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Research Article

**IMPROVEMENT IN PERSONALITY THROUGH  
ORTHODONTICS TREATMENT**<sup>1</sup>Dr. Rida Fatima, <sup>2</sup>Dr. Samina Alvi, <sup>3</sup>Dr. Musarrat Rauf<sup>1</sup>Armed Forces Institute of Dentistry CMH, Rawalpindi<sup>2</sup>Nishter Institute of Dentistry, Multan<sup>3</sup>Assistant Professor, Community Dentistry, Ayub Medical College Abbottabad**Article Received:** April 2020**Accepted:** May 2020**Published:** June 2020**Abstract:**

**Aim:** The aim of this study was to evaluate and compare the observed changes in body weight of patients receiving fixed orthodontic treatment.

**Place and Duration:** In the orthodontic department of Armed Forces Institute of Dentistry CMH, Rawalpindi for six months duration from September 2019 to February 2020

**Methods:** Measurements were taken at monthly intervals at the beginning of orthodontic treatment and subsequent two-month visits. The study was conducted on patients who gave consent. Pretreatment Weight (W1) of 65 patients was taken before starting the treatment and subsequently (W2 and W3) at the next two intra treatment appointments with an interval of one month.

**Results and Conclusion:** Patients receiving fixed orthodontic treatment showed significant weight changes during treatment in W1, W2 and W3, with weight loss in W2 and an increase in W3 phase level. In total 61.5% of women and 54.6% of men reported diet changes during orthodontic treatment. This indicates that orthodontic treatment can be used to supplement and prevent weight loss.

**Key words:** obesity, weight loss, orthodontic treatment.

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## INTRODUCTION:

Overweight and obesity affect a large proportion of the population in developed and developing countries, and its prevalence has increased in recent years<sup>1-2</sup>. Recent studies have shown that 54.9 percent of adults in the United States and 20 percent of Swedish youth are overweight or obese. In recent years, researchers have started using body mass index (BMI) to measure whether the patient is overweight or underweight. It is calculated by dividing the weight in kilograms by the square of the height in meters:  $\text{weight (kg)} / [\text{height (m)}^2]$ . Overweight is defined as a BMI between 25.0 and 29.9, while obesity is a BMI of 30 or more<sup>3-4</sup>. In fact, obesity has been recognized as an important public health problem and has evidence of its role. High risk for many diseases such as cardiovascular disease, diabetes, cancer, osteoarthritis and gallbladder disease<sup>5-6</sup>. Obesity has been reported to be significantly associated with periodontitis in non-smoking adult women. Many of the psychological problems in obese people, such as anxiety, depression and low self-esteem, seem to be the result and not the cause of the obesity situation<sup>7-8</sup>. Human body weight and fat accumulation are influenced by many interrelated factors, including health, basic metabolism, diet, exercise, hormonal balance, race and heredity. There are several treatments for weight loss, including gastrointestinal bypassing, behavioral therapy, traditional dietary approach, low glycemic index diet and orthodontic jaw wiring<sup>9</sup>.

However, the incidence of obesity is increasing, especially among women in Pakistan. If Indo-Asian BMIs are used as criteria, a quarter of the population of Pakistan is classified as overweight or obesity. Almost all patients undergoing orthodontic treatment experienced discomfort and / or pain when chewing or biting food, which led them to their preferred diet<sup>10</sup>. Given this preview, we designed this study with the assumption that dietary changes in orthodontic patients can cause body weight changes that need to be determined and saved based on the nature of these changes.

**Table 1: Mean Age Of The Sample**

Minimum age	Maximum age	Mean age	Standard deviation
13.0 y	24.0 y	16.77 y	2.88

When asked about diet changes, 12 men (54.5%) and 24 women (61.5%) reported chewing problems and major diet changes during orthodontic treatment. The average sample weight was calculated for three different times W1, W2 and W3, one month apart. The average difference between W1 to W2 weight loss and W2 to W3 weight gain was relatively greater for men than for women, as shown in Figure 2. The average values for W1, W2 and W3 are 57.8 kg SD 8.02, 57, 42 kg SD 7.36 and 57.39 kg SD 7.125. To assess the significance value, the ANOVA statistical test (analysis of variance) was applied to the data. The result was statistically significant at 0.015, as shown in Table 2.

## METHODOLOGY:

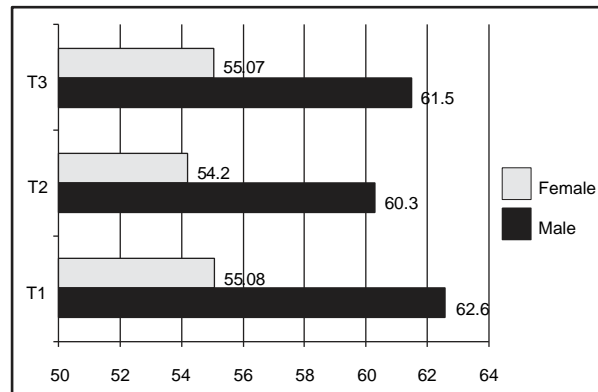
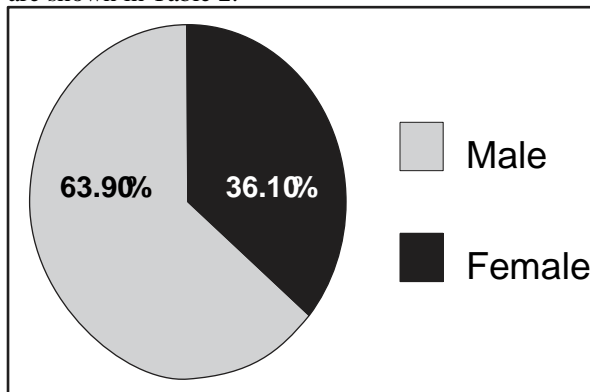
The study was conducted at the orthodontic department Armed Forces Institute of Dentistry CMH, Rawalpindi for six months duration from September 2019 to February 2020. The study included 65 adult patients aged 15–40 who submitted an application for orthodontic treatment. They were analyzed according to the inclusion criteria. Patients with any systemic disease, anxiety and stress were excluded from the study. Patients who received steroid treatment, diet plans, exercise or other medications were also excluded from the study. Two patients joined the gym during treatment, and the other two had to start with anxiolytics, so they were excluded from the study to purify the sample. Finally a total number of 61 patients were included in the study. Weight Machine of 'Health Scale model LZ-120' was used to check the weight of the patients before the start of Orthodontic treatment (W1), one month into orthodontic treatment (W2) and two months into orthodontic treatment (W3). Patients were weighed three times without shoes and the mean weight was considered final at W1, W2 and W3 to control the procedure error. Weights were recorded in kilograms by one observer, and drug and disease history was taken each time to control confusing variables. Statistical analysis was performed using the SPSS version 16. The weights registered in W1, W2 and W3 were compared by analysis of variance (ANOVA). Statistical significance was created at  $p < 0.05$ .

## RESULTS:

From 65 orthodontic patients 4 were excluded from trial because they did not meet the inclusion criteria. The age range of the whole sample was found to be between 13.0 years to 24.0 years with a mean value of 16.77 years standard deviation 2.88 as shown in Table 1. Mean age for males and females were found to be 16.31 years and 17.02 years respectively.

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
W1	Between Groups	1296.109	10	129.611	2.528	.015
	Within Groups	2563.531	50	51.271		
	Total	3859.639	60			
W2	Between Groups	1263.803	10	126.380	3.175	.003
	Within Groups	1990.115	50	39.802		
	Total	3253.918	60			
W3	Between Groups	1130.945	10	113.095	2.952	.005
	Within Groups	1915.612	50	38.312		
	Total	3046.557	60			

It can be concluded from the results that significant weight changes occur during orthodontic treatment. The values are shown in Table 2.



## DISCUSSION:

Some local studies in Pakistan have shown that the incidence of overweight and obesity is 25.0% in our general population (95% confidence interval [CI]: 21.8% - 28.2%). The most common factors associated with overweight and obesity are: old age, women, city dwellers, high economic status and consumption of large meat. Our sample consisted of normal people aged 13-24. All patients belonged to the same socioeconomic level and all were from urban areas<sup>9-10</sup>. All confusing variables that can have a positive or negative effect on a patient's weight are best controlled. It contained a critical exercise history, tests, diets, specific medications, and stress<sup>11-12</sup>. It is obvious that orthodontic treatment affects the patient's appearance, speech, nutrition and social interactions. In addition, almost all orthodontic patients suffered from chewing and biting food, which resulted in a change in diet. Finally, it has been shown that pain and discomfort during orthodontic treatment affect orthodontic treatment results and overall patient satisfaction<sup>13-14</sup>. During orthodontic treatment, it can be estimated that pain, discomfort and diet changes cause weight loss or weight gain in orthodontic patients. According to our study, 61.5% of women and 54.5%

of men reported diet changes. They reported that they had difficulty chewing Chapatti and that they felt good with rice and fluids, especially during the first ten days after starting orthodontic treatment. Significant weight loss from W1 to W2 and increase from W2 to W3 were found; although it may not match the original weight. These changes were recorded one month after the start of treatment. Unfortunately, there are no studies comparing our results, but some studies have shown weight loss and fixation of the jaw. While patients found to eat comfortably tend to gain weight after fixation, patients who did not report this style of eating continue to lose weight. Sometimes patients presented a completely different scenario, as if they had a jaw loss to lose weight. Surprisingly, weight loss was unintentional in this study. A change of diet cannot be blamed for weight loss only in the first month because most patients return to their normal diet as soon as the activating pain subsides. In addition, despite the pain and diet changes in the first ten days of activation, few patients gained weight from W2 to W3. Perhaps after unintentional recovery of the weight cycle, such as deliberate weight loss, there may be unintended improvement, or it may still be responsible for patient compliance,

but there may still be long-term weight changes due to errors. Methodological or inconsistent results have not yet been determined. In recent literature, 5% to 10% of initial weight is usually sufficient to treat weight-related complications such as weight loss, hypertension, type II diabetes and dyslipidemia. To achieve such benefits, a reduction in ideal weight is not required and is not possible for people with significant obesity<sup>14-15</sup>. A new step towards behavioral therapy is to help obese people lose weight more modestly. Almost all researchers agree that prevention can be a key strategy to control the current obesity epidemic. Therefore, children should be treated as the basic group of intervention strategies. Prevention can be achieved through various interventions focused on the built environment, physical activity and diet. Since permanent orthodontic treatment lasts from 2 to 3 years, they can be considered an excellent complementary and preventive strategic plan in the accompanying pursuit of weight loss, focusing on behavior and diet modifications.

### CONCLUSIONS:

Obesity is a silent killer among all other health problems. It not only paralyzes physical activity, but also weakens the physical perspective and intelligence of the individual at the social level. Patients should be encouraged and warned to seriously think about their health and weight gain. As a supplement to other slimming tools, they should be seriously trained in weight loss during orthodontic treatment. These obese patients if suffering from malocclusion are given a proper orthodontic treatment will not only help in restoring their dentofacial esthetics but also through the diet restraint, will boom up, to their physical smartness, dignity and self-esteem, which will certainly be in the best interest of the patient and orthodontist alike.

### REFERENCES:

1. Firth F, Bennani F, Stacknik S, Farella M. Orthodontic patient co-operation: A review of the clinician's role in predicting and improving patient compliance. *Australasian Orthodontic Journal*. 2019 May;35(1):5.
2. De Araujo CM, Schroder AG, De Araujo BM, Cavalcante-Leão BL, Stechman-Neto J, Zeigelboim BS, Santos RS, Guariza-Filho O. Impact of orthodontic-surgical treatment on quality of life: a meta-analysis. *European Journal of Orthodontics*. 2019 Nov 30.
3. Avontroodt S, Lemiere J, Cadenas de Llano-Pérula M, Verdonck A, Laenen A, Willems G. The evolution of self-esteem before, during and after orthodontic treatment in adolescents with dental malocclusion, a prospective cohort study. *Eur J Orthod*. 2019.
4. Lyros I, Pavi E, Tsolakis AI, Makou M, Kyriopoulos J. Satisfaction with Orthodontic Care Provided in a University Orthodontic Clinic. *The Open Dentistry Journal*. 2019 Feb 28;13(1).
5. Moreira N. Albertan Orthodontists' Perceived Challenges and Strategies to Obtain Adult Patients' Informed Consent.
6. Schroeder EK. *Self-esteem, self-perception of malocclusion, and motivation to seek orthodontic treatment* (Doctoral dissertation, University of British Columbia).
7. Monacis L, Muzio LL, Di Nuovo S, Sinatra M, de Palo V. Exploring the Mediating Role of Oral Health between Personality Traits and the Psychosocial Impact of Dental Aesthetics among Healthy Older People. *Ageing International*. 2019 Oct 23:1-2.
8. Peter E, Baiju RM, Varughese JM, Varghese NO. Patient-reported outcome measures in orthodontics. *Dentistry and Medical Research*. 2019 Jan 1;7(1):3.
9. González MJ, Romero M, Peñacoba C. Psychosocial dental impact in adult orthodontic patients: what about health competence?. *Health and quality of life outcomes*. 2019 Dec 1;17(1):110.
10. Red LM. *Adult Patients' Level of Satisfaction in a Private Orthodontic Practice* (Doctoral dissertation, University of St. Francis).
11. d'Apuzzo F, Perillo L, Carrico CK, Castroflorio T, Grassia V, Lindauer SJ, Shroff B. Clear aligner treatment: different perspectives between orthodontists and general dentists. *Progress in orthodontics*. 2019 Dec 1;20(1):10.
12. AlQuraini N, Shah R, Cunningham SJ. Perceptions of outcomes of orthodontic treatment in adolescent patients: a qualitative study. *European journal of orthodontics*. 2019 May 24;41(3):294-300.
13. Jaeken K, Cadenas de Llano-Pérula M, Lemiere J, Verdonck A, Fieuws S, Willems G. Reported changes in oral health-related quality of life in children and adolescents before, during, and after orthodontic treatment: a longitudinal study. *European journal of orthodontics*. 2019 Mar 29;41(2):125-32.
14. Yassir YA, McIntyre GT, Bearn DR. The impact of labial fixed appliance orthodontic treatment on patient expectation, experience, and satisfaction: an overview of systematic reviews. *European journal of orthodontics*. 2019 May 31.
15. Papageorgiou SN, Koletsi D, Iliadi A, Peltomaki T, Eliades T. Treatment outcome with orthodontic aligners and fixed appliances: a systematic review with meta-analyses. *European journal of orthodontics*. 2019 Nov 23;1:13.