ORIGINAL ARTICLE

The Prevalence and Impact of Parafunctional Habits among Adults with Fixed Prosthodontic Restorations and their Association with Restoration Type and Longevity: A Cross-sectional Study

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Abstract

Introduction: Involuntary teeth grinding or clenching, known as parafunctional behaviors or bruxism, produces excessive force that negatively impacts fixed restorations by causing wear, fractures, or loss of retention, thus decreasing their lifespan. For long-lasting therapeutic results, it is essential to comprehend this interaction. **Objectives:** The objective of the study is to determine the prevalence of parafunctional habits among adults with fixed prosthodontic restorations and evaluate their impact on restoration longevity. **Materials and Methods:** A cross-sectional study was conducted between July 2025 and December 2025 among Saudi adults with fixed prosthodontic restorations. A total of 582 participants were targeted using the Raosoft Sample Size Calculator. Data were collected through a structured self-assessment questionnaire comprising 24 items on parafunctional habits and perceptions of restorations, along with demographic information. Parafunctional habits were scored on a 21-point scale, and perceptions of restorations were scored on a 30-point scale. Participants were classified into low, moderate, and high categories for both habits and satisfaction levels. The questionnaire was pilot-tested on 20 individuals to ensure clarity. Data were analyzed using the Statistical Package for the Social Sciences Software version 25, with descriptive statistics, frequencies, percentages, and Chi-square tests to identify associations. **Results:** The findings revealed that 38% of participants exhibited moderate to high frequency of parafunctional habits, while 62% were classified as low frequency. Daytime clenching was reported by 46.4% of participants, and 21% reported nocturnal clenching. Notably, 18.6% of respondents experienced fractures or loosening of their restorations, and 19.8% noticed excessive tooth wear, supporting the hypothesis that parafunctional habits adversely affect prosthesis integrity and longevity. Patient perception of the damage caused by these habits was often inadequate, with only 8.8% demonstrating high awareness. However, patient satisfaction remained generally high – 34.7% reported being satisfied or very satisfied, despite some reporting discomfort or complications. Statistically significant associations were found between a higher prevalence of parafunctional habits and female gender, younger age, certain educational backgrounds, and lower income levels ($P < 0.05$). Perception of restoration damage was also significantly associated with age, income, and region of residence. **Conclusion:** The study underscores the necessity of early identification and management of parafunctional habits when planning and maintaining prosthodontic restorations, as well

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as the need to increase patient awareness regarding potential complications. Preventive interventions, stress reduction, and occlusal guards may contribute to improved restoration longevity and patient outcomes.

Key words: Bruxism, fixed restoration, parafunctional habits, wear

INTRODUCTION

Bruxism is the most prevalent of the numerous parafunctional activities of the masticatory system and can be considered an umbrella term for clenching and grinding of the teeth.[1] The exact etiology of bruxism remains unclear. Factors such as young age, female gender, smoking, alcohol intake, caffeine consumption, stress, anxiety, obstructive sleep apnea, genetics, and certain medications have been identified as potential risk factors.[2] Patients with bruxism require prosthodontic rehabilitation that considers both their individual needs and available resources, with materials that offer durability as well as esthetics to optimize treatment outcomes.[3] Although not life-threatening, bruxism can damage tooth structures, cause dental restorations to fail, and induce tooth wear.[4]

Studies report that 8–31% of individuals exhibit bruxism, and 15–20% of patients undergoing prosthetic therapy engage in clenching.[5] Parafunctional habits, including clenching, grinding, and gnashing, can compromise teeth if left untreated.[6] Despite their potential impact, these habits are often overlooked during treatment planning, although they can significantly affect the stability, retention, and prognosis of fixed dental prostheses.[7] Occlusion involves dynamic functions such as chewing, swallowing, and bruxism, which exert continuous forces on dental restorations over time.[8]

Mikeli and Walter reported that 70% of ceramic veneer fractures occurred in patients with bruxism, compared to 30% in non-bruxers.[6] Similarly, Alharby and Alzayer found that parafunctional habits contributed to higher rates of prosthetic failure due to fractures and loss of retention.[5] In a cross-sectional study in Turkey, Arisan *et al*. analyzed 1,688 patients with implant-supported fixed prostheses and found a prevalence of probable bruxism of 19.72%, with bruxers experiencing significantly higher rates of technical and mechanical complications ($P < 0.05$) than non-bruxers.[7]

However, few studies have comprehensively assessed the prevalence of multiple parafunctional habits, such as bruxism, clenching, and nail biting, and their association with the type and longevity of fixed restorations. Therefore, this study aims to assess the prevalence of parafunctional habits among adult patients with fixed prosthodontic restorations and to evaluate their perceptions of the restorations' longevity, durability, comfort, absence of complications, and overall success.

Objectives

The objective of the study is to assess the prevalence of parafunctional habits among adult patients with fixed prosthodontic restorations and to evaluate their perceptions of the restorations' longevity, durability, and overall success, including comfort, absence of complications, and satisfaction.

MATERIALS AND METHODS

Study design and setting

This study employed a cross-sectional design to assess the prevalence and impact of parafunctional habits among adults with fixed restorations in Saudi Arabia. Data were collected using structured questionnaires. The study included Saudi adults with fixed prosthodontic restorations, recruited from July 2025 to December 2025.

Sample size

Since the actual population size of adult patients with fixed prosthodontic restorations was unknown, a standard population size of 20,000 was entered into the Raosoft Sample Size Calculator. Raosoft guidelines suggest using 20,000 as a standard population size when the real number is unknown, because the calculated sample size remains stable once the population exceeds this threshold. Using a 95% confidence level, 5% margin of error, and 50% response distribution (due to unknown prevalence), the required minimum sample size was calculated as 384 participants.[9-11] To allow for anticipated non-responses or incomplete responses, a 10% contingency was added, resulting in a final target sample of 582 participants.

Inclusion and exclusion criteria

The study included adult male and female patients with fixed prosthodontic restorations who exhibited bruxism and excluded children under 18 years of age and adults without bruxism.

Method for data collection, instrument

Self-reported parafunctional oral habits in adults with fixed dental prostheses: A questionnaire-based assessment. This study is part of a research project aiming to assess

the prevalence of parafunctional oral habits such as teeth grinding, teeth clenching, and nail biting in adult patients with fixed dental prostheses and to determine whether there is any relationship between these habits and the type or duration of the prostheses.

Scoring system

A total of 24 statements were used to evaluate participants' parafunctional habits and their perceptions regarding fixed prosthodontic restorations, along with personal demographic questions. The sociodemographic section included five items (0 points) and was used only to collect basic participant information, including age, gender, region, education level, and duration since restoration placement.

The parafunctional habits section included nine items with a total possible score of 21 points. For scoring, the presence of a habit was assigned 1 point, while the absence of the habit or the response "I don't know" was assigned 0 points. Frequency-based questions were scored as follows: Occasionally = 1 point, weekly = 2 points, and daily = 3 points. Based on their total scores, participants were classified into three levels: Low frequency (≤7 points), moderate frequency (8–15 points), and high frequency (≥16 points).

The perception of the restoration section included 21 items with a total possible score of 30 points. Positive perceptions, such as responses indicating satisfaction, comfort, and absence of complications, were assigned 1 point, while negative or neutral perceptions were assigned 0 points. Participants were classified into three levels based on their total scores: Low satisfaction (≤6 points), moderate satisfaction (7–15 points), and high satisfaction (≥16 points).

Pilot test

The questionnaire was distributed to 20 individuals who were asked to complete it. This was done to test the clarity of the questionnaire and the feasibility of the study. Data from the pilot study were excluded from the final dataset used in the main study.

Analyzes and entry method

The data had been entered into the device using the "Microsoft Office Excel Software" Windows (2021). The collected data were subsequently transmitted to the Statistical Package for the Social Sciences Software (SPSS) application, version 25 (IBM SPSS Statistics for Microsoft Windows, Version 21.0) for statistical analysis. Descriptive statistics were used to summarize the numerical variables for baseline characteristics. For categorical variables, frequencies and percentages were calculated. The Chi-square test was used to identify associations between categorical variables.

RESULTS

Table 1 displays various demographic parameters of the participants with a total number of 582. The sociodemographic data indicate that it is composed mainly of young people with 38.5% of them being below the age of 29 years with the mean age being 37.7 years. The majority of 58.4% were females. There was a strong uneven distribution of residential distribution with the southern area having 72.9% of the population and the other areas taking <20% of the population. The level of education was on the higher side with 53.8% having a bachelor's degree and while only 1.4% have no educational qualification. There were diverse levels of incomes with 25.6% having higher than 15,000 SAR and 20.1% having <1,000 SAR.

As shown in Figure 1, over half of the respondents (305) lacked fixed prostheses. The most common were single-tooth

Table 1: Sociodemographic characteristics of participants (*n*=582)

Parameter	No.	Percentage
Age (Mean: 37.7, Standard deviation: 14.3)		
29 or less	224	38.5
30–40	124	21.3
41–49	105	18.0
50 or more	129	22.2
Gender		
Female	340	58.4
Male	242	41.6
Residential area		
Northern region	6	1.0
Southern region	424	72.9
Center region	39	6.7
Eastern region	13	2.2
Western region	100	17.2
Educational qualification		
High school	72	12.4
Bachelor	313	53.8
Diploma	35	6.0
Doctorate	18	3.1
College student	90	15.5
Master	46	7.9
None	8	1.4
Income		
<1,000 SAR	117	20.1
1,000–5,000 SAR	114	19.6
5,001–10,000 SAR	100	17.2
10,001–15,000 SAR	102	17.5
More than 15,000 SAR	149	25.6

crowns (115), followed by those with multiple teeth (94) and bridges (57) to individuals who had a fixed prosthesis. The least common were veneers which were reported by only 11 participants.

Table 2 shows that 47.6% of the respondents indicated that they had fixed prostheses, and 52.4% did not. Single-tooth crowns were the most prevalent among individuals who had prostheses (19.8%) then came multiple-tooth crowns (16.2%) and bridges (9.8%). Concerning the age of the prosthesis, 18.9% indicated that they had a prosthesis aged above 6 years, and 13.2% had a value aged between 1 and 3 years. The levels of comfort were mostly positive with 19.2% comfortable and 17.4% very comfortable chewing. Many of the participants complained of little irritation while 16% did not complain of irritation and only 1.7% complained of constant irritation. 18.6% of the respondents reported fractures or loosening. Gum issues were also not present in 22.9% and 12.5% had them occasionally. The general satisfaction was on high note with 21.5% satisfied and 13.2% very satisfied.

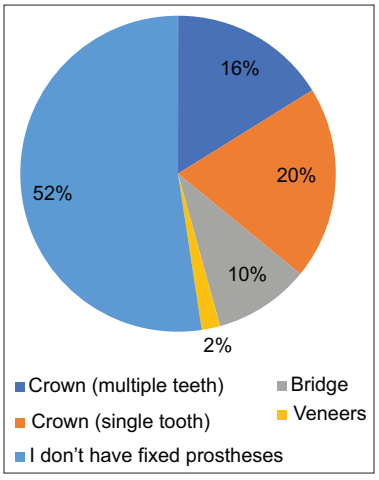

Figure 1: Illustrates the type of fixed prosthesis among participants

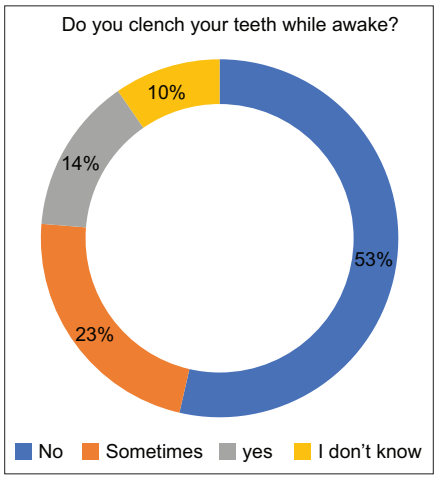

Figure 2: Illustrates clenching teeth while awake among participants

Table 2: Parameters related to prevalence of parafunctional habits (*n*=582)

Parameter	No.	Percentage
Do you have a fixed prosthesis?		
No	305	52.4
Yes	277	47.6
Type of fixed prosthesis		
Crown (multiple teeth)	94	16.2
Crown (single tooth)	115	19.8
Bridge	57	9.8
Veneers	11	1.9
I do not have fixed prostheses	305	52.4
How old are your prostheses?		
Less than a year	40	6.9
From a year to 3 years	77	13.2
From 4 to 6 years	50	8.6
More than 6 years	110	18.9
I do not have fixed prostheses	305	52.4
Do you feel comfortable chewing with your fixed prostheses?		
Very comfortable	101	17.4
Comfortable	112	19.2
Neutral	43	7.4
Uncomfortable	17	2.9
Very uncomfortable	4	.7
I do not have fixed prostheses	305	52.4
Do the prostheses cause irritation or discomfort in your mouth?		
Always	10	1.7
Often	14	2.4
Sometimes	72	12.4
Rarely	88	15.1
Never	93	16.0
I do not have fixed prostheses	305	52.4
Have you experienced any fractures or loosening of the prostheses?		
No	169	29.0
Yes	108	18.6
I do not have fixed prostheses	305	52.4
Have you noticed gum problems (bleeding, swelling, or pain) related to the prostheses?		
No	133	22.9
Yes	71	12.2
Sometimes	73	12.5
I do not have fixed prostheses	305	52.4
Do the prostheses cause difficulty in cleaning or maintaining oral hygiene?		

(Contd...)

Table 2: *(Continued)*

Parameter	No.	Percentage
No	137	23.5
Yes	59	10.1
Sometimes	81	13.9
I do not have fixed prostheses	305	52.4
Overall, how satisfied are you with your fixed prostheses?		
Very dissatisfied	3	.5
Dissatisfied	20	3.4
Neutral	52	8.9
Satisfied	125	21.5
Very satisfied	77	13.2
I do not have fixed prostheses	305	52.4

As shown in Figure 2, most of the respondents (312) indicated that they did not clench their teeth when awake. Nevertheless, a significant number of them did it at least once (132), and 82 felt that they clenched regularly. Fifty-six other respondents were unsure.

Table 3 shows the perceptions of the damage attributed to para-functional habits in the participants. Nocturnal clenching was not accepted by 53.4% of the respondents, but 46.6% of respondents said that they did it occasionally, with 21.0% saying that they did it frequently. The same case applied to daytime clenching, where 46.4% said that they did it frequently. The level of awareness regarding nighttime grinding was low with only 24.1% stating that they were unaware and 12.0% said they were certain. It was found that 19.8% and 23.0% had signs of wear and morning jaw fatigue, respectively. The symptoms that were rather frequent were temporomandibular joint (TMJ) related, such as clicking (33.8% combined) and headaches (49.9% combined). Clenching was caused by emotions such as anxiety and anger in 29.6% and 30.4% of cases, respectively. Mechanical stress was also increased by habits such as chewing gum (39.9%) and nail biting (16.3%).

According to Table 4, the data show that most participants (62.0%) had a low frequency of parafunctional habits with around a third of participants (31.3%) having moderate levels, while only a small group (6.7%) showed high frequency.

According to Table 5, most participants (67.4%) had a low perception of the damage their actions may cause to fixed prosthodontic restorations. Around 23.9% of participants showed a moderate perception, while only 8.8% showed a high perception of the damage they are applying to their fixed prosthodontic restorations.

Table 6 shows that the prevalence of parafunctional habits has a statistically significant relation to gender ($P = 0.006$),

Table 3: Participants' perception of the damage done to fixed prosthodontic restorations (*n*=582)

Parameter	No.	Percentage
Do you clench your teeth while sleeping?		
No	311	53.4
Sometimes	149	25.6
Yes	122	21.0
Do you clench your teeth while awake?		
No	312	53.6
Sometimes	132	22.7
Yes	82	14.1
I do not know	56	9.6
Do you know that you grind your teeth frequently at night, or has someone told you they hear you do so?		
No	333	57.2
Sometimes	39	6.7
Yes	70	12.0
I don't know	140	24.1
Do you notice your teeth are wearing down more than normal?		
No	336	57.7
Yes	115	19.8
I do not know	131	22.5
Do you feel fatigue, tension, or pain in your jaw after waking up?		
No	369	63.4
Sometimes	134	23.0
Yes	79	13.6
Have you ever felt your teeth pressed together or your mouth sore upon waking up?		
No	325	55.8
Sometimes	119	20.4
Yes	98	16.8
I don't know	40	6.9
Do you feel pain in your temples upon waking up?		
No	416	71.5
Sometimes	106	18.2
Yes	60	10.3
Do you have difficulty opening your mouth widely after waking up?		
No	445	76.5
Sometimes	82	14.1
Yes	55	9.5

(Contd...)

Table 3: *(Continued)*

Parameter	No.	Percentage
Do you feel tension in your jaw joint (TMJ) upon waking, and need to move your lower jaw to relieve it?		
No	445	76.5
Sometimes	88	15.1
Yes	49	8.4
Do you hear a "clicking" sound in your TMJ upon waking that disappears later?		
No	385	66.2
Sometimes	105	18.0
Yes	92	15.8
Do you have symptoms such as headaches?		
No	292	50.2
Sometimes	140	24.1
Yes	150	25.8
Do you feel pain when opening and closing your mouth?		
No	461	79.2
Sometimes	90	15.5
Yes	31	5.3
Do you feel symptoms of TMJ spasm in the morning?		
No	487	83.7
Sometimes	66	11.3
Yes	29	5.0
Do you have neck pain symptoms?		
No	334	57.4
Sometimes	114	19.6
Yes	134	23.0
Do you have tinnitus (ringing in the ears)?		
No	346	59.5
Sometimes	134	23.0
Yes	102	17.5
Do you clench your teeth when you feel anxious?		
No	258	44.3
Sometimes	152	26.1
Yes	172	29.6
Do you clench your teeth when you feel angry?		
No	270	46.4
Sometimes	135	23.2
Yes	177	30.4

(Contd...)

Table 3: *(Continued)*

Parameter	No.	Percentage
Do you clench your teeth when concentrating?		
No	316	54.3
Sometimes	134	23.0
Yes	132	22.7
Do you bite your nails?		
No	427	73.4
Sometimes	60	10.3
Yes	95	16.3
Do you have a habit of chewing gum?		
No	193	33.2
Sometimes	157	27.0
Yes	232	39.9
Do you tend to chew your cheek, lip, or any other object?		
No	341	58.6
Sometimes	123	21.1
Yes	118	20.3

TMJ: Temporomandibular joint

Table 4: Prevalence of parafunctional habits score results

Frequency level	Frequency	Percentage
High frequency	39	6.7
Moderate frequency	182	31.3
Low frequency	361	62.0
Total	582	100.0

Table 5: Perception of the damage done to fixed prosthodontic restorations by participants' action score results

Perception level	Frequency	Percentage
High perception	51	8.8
Moderate perception	139	23.9
Low perception	392	67.4
Total	582	100.0

age ($P = 0.0001$), educational qualifications ($P = 0.003$), and income ($P = 0.009$). It also shows a statistically insignificant relation to the residential area.

Table 7 shows that perception of the damage done to fixed prosthodontic restorations has a statistically significant relation to age ($P = 0.0001$), residential area ($P = 0.018$), and income ($P = 0.0001$). It also shows a statistically insignificant relation to gender and educational qualifications.

Table 6: Relation between prevalence of parafunctional habits and sociodemographic characteristics

Parameters	Prevalence of parafunctional habits		Total (*n*=582) (%)	*P*-value
	High or moderate frequency (%)	Low frequency (%)		
Gender				
Female	145 (65.6)	195 (54.0)	340 (58.4)	0.006*
Male	76 (34.4)	166 (46.0)	242 (41.6)	
Age				
29 or less	60 (27.1)	164 (45.4)	224 (38.5)	0.0001*
30–40	51 (23.1)	73 (20.2)	124 (21.3)	
41–49	57 (25.8)	48 (13.3)	105 (18.0)	
50 or more	53 (24.0)	76 (21.1)	129 (22.2)	
Residential area				
Northern region	2 (0.9)	4 (1.1)	6 (1.0)	0.665
Southern region	166 (75.1)	258 (71.5)	424 (72.9)	
Center region	12 (5.4)	27 (7.5)	39 (6.7)	
Eastern region	3 (1.4)	10 (2.8)	13 (2.2)	
Western region	38 (17.2)	62 (17.2)	100 (17.2)	
Educational qualification				
High school	23 (10.4)	49 (13.6)	72 (12.4)	0.003*
Bachelor	129 (58.4)	184 (51.0)	313 (53.8)	
Diploma	11 (5.0)	24 (6.6)	35 (6.0)	
Doctorate	9 (4.1)	9 (2.5)	18 (3.1)	
College student	20 (9.0)	70 (19.4)	90 (15.5)	
Master	25 (11.3)	21 (5.8)	46 (7.9)	
None	4 (1.8)	4 (1.1)	8 (1.4)	
Income				
<1,000 SAR	38 (17.2)	79 (21.9)	117 (20.1)	0.009*
1,000–5,000 SAR	43 (19.5)	71 (19.7)	114 (19.6)	
5,001–10,000 SAR	28 (12.7)	72 (19.9)	100 (17.2)	
10,001–15,000 SAR	39 (17.6)	63 (17.5)	102 (17.5)	
More than 15,000 SAR	73 (33.0)	76 (21.1)	149 (25.6)	

*P-value was considered significant if ≤ 0.05

DISCUSSION

This cross-sectional study aimed to assess the prevalence of parafunctional habits among adult patients with fixed prosthodontic restorations and evaluate their impact on restoration longevity, durability, and patient satisfaction in a Saudi Arabian population. The present findings provide important insights into the relationship between parafunctional behaviors and the clinical outcomes of fixed dental prostheses, contributing to the broader understanding of factors influencing prosthodontic success.

The prevalence of parafunctional habits in the present study was notable, with 38% of participants demonstrating either moderate to high frequency parafunctional behaviors. Among these, 62% exhibited low frequency habits, 31.3% moderate frequency, and 6.7% high frequency behaviors. This distribution aligns with existing literature; Arisan *et al*. reported a bruxism prevalence of 19.72% in their cross-sectional analysis of 1,688 patients with implant-supported fixed prostheses, suggesting that parafunctional habits represent a clinically significant factor affecting the prosthodontic patient population.[7] The current findings underscore the necessity of systematically assessing and managing these habits during treatment planning and follow-up care of fixed restorations.

Regarding clenching patterns, our study found that 46.4% of participants reported daytime clenching at varying frequencies (14.1% yes, 22.7% sometimes), while nocturnal clenching was less prevalent, with only 21% reporting consistent clenching during sleep and 25.6% occasionally.

Table 7: Perception of the damage done to fixed prosthodontic restorations in association with sociodemographic characteristics

Parameters	Perception of the damage done to fixed prosthodontic restorations		Total (*n*=582) (%)	*P*-value
	High or moderate perception (%)	Low perception (%)		
Gender				
Female	117 (61.6)	223 (56.9)	340 (58.4)	0.282
Male	73 (38.4)	169 (43.1)	242 (41.6)	
Age				
29 or less	92 (48.4)	132 (33.7)	224 (38.5)	0.0001
30–40	50 (26.3)	74 (18.9)	124 (21.3)	
41–49	29 (15.3)	76 (19.4)	105 (18.0)	
50 or more	19 (10.0)	110 (28.1)	129 (22.2)	
Residential area				
Northern region	3 (1.6)	3 (0.8)	6 (1.0)	0.018
Southern region	126 (66.3)	298 (76.0)	424 (72.9)	
Center region	21 (11.1)	18 (4.6)	39 (6.7)	
Eastern region	3 (1.6)	10 (2.6)	13 (2.2)	
Western region	37 (19.5)	63 (16.1)	100 (17.2)	
Educational qualification				
High school	26 (13.7)	46 (11.7)	72 (12.4)	0.575
Bachelor	98 (51.6)	215 (54.8)	313 (53.8)	
Diploma	11 (5.8)	24 (6.1)	35 (6.0)	
Doctorate	4 (2.1)	14 (3.6)	18 (3.1)	
College student	36 (18.9)	54 (13.8)	90 (15.5)	
Master	12 (6.3)	34 (8.7)	46 (7.9)	
None	3 (1.6)	5 (1.3)	8 (1.4)	
Income				
<1,000 SAR	48 (25.3)	69 (17.6)	117 (20.1)	0.0001
1,000–5,000 SAR	41 (21.6)	73 (18.6)	114 (19.6)	
5,001–10,000 SAR	44 (23.2)	56 (14.3)	100 (17.2)	
10,001–15,000 SAR	22 (11.6)	80 (20.4)	102 (17.5)	
More than 15,000 SAR	35 (18.4)	114 (29.1)	149 (25.6)	

P-value was considered significant if ≤0.05

These results are consistent with contemporary evidence suggesting that awake bruxism may be more prevalent than sleep-related bruxism in certain populations. A retrospective study comparing clinical outcomes of fixed dental prostheses in bruxers versus non-bruxer patients demonstrated that bruxism significantly increased both technical and biological complications, with bruxers presenting a 32.3% failure rate compared to 25.8% in non-bruxers ($P = 0.001$).[12] Loss of retention and tooth loss constituted the primary failure mechanisms in both groups, highlighting the mechanical stress imposed by parafunctional activities on restoration integrity.

The relationship between parafunctional habits and emotional factors was pronounced in the present study. Approximately 29.6% of participants reported teeth clenching in response to anxiety, while 30.4% did so when experiencing anger. These findings corroborate extensive literature demonstrating the psychosocial dimensions of bruxism. A systematic review examining the association between stress and bruxism found that individuals with stress-related conditions exhibited significantly elevated odds ratios compared to healthy controls, establishing a well-documented link between psychological distress and parafunctional muscle activity.[10] Furthermore, research examining the relationship between anxiety and bruxism revealed that individuals with high anxiety levels demonstrate elevated awake bruxism compared to those with low anxiety levels, with women showing higher prevalence rates overall.[11] The present study also noted that 39.9% of participants engaged in gum chewing, a mechanical stress-inducing habit that further contributes to occlusal loading on fixed restorations.

Regarding restoration types and longevity, our findings revealed that 47.6% of respondents possessed fixed prostheses, with single-tooth crowns being most prevalent (19.8%), followed by multiple-tooth crowns (16.2%) and bridges (9.8%). Among those with restorations, 18.9% reported prostheses older than 6 years, suggesting adequate longevity in the majority of cases. However, 18.6% of all respondents reported experiencing fractures or loosening of their restorations. This complication rate is consistent with the literature demonstrating the deleterious effects of bruxism on restoration integrity. A retrospective cohort study conducted in a tertiary dental center found that parafunctional habits, along with oral hygiene status and restoration type, were significantly associated with survival rates ($P < 0.001$).[13] Similarly, examination of survival and complication rates of tooth- and implant-supported restorations over extended observation periods up to 36 years demonstrated that bruxism significantly increased complication probabilities through Kaplan–Meier modeling, with technical complications including chipping, fracturing, and loss of retention being most prevalent.[14]

The perception of damage caused by parafunctional habits showed an interesting dissociation in the present study. While 67.4% of participants demonstrated low perception of damage, only 8.8% exhibited high perception, despite the notable objective complications observed. This finding suggests inadequate patient awareness regarding the consequences of parafunctional activities, a critical consideration for implementing preventive interventions. In the present study, 19.8% of participants noticed tooth wear, yet 22.5% remained uncertain whether wear was accelerated, indicating limited clinical awareness of attrition patterns. Similarly, while 49.9% of participants combined reported symptoms of headaches (25.8% yes, 24.1% sometimes), and 33.8% reported TMJ-related clicking (15.8% yes, 18% sometimes), these manifestations may not have prompted adequate perception of restoration damage risk.

Patient satisfaction with fixed prostheses was generally favorable, with 21.5% satisfied and 13.2% very satisfied, contrasting with only 3.9% expressing dissatisfaction. Comfort levels were predominantly positive, with 19.2% comfortable and 17.4% very comfortable during mastication. These outcomes suggest that despite documented complications, patients may experience adequate functional and psychological benefit from their restorations. However, 18.6% reported fractures or loosening, and 12.5% experienced gum complications occasionally, indicating that complications do occur at clinically relevant frequencies.

Sociodemographic associations revealed that parafunctional habit prevalence was significantly related to gender ($P = 0.006$), age ($P = 0.0001$), educational qualifications ($P = 0.003$), and income level ($P = 0.009$). Female participants demonstrated a higher frequency of high or moderate parafunctional habits (65.6%) compared to males (34.4%), aligning with literature suggesting female predominance in bruxism and stress-related parafunctional behaviors.[11] Younger participants (29 years or less) showed a 27.1% prevalence of high or moderate habit frequency compared to 45.4% in the low frequency category, suggesting potential age-related differences in muscle activity patterns. These demographic associations reinforce the multifactorial nature of bruxism etiology, encompassing psychological factors increasingly prevalent in younger age groups and differential stress responses across gender groups.

Regarding perception of restoration damage, significant associations were found with age ($P = 0.0001$), residential area ($P = 0.018$), and income ($P = 0.0001$). Younger participants (29 years or less) demonstrated a higher perception of damage (48.4%) compared to older participants (50 or more years: 10%), an inverse relationship that may reflect greater oral health consciousness or heightened symptom awareness among younger age groups. Income level demonstrated a complex relationship, with both lower and middle income groups showing elevated damage perception compared to higher income participants, potentially reflecting differential access to prosthodontic education or healthcare communication patterns.

The present study presents certain limitations that warrant consideration. First, the cross-sectional design precludes causal inference regarding the long-term impact of parafunctional habits on restoration outcomes. Longitudinal follow-up studies would strengthen conclusions regarding restoration longevity. Second, parafunctional habit assessment relied on self-reported questionnaire data without objective instrumental confirmation through polysomnography or other objective measures, potentially introducing reporting bias. Third, the study population was predominantly drawn from the southern region of Saudi Arabia (72.9%), limiting generalizability to other geographic populations with potentially different demographic characteristics and healthcare access patterns. Fourth, restoration material composition and specific design characteristics were not comprehensively detailed, which may influence how restorations respond to parafunctional stresses; previous research demonstrates that material selection, particularly monolithic zirconia versus veneered restorations, significantly influences complication rates in bruxism patients.[20] Finally, the absence of clinical examination by trained examiners to objectively verify reported complications represents a methodological constraint, as patient self-report may underestimate or overestimate actual damage.

Despite these limitations, the present study provides valuable descriptive data regarding parafunctional habit prevalence and its associations with restoration longevity and patient satisfaction in a cross-sectional Saudi Arabian sample. The findings underscore the importance of systematic evaluation of parafunctional habits during prosthodontic treatment planning, particularly among female and younger patients who demonstrate elevated habit frequencies. Implementation of preventive strategies including patient education regarding habit modification, stress management, and protective appliances such as occlusal guards should be considered as adjunctive interventions to

enhance restoration longevity.[16] Future research incorporating longitudinal designs, objective diagnostic methods, and comprehensive material and design characterization would substantially advance understanding of prosthodontic outcomes in patients with parafunctional behaviors.

CONCLUSION

This study demonstrates that parafunctional habits, particularly bruxism and clenching, are prevalent among adults with fixed prosthodontic restorations and are associated with increased risk of restoration complications such as fractures and loosening. Significant relationships exist between these habits and certain sociodemographic factors, including age, gender, education, and income. Despite objective evidence of restoration wear and failure, patient awareness of these risks is often limited, highlighting a gap in prosthodontic patient education and counseling. Overall satisfaction with prostheses remains high, but targeted strategies are needed to screen for, prevent, and manage parafunctional behaviors to optimize restoration outcomes.

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ETHICAL APPROVAL

The study was fully explained to all participants, and it was emphasized that participation was voluntary. Written informed consent was obtained from each participant before enrollment. All collected information was securely stored and used exclusively for research purposes.

INFORMED CONSENT

Written informed consent was obtained from all study participants.

DATA AND MATERIALS AVAILABILITY

All data generated or analyzed during this study are included in this published article.

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