

## ORIGINAL ARTICLE

**IMPACT OF PERSONALITY TRAIT OF OPENNESS TO EXPERIENCE ON ORAL PARAFUNCTIONAL HABITS**Zainab Waheed<sup>1</sup>, Aysham<sup>2</sup>, Haifza Hina Areej<sup>2</sup>, Bakhtawar Zahid<sup>2</sup>, Nauman Rauf Khan<sup>2</sup>, Hira Butt<sup>2</sup>**ABSTRACT**

**Introduction:** The personality trait of openness to experiences symbolizes the level of creativity, non-conformity, and adventurous aspects of an individual's personality. Individuals with this personality trait as their predominant personality characteristic are very receptive to new ideas and concepts and are rarely reluctant to embark upon new avenues in life. These individuals are more open-minded and tend to investigate a broader perspective of situations. It is a known fact that such individuals have a very non-conservative method of information seeking as opposed to conservative people who are extremely cautious of the facts, they come across to avoid the risks. This study was designed to find out the impact of the personality trait of openness to experience on oral parafunctional habits.

**Material & Methods:** A cross-sectional descriptive study was conducted at the College of Dentistry, Sharif Medical and Dental College, Lahore, over 5 months, from July to November 2021. Data was collected using a pre-validated parafunctional habits questionnaire and a ten-item personality inventory scale.

**Results:** The difference in the personality trait score of openness to experience was non-significant with oral parafunctional habits of tooth grinding ( $p=0.28$ ), tooth clenching ( $p=0.36$ ), biting hard objects ( $p=0.86$ ) and chewing gum ( $p=0.83$ ), however, significant with the habit of nail biting ( $p=0.03$ ).

**Conclusion:** The personality trait was seen most prevalent in individuals who disagreed with having the habit of nail biting and teeth grinding and for those who strongly agreed to have the habit of tooth clenching. The personality trait was also most prevalent in individuals who agreed to have the habit of biting hard objects and those who neither agreed nor disagreed with having the habit of chewing gum.

**Key Words:** biting hard objects, chewing gum, nail-biting, openness to experience, tooth clenching, tooth grinding

**Authors' Declaration:** The authors declared no conflict of interest and agreed to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. All authors contributed substantially to the planning of research, question designing, data collection, data analysis and write-up of the article.

**Authors' Affiliation**

<sup>1</sup>Kabir Medical College, Peshawar

<sup>2</sup>Sharif Medical and Dental College, Lahore Pakistan

**Corresponding Author**

Zainab Waheed

Kabir Medical College, Peshawar

Email: zwaheedpk@yahoo.com

**This article may be cited as:** Waheed Z, Aysham, Areej HH, Zahid B, Khan NR, Butt H. Impact of personality trait of openness to experience on oral parafunctional habits. Rehman J Health Sci. 2022;4(2).96-100

Submitted: October 19, 2021 Revisions Submitted: October 30, 2022 Accepted: November 30, 2022

**INTRODUCTION**

A clear operational definition of habit should be defined before explaining any concept and importance of oral parafunctional habits.<sup>1</sup> An action that is practiced on a regular basis either

consciously or unconsciously by individuals during their activities of daily life is referred to as a habit.<sup>2</sup> The para-functional habits more commonly included are bruxism, nail-biting,

clenching, non-nutritive suckling, and lip biting. Bruxism is the most common among the para-functional habit.<sup>3</sup> In the general population, parafunctional habits are frequently observed and can lead to damage to dentition, masticatory system and/or joints whenever the individual's physiological tolerance and the structural tolerance of masticatory system is exceeded.<sup>4</sup> It has been reported by some authors that those patients who had masticatory muscle pain were more inclined to have stress and depression. So, the most effective psychological factors on TMDs are stress and anxiety because stress can induce muscle hyperactivity, which further causes symptoms of TMDs.<sup>4</sup> Parafunctional habits are the repetitive behaviour in which oral structures are targeted. Some evidence-based studies show a relationship between parafunctional oral habits and malocclusion. These parafunctional oral habits that significantly impact by malocclusion include bruxism, digit and pacifier sucking, bottle feeding and mouth breathing.<sup>5</sup> A study conducted on schoolchildren showed that the most common oral parafunctional habit (27.7%) was fingernail-biting while the least common habit (8.4%) was bruxism. Except bruxism, all oral parafunctional habits were related to age. In females, cheek biting and thumb sucking were found more common than in males.<sup>6</sup> Bruxism is defined as the involuntary parafunctional, non-rhythmic or rhythmic, and spasmodic action of the masticatory system that is produced by the masseter, temporal, and mandibular muscles and these may lead to tightening or grinding of the teeth. There are two distinct circadian manifestations of this condition: the first one occurs during sleep time (known as sleep bruxism), while the second one occurs during wakefulness (known as awake bruxism).<sup>7</sup> There is multifactorial aetiology of bruxism, which includes pathophysiological, morphological and psychosocial factors. Anxiety, stress and characteristics of personality are included in psychosocial factors. Any feeling of anxiety, fear or frustration may lead to tooth clenching. Higher levels of hostility, depression and susceptibility to stress were found to be present in bruxers.<sup>8</sup> There is limited data on the impact of personality trait of openness to experience on oral parafunctional habits. Therefore, this study was designed to find out the impact of

personality trait of openness to experience on oral parafunctional habits.

## MATERIAL AND METHODS

A cross-sectional descriptive study was conducted at the College of Dentistry, Sharif Medical and Dental College, Lahore, over 5 months, from July to November 2021. The sampling technique used was convenience sampling. Ethical approval was obtained from Sharif Medical Research Centre (SMRC) (No. SMDC/SMRC/205-21). A sample size of 200 was calculated with the help of WHO sample size determination software, keeping the confidence level of 95% with an anticipated population proportion of 52.86% with teeth clenching and an absolute precision of 0.07.<sup>9</sup> Individuals with any systemic illness, history of alcohol consumption, or smoking were excluded from the study, while individuals of all ages, genders and oral parafunctional habits were included. Data was collected using medical questionnaire and Ten Item Personality Inventory scale (TIPI). The medical questionnaire comprised of 2 sections with 11 items. The first section had six demographic statements including age, gender, marital status, occupation, educational level and medical condition. The second section consisted of a pre-validated parafunctional habits questionnaire with a Cronbach alpha value of 0.74.<sup>1</sup> The responses for the parafunctional habit questionnaire were recorded as "1" strongly disagree, "2" disagree, "3" neither agree nor disagree, "4" agree and "5" strongly agree". Data was collected using the TIPI scale which was a pre-validated questionnaire.<sup>10</sup>

SPSS 23 was used for statistical analysis. P values less than or equal to 0.05 was considered significant. Nominal data was presented as frequency and percentages while numerical data was presented as mean and standard deviation. Kruskal Wallis test was used to find out the difference in the scores of openness to experience personality trait across groups of oral parafunctional habits.

## RESULTS

A cross-sectional descriptive study was conducted on 200 participants with a mean age of  $24.93 \pm 6.75$  years out of which 29% were males and the remaining 71% were females. Table 1 shows a statistically significant difference in the scores of openness to

experience personality trait across the subgroups of oral parafunctional habit of nail biting but non-significant difference across the habits of tooth grinding and clenching. It was seen that the highest mean rank score for the personality trait was seen in individuals who disagreed to having the habit of nail biting (mean rank score 123.50) and teeth grinding (mean rank score 113.50) but the score was the highest for individuals who strongly agreed to having the habit of tooth clenching (mean rank score 116.78) as shown in table 1.

Table 2 shows a statistically non-significant difference in the scores of personality trait of openness to experience across categories of oral parafunctional habits of biting hard objects and chewing gum. The highest mean rank score for the personality trait was seen in individuals who agreed to having the habit of biting hard objects (mean rank score 104.23) and those who neither agreed nor disagreed to having the habit of chewing gum (mean rank score 109.41) as shown in table 2.

## DISCUSSION

Oral parafunctional habits are defined as any repetitive abnormal activity that effects the oral cavity for example nail biting, teeth grinding, clenching, biting hard objects, tongue thrusting and mouth breathing.<sup>11</sup> Such habits may result in wearing down of enamel, tooth fracture, tooth loss, sensitivity, bleeding gums and malocclusion.<sup>12</sup> If left untreated such habits may result in temporomandibular joint disorders.

Our study reported that the highest mean rank score for the personality trait was seen in individuals who disagreed to having the habit of nail biting (mean rank score 123.50) and teeth grinding (mean rank score 113.50) but the score was the highest for individuals who strongly agreed to having the habit of tooth clenching (mean rank score 116.78). According to one study the para-functional habits that are most frequently seen were gum chewing and lip/object biting, and grinding with the lowest (31.8%).<sup>1</sup> A study carried out in Poland with college students indicated that the most frequent oral parafunctional habits were gum chewing and bruxism.<sup>13</sup> A study conducted in Brazil with high-school students reported that prevalence of oral parafunctional habits was 75% in adolescents and 79% in another study in which nail biting was the most

prevalent habit (16.4%).<sup>14</sup> A study conducted on children with age group 8 to 11 years in Colombia reported that with a high-tension personality factor of children, TMD was highly correlated.<sup>15</sup> The current study showed that there were higher levels of oral parafunctional habits in males, younger age groups, single people, and the financially constrained group. In contrary, literature reported that females were more prone to oral parafunctional activity.<sup>16</sup>

It is reported in one study that the highest percentage of nail-biting habit (34.7%) was seen in extraverts followed by those individuals who were open to experience (32.8%), conscientious personality type (32.3), agreeable personality (32.2%) and emotionally stable personality types (28.4%).<sup>3</sup> According to our study the highest mean rank score for the personality trait was seen in individuals who agreed to having the habit of biting hard objects (mean rank score 104.23) and those who neither agreed nor disagreed to having the habit of chewing gum (mean rank score 109.41). Agarwal et al reported that the most common habits were nail biting followed by clenching and mouth breathing. Leaning of arms for prolonged periods followed by bruxism and lip biting were found to be most common in another study.<sup>17</sup> A study by Lam et al showed that the prevalence of sleep bruxism was 5.9%, with higher predominance among men (7.7% versus 4.7%). With age the prevalence for both males and females decreased (linear association  $P < 0.001$ ). In contrast to that, in a study by Fonseca et al it is observed that 15.29% ( $n = 26$ ) were considered bruxists, with no significant correlation between sleep Bruxism and gender ( $p = 0.595$ ). On the other hand, Negra et al found that the prevalence of sleep bruxism was 35.3%, 56.5% in girls and 43.5% in boys.<sup>18</sup> In a study by Insana et al it was observed that 36.8% of preschool children at least one night a week were reported as bruxists, and 6.7% for more than four nights were bruxists. In contrast, 49.6% of first-graders were reported with sleep bruxism at least one night per week, and 9.8% for more than four nights a week were reported. Furthermore, in comparison to boys, girls had a higher rate of no sleep bruxism. Thus, out of four selected studies, three revealed that boys were affected by sleep bruxism more than girls.<sup>18</sup>

**CONCLUSION**

The personality trait was seen most prevalent in individuals who disagreed to having the habit of nail biting and teeth grinding and for those who strongly agreed to having the habit of tooth clenching. The personality trait was also most prevalent in individuals who agreed to having the habit of biting hard objects and those who neither agreed nor disagreed to having the habit of chewing gum.

**REFERENCES**

1. Almutairi AF, Albeshar N, Aljohani M, Alsinanni M, Turkistani O, Salam M. Association of oral parafunctional habits with anxiety and the Big-Five Personality Traits in the Saudi adult population. *Saudi Dent J.* 2021 Feb 1;33(2):90-8.
2. Shah AF, Batra M, Sudeep CB, Gupta M, Kumar R. Oral habits and their implications. *Ann Med.* 2014;1(04):179-86.
3. Butt H, Khan NR, Khan AN, Waheed Z, Rehman SU, Hafeez F. Correlation of oral para-functional habits with the ten-item personality inventory in general population. *J Khyber Coll Dentistry.* Jun 2022;12(2):23-28.
4. Atsü SS, Güner S, Palulu N, Bulut AC, Kürkçüoğlu I. Oral parafunctions, personality traits, anxiety and their association with signs and symptoms of temporomandibular disorders in the adolescents. *Afr. Health Sci.* 2019 Apr 23;19(1):1801-10.
5. Baeshen HA. Malocclusion trait and the parafunctional effect among young female school students. *Saudi J. Biol. Sci.* 2021 Jan 1;28(1):1088-92.
6. Aloumi A, Alqahtani A, Darwish A. Oral parafunctional habits among preschool children in Riyadh, Saudi Arabia. *Saudi J. Oral Sci.* 2018 Jan 1;5(1):22.
7. Soares-Silva L, Tavares-Silva C, Fonseca-Gonçalves A, Maia LC. Presence of oral habits and their association with the trait of anxiety in pediatric patients with possible sleep bruxism. *J Indian Soc Pedod Prev Dent.* 2019 Jul 1;37(3):245.
8. Ferreira-Bacci AD, Cardoso CL, Díaz-Serrano KV. Behavioral problems and emotional stress in children with bruxism. *Braz. Dent. J.* 2012; 23:246-51.
9. Vyas T. Effect of chronic nail biting and non-nail biting habit on the oral carriage of enterobacteriaceae. *J Adv Med Dent Scie Res.* 2017 May 1;5(5):53.
10. Gosling SD, Rentfrow PJ, Swann Jr WB. A very brief measure of the Big-Five personality domains. *J Res Pers.* 2003 Dec 1;37(6):504-28.
11. Seraj B, Ahmadi R, Mirkarimi M, Ghadimi S, Beheshti M. Temporomandibular disorders and parafunctional habits in children and adolescence: A review. *J Dent (Tehran).* 2009; 6(1):37-45
12. Castelo PM, Gavião MB, Pereira LJ, Bonjardim LR. Relationship between oral parafunctional/nutritive sucking habits and temporomandibular joint dysfunction in primary dentition. *Int. J. Paediatr. Dent.* 2005 Jan;15(1):29-36.
13. Panek H, Nawrot P, Mazan M, Bielicka B, Sumisławska M, Pomianowski R. Coincidence and awareness of oral parafunctions in college students. *Community Dent. Health.* 2012 Mar 1;29(1):74-7.
14. Motta LJ, Guedes CC, De Santis TO, Fernandes KP, Mesquita-Ferrari RA, Bussadori SK. Association between parafunctional habits and signs and symptoms of temporomandibular dysfunction among adolescents. *Oral Health Prev Dent.* 2013 Jan 1;11(1):3-7.
15. Restrepo CC, Vásquez LM, Alvarez M, Valencia I. Personality traits and temporomandibular disorders in a group of children with bruxing behaviour. *J. Oral Rehabil.* 2008 Aug;35(8):585-93.
16. Alkan A, Cakmak O, Yilmaz S, Cebi T, Gurgan C. Relationship between psychological factors and oral health status and behaviours. *Oral Health Prev Dent.* 2015 Jan 1;13(4):331-9.
17. Chaulagain R, Maharjan A. Prevalence of Temporomandibular Joint Disorders and its Association with Para Functional Habits in the Patients Attending Tertiary Care Hospital. *J. Nepal Health Res. Counc.* 2019 Nov 13;17(3):376-81.
18. Machado E, Dal-Fabbro C, Cunali PA, Kaizer OB. Prevalence of sleep bruxism in children: a systematic review. *Dental Press J Orthod.* 2014 Nov; 19:54-61.

Table 1: Difference in the scores of openness to experience personality trait across categories of oral parafunctional habits of nail biting, tooth grinding and tooth clenching

Personality trait	Oral parafunctional habit	N	Mean Rank	Chi square	df	P value				
Openness to experience	Nail biting	strongly disagree	113	98.07	10.671	4	0.031			
		disagree	33	123.50						
		neither agree nor disagree	18	76.47						
		agree	21	87.74						
		strongly agree	15	114.90						
	Teeth grinding	strongly disagree	102	97.34				5.016	4	0.286
		disagree	50	113.50						
		neither agree nor disagree	12	78.67						
		agree	28	95.63						
		strongly agree	8	109.31						
	Teeth clenching	strongly disagree	83	98.84				4.299	4	0.367
		disagree	41	108.90						
neither agree nor disagree		16	77.31							
agree		51	100.85							
strongly agree		9	116.78							

Table 2: Difference in the scores of openness to experience personality trait across categories of oral parafunctional habits of biting hard objects and chewing gum habit.

Personality trait	Oral parafunctional habit	N	Mean Rank	Chi square	df	P value				
Openness to experience	Biting hard objects	strongly disagree	93	99.90	1.285	4	0.864			
		disagree	41	97.61						
		neither agree nor disagree	24	96.33						
		agree	35	104.23						
		strongly agree	7	121.00						
	Chewing gum habit	strongly disagree	81	99.55				1.443	4	0.837
		disagree	56	99.24						
		neither agree nor disagree	38	109.41						
		agree	20	91.85						
		strongly agree	5	96.90						