the hospital setting where this study was conducted. The frequency of participants decreased with the increase of age. However, Christopherson EA and Briskie D in their study argued that as the age among the preadolescents (age range: 8-11) increased, the subjects were more inclined towards seeking orthodontic treatment [10].

The frequency of female participants was far higher than the males. Some previous studies also highlight that more females seek orthodontic treatment as compared to males. ChristophersonEA and Briskie D in their study second our findings stating that females wanted orthodontic treatment more than their opposite sex [15]. One of the probable reasons could be that females as par their nature are more aesthetically conscious than males. However, another study concluded that the perceived need had no relationship with the sex of the patient [11].

Our study established that there was no significant relation between gender and Rosenberg score. Nonetheless, Jung MH conducted their study in adolescent population which established that the fixed orthodontic treatment had an impact on self-esteem in adolescent girls [16]. Another finding of our study is that there is no significant association between time elapsed since the start of the treatment and the Rosenberg score. Contrary to our findings, Ama Johal and Iman Alyaqoobi in their article stated that during the initial three months of the ongoing fixed orthodontic therapy, a negative impact on Oral

health related quality of life (including Rosenberg SES) was assessed [17]. Afterwards, it increased to pretreatment scores and post treatment substantial enhancement in the value of self-esteem was seen. Similarly, a research conducted by de Couto Nascimento V et al. demonstrated a rise in self-esteem as the treatment time increased i.e. from T1 (start of treatment) to T2 (after 6 months) [18]. The authors of another study stated that orthodontic treatment (after it lasted 18-24 months) entail to betterment in the self-aesthetic evaluation of adolescent patients contributing in having a positive impact on their mental state [19]. Another study demonstrated that the oral health related quality of life (which included self-esteem corresponding to Rosenberg SES among others) deteriorated as the time of orthodontic treatment elapsed. However, this decrease proved to be temporary as post treatment patients recovered [20]. Deng X and Wang YJ conducted a study which investigated the contribution and changes of adolescent orthodontic patients' psychological well-being attributes from pretreatment to post treatment. A significant rise from pretreatment to post treatment was observed in all 3 Psychosocial Impacts of Dental Aesthetics components (including self-esteem) validating the positive impact of orthodontic treatment on oral health-related quality of life [21].

Limitations and Strength

All The participants of our study had the IOTN score of 6. In future, sample size could be increased with the participants solely of the age group 16-19 and gender female with the wider range of IOTN. In addition, the sample was collected from only one hospital. Data collection from different hospitals across the city can entail to more defined findings.

CONCLUSION

No association was found between self-esteem of the patients undergoing fixed Orthodontic treatment, to those not receiving it.

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