

Prevalence of Parafunctional Habits Among Adults of Janakpur Sub-Metropolitan City

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Abstract

Introduction: Patients with parafunctional habits, particularly bruxism represents a serious behavioral dental problem worldwide. Teeth and dental prosthesis are significantly harmed by these parafunctional activities. There is no exact data on the prevalence of parafunctional habits among Nepalese. The aim of the study was to identify various types of oral parafunctional habits among the adult population of Janakpur Sub-Metropolitan City.

Materials and Methods: This descriptive cross-sectional study was conducted among 276 adults of Janakpur Sub-Metropolitan City from September 2025 to December 2025. Convenience sampling technique was used. A questionnaire was used for collecting presence and absence of habits followed by a clinical examination was also done. The Statistical analysis was performed using IBM Statistical Package for Social Science 16.

Results: Among total 276 adults examined in the study, 56.2% were males and 44% were females. The mean age $\pm$ S.D. was 36.69 ± 10.84 years and 69.9 % of the adults had parafunctional habits. The most prevalent parafunctional habit was nocturnal tooth grinding, which was reported by 150 (54.3%) of participants. Wear facer was observed among 159 (56.7%) of participants while linea alba was present among 68 (24.6%) of participants

Conclusions: The study provides baseline information on the distribution and patterns of parafunctional habits among adults of Janakpur. There was high prevalence of parafunctional habits among the adults, and the nocturnal tooth grinding was the more among the different habits

Keywords: *Bruxism, Dental practice, Parafunctional Habits.*

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Introduction

The masticatory system frequently performs involuntary behaviors that go beyond normal functioning requirements and are categorized as parafunctional activities.¹ These behaviors include bruxism, clenching, nail biting, lip biting, thumb sucking, and tongue thrusting. While they may seem innocuous at first, prolonged use can affect overall health.^{2,3}

The prevalence of parafunctional habits has been shown to vary in the literature depending on the population studied, age group, diagnostic criteria, and the methods used for assessment.⁴⁻⁸ A few of the habits are more common among children, such as thumb sucking, tongue thrusting and nail

biting, while in adults, bruxism and clenching are prevalent. Anxiety, sadness, smoking, caffeine consumption, sleep disturbances, or malfunctions in the central nervous system are among the factors that contribute to parafunctional behaviour.^{9,10} Dental fractures, enamel erosion, and tooth wear are all consequences of bruxism and related masticatory activity. Parafunctional behaviour harm denture-bearing tissues and residual dentition, as well as reducing the lifespan of these prostheses.^{11,12}

The majority of parafunctional habits remain underreported and undiagnosed, endangering the health of important

oral structures.¹ Given the possible psychological and physical effects of these habits, it is crucial to identify the underlying causes to implement preventive measures. Over time, it is also necessary to assess the magnitude of parafunctional habits.⁴ There is a paucity of literature related to parafunctional habits and this study aimed to assess various types of oral parafunctional habits among adults of Janakpur Sub-Metropolitan City.

Materials and Methods

This descriptive cross-sectional study was conducted among 276 adults of Janakpur Sub-Metropolitan City from September 2025 to December 2025. Ethical clearance for the study was obtained from Institutional Review Committee of Madhesh Institute of Health Sciences (Ref No: MIHS-IRC/082/083-19).

Samples were collected using convenience sampling techniques. Based on the study conducted by Mehdipour et al., and using formula $n = Z^2pq/d^2$ where, $p = 22.6\%$ $13 = 0.226$, $q = (1 - p) = (1 - 0.226) = 0.774$ and $d =$ allowable error which is kept at 5%. The sample size was $n = 269$. However, at the end of study 276 participants were included in the study.

The study's inclusion criteria were participants of both genders aged 18-65 years. However, uncooperative patients, patients with any active infection of the face and cheek, and patients with a history of trauma/previous surgery of the orofacial region were excluded from the study.

Each participant was explained in detail about the study, and written consent was taken from each participant. The proforma included sociodemographic information and the presence or absence of oral habits, including tongue thrust, mouth breathing and thumb sucking. After completing the questionnaire, a clinical examination was carried out to identify the presence of parafunctional habits, which consisted of identifying the presence or absence of facets of dental wear, scalloped tongue and Linea alba in the oral mucosa.

The Statistical analysis was performed using IBM Statistical Package for Social Science 16 (IBM SPSS Statistics 16, IBM, Armonk, NY, United States). Continuous variables were described using means and standard deviations (SD), and categorical variables were presented as frequencies and percentages. Results were presented in the form of Tables.

Results

From the total of 276 adults examined in the study, the men were 155 (56.2%) and Females were 121 (43.8%). The mean age $\pm$ S.D. was 36.69 ± 10.84 years. About 70% of the respondents had parafunctional habits (Table 1)

Table 1: Characteristics of the participants and parafunctional habits

	n (%)	
Age in years (Mean $\pm$ S.D.)	36.69 $\pm$ 10.84	
Gender	Male	155 (56.2)
	Female	121 (43.8)
Parafunctional habits	No	83 (30.1)
	Yes	193 (69.9)

Table 2: Distribution of presence of parafunctional habits and clinical signs in the total sample

Parafunctional habits	Yes N (%)	No N (%)
Mouth breathing	56 (20.3)	220 (79.7)
Nail biting	21 (7.6)	255 (92.4)
Nocturnal tooth grinding	150 (54.3)	126 (45.7)
Diurnal clenching	11 (4.0)	265 (96.0)
Tongue biting	4 (1.4)	242 (98.6)
Cheek biting	20 (7.2)	256 (92.8)
Object biting	61 (22.1)	215 (77.9)
Leaning on arm	43 (15.6)	233 (84.4)
Finger sucking	6 (2.2)	270 (97.8)
Thumb sucking	5 (1.8)	271 (98.2)
Clinical signs		
Wear facet	159 (57.6)	117 (42.4)
Presence of Linea alba buccalis	68 (24.6)	208 (75.4)
Presence of scalloped tongue	57 (20.7)	219 (79.3)

Table 2 showed the distribution of parafunctional habits and the clinical signs among the 193 participants. The most prevalent parafunctional habit was nocturnal tooth grinding which was reported by 150 (54.3%) of participants followed by object such as pencil, bulb pen and toothpick biting reported by 62 (22.1%) and mouth breathing 56 (20.3%). Wear facer was observed among 159 (56.7%) of participants while linea alba was present among 68 (24.6%) of participants.

Discussion

The present study assessed the prevalence of parafunctional habits among the adults of Nepal. The study provides valuable baseline information on the distribution and patterns of these habits among adults in Janakpurdham city, Nepal, providing primary data for the Nepalese community.

The present study observed a prevalence of 69.9%, suggesting that the habit is more common and underscoring its clinical relevance and importance in public health. The prevalence of parafunctional habits reported in the study aligns with prior studies and even exceeds rates reported in international studies.^{14,15} Murad et al. reported a

prevalence of 64.84%,¹⁵ which was close to the present finding. Further, a study conducted among adults in Riyadh, Saudi Arabia, reported a prevalence was 76.4%.¹⁶ Such variations across studies signify differences in study design, age group included, diagnostic criteria used, and data collection methods. The findings of present study also demonstrated that the parafunctional habits are prevalent among adults, showing their clinical importance and public health concern.^{8,17} It also reflects the increasing burden of stress and associated oral conditions in country like Nepal.

The findings of the present study reported the most prevalent parafunctional habit was nocturnal tooth grinding (54.3%), followed by using objects such as pencils, bulb pens, and toothpicks (22.1%) and mouth breathing (20.3%).

The findings of the present study are different from Astu et al. They reported arm leaning as the most common habit, followed by bruxism and lip biting.¹⁸ Murad et al in their study reported biting of objects as the most prevalent habits followed by nail biting and clenching.¹⁵ Further, Alnojaidei et al. reported that using the tooth as a tool was the most common habit, followed by chewing ice and nail biting.¹⁶ This difference might be because of different study type, place of study, educational status and approach to the medical system. Published local and regional literatures have also shown association of such habits with psychological stress, anxiety and occupational related pressure.¹⁸⁻²¹ In fact, Nepal has also come across sudden socioeconomic changes in recent decade with migration, improper work environment and financial insecurity, all leading to increased stress. Thus, the psychological stressor has thereby led to high prevalence of parafunctional habits in this study.²²

The least reported parafunctional habit was tongue biting (1.4%), thumb sucking (1.8%) and finger sucking (2.2%). These habits are preferentially observed among children and tend to decrease with age. The less observation of these habits in the present study may also be due to the participants age group inclusion.²³ However, long term persistence of such habits of childhood till adulthood may also reflect the need of behavioral conditioning too.²⁴

The clinical signs of parafunctional habits include tooth wear, fractured dental restorations tenderness in the muscles (temporalis and masseter), presence of linea alba in the inner cheek, crenated tongue and biting of lips and cheek.^{4, 25-27} The study included few of the clinical signs such as wear facet, linea alba and scalloped tongue. Others were not taken into account due to funding limitations. Among the reported clinical signs, wear facer was observed among 159 (56.7%) of participants while linea alba was present among 68 (24.6%) of participants. Clinically, the high prevalence of parafunctional habits has been shown to be associated with pathological wear, cracks in enamel, gingival recession and temporomandibular joint disorders.^{4,8,28,29} In addition, they may also lead to periodontal trauma and masticatory muscle pain. Timely management of such habits is also associated with longevity of restorations and prosthesis.¹¹

Even though the findings of the study show the prevalence of the parafunctional habits, however there are limitations of the study. The first limitation is the descriptive cross-sectional study design which does not allow us to establish causal relationship between parafunctional habits and associated risk factors. Factors such as stress levels, mental health status, occupation associated and lifestyle factors were not taken into consideration. The authors did not involve any standardized diagnostic criteria too. Habits were noted as stated by the respondents, due to which the recall bias and underreporting cannot be ignored. The study included convenience method of sampling which itself has limitations. The study results are from a regional city of Nepal and findings cannot be generalized to whole country.

Conclusions

In conclusion, the present study assessed the prevalence of parafunctional habits among the adults of Nepal, and it is highly prevalent in the community. The study provides baseline information on the distribution and patterns of parafunctional habits among adults of Janakpur. There was high prevalence of parafunctional habits among the adults and the nocturnal tooth grinding was the more among the different habits.

Integrity and compliance statements

Ethics approval

Approved by the Institutional Review Board of the Institute of Health Research, Kathmandu (Ref: MIHS-IRC/082/083-19) on 7th Sept 2025.

Informed consent

Written informed consent was obtained from all participants for data collection and publication of anonymized data.

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No external funding was received for this work.

Conflict of Interest

The authors declare no competing interests.

Data availability

No datasets were generated or analyzed for this study.

Provenance and Peer Review

Not commissioned; externally peer reviewed. Double-blind peer review.

AI/LLM disclosure

No AI-assisted tools were used in this manuscript.

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Amrita Pandey: Design, concept, data collection, literature search, manuscript review and editing

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Bios

Dr Rajib Chaulagain: is an Associate Professor in the Department of Dentistry at MIHS. He is also associated with health research at MIHS. He is an Oral anatomist and Oral biologist. He has keen interest in temporomandibular disorders, metabolomics and medical education too.

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