DENTIN
JURNAL KEDOKTERAN GIGI
Vol VII. No 1. April 2023

THE RELATIONSHIP BETWEEN ANXIETY AND BRUXISM IN ADULTS (Literature Review)

Rizki Amalia[1)], Rahmad Arifin[2)], Galuh Dwinta Sari[3)]
[1)] Faculty of Dentistry, University of Lambung Mangkurat Banjarmasin
[2)] Departement of Prosthodontic, Faculty of Dentistry, University of Lambung Mangkurat Banjarmasin
[3)] Departement of Psychology, Faculty of Dentistry, University of Lambung Mangkurat Banjarmasin

ABSTRACT
Background: *Anxiety disorder is a psychological condition that includes worry, anxiety, and restlessness. The prevalence of emotional anxiety disorders in Indonesia is 9.9%, anxiety can cause somatic symptoms causing irritability, muscle tension and restlessness which results in the appearance of parafunctional oral activities such as bruxism. Bruxism is a bad habit of grinding and clenching teeth excessively inadvertently which involves the activity of the masticatory muscles, resulting in clinical problems in the involved teeth, such as attrition, tooth fracture, and increased sensitivity and degree of tooth mobility, exostosis and torus of the jawbone, hypertrophy of the masticatory muscles, periodontal tissue damage, and causes headaches and temporomandibular joint damage* ***Purpose:*** *The purpose of the literature study was to determine the relationship between anxiety and bruxism in adults Material and* ***Methods:*** *All reviewed articles were obtained from searching Google Scholar, Pubmed and Science Direct data sources which have a maximum journal publication time of 10 years.* ***Results:*** *The review was conducted in 22 journals that were responding with the inclusion criteria such as journals available in the form of full text in Indonesian or English, the subjects of the journal were people who have an adult age suffering from anxiety and bruxism.* ***Conclusion:*** *there is a relation between anxiety and bruxism in adult.*

Keywords: *Adult, Anxiety, Bruxism.*
Correspondence: Rizki Amalia; Faculty of Dentistry, Lambung Mangkurat University, Veteran Street No.128B, Banjarmasin, South Borneo, E-mail author: rizkiamalia089@gmail.com

INTRODUCTION

Anxiety disorders is a psychological condition that includes worry, anxiety, and restlessness. According to Riskesdas data in 2018 in Indonesia, it was found that the prevalence of emotional anxiety disorders was 9.9%. In the global prevalence of anxiety in 2010, it was found that 5.2% suffered from anxiety and it was also found that occupation, education, place of residence, and gender influenced the high level of emotional anxiety disorder. Anxiety is most often found in adulthood because it is a productive age.[1,2] Anxiety causes somatic symptoms that can cause irritability, muscle tension, and restlessness. Anxiety can also have a negative impact on cognitive and behavioral traits, such as behaviors like avoiding crowds and difficulty concentrating. When suffering from anxiety, the level of norepinephrine in the blood can increase through the sympathetic nervous system. This gives rise to parafunctional activities such as bruxism.[3,4]

Bruxism consists of 2 types, namely awake bruxism and sleep bruxism. Awake bruxism is a parafunctional disorder that occurs when awake while sleep bruxism occurs during sleep. Bruxism is caused by several factors, namely genetics, systemic diseases, local factors such as premature contact of the dentition, as well as psychological factors such as stress and anxiety.clenching teeth excessively inadvertently involves the activity of the masticatory muscles, resulting in clinical problems in the involved teeth such as attrition, tooth fracture, increased sensitivity and degree of tooth mobility, exostosis and torus of the jawbone, muscle hypertrophy, mastication, periodontal tissue destruction, and causes headaches and temporomandibular joint damage. Damage to the temporomandibular joint, often referred to as temporomandibular disorder (TMD), is a chronic

disorder that occurs in the musculoskeletal system in the head, which includes joints and muscles. Morphological changes in the Temporomandibular Joint (TMJ) caused by inflammation can cause wear and tear on the condyllion and articular eminence, reduced lubrication of the discs that are elongated, and asymmetry on the face.[5]

on the explanation above, researchers are interested in conducting this literature study because there is no literature study that examines the relationship between anxiety and bruxism in adults. The importance of conducting literature studies in adulthood is because adulthood is a productive age that is prone to anxiety that can cause parafunctional oral activities such as bruxism.

MATERIAL AND METHODS

The review was conducted on 22 pieces of literature obtained by searching using PubMed, Science Direct, and Google Scholar using the keywords: bruxism, anxiety, and bruxism in adults. The criteria for the literature reviewed are English or Indonesian literature, published in 2012-2021 and accessible in full text.

LITERATURE REVIEW

Measurement of Anxiety

According to Goulart (2019), the measurement of anxiety aims to determine the level of anxiety of individuals. This anxiety measurement method is presented in the form of a questionnaire related to anxiety symptoms. There are several methods of measuring anxiety, namely the Agrophobic Cognitive Questionnaire, State-Trait Anxiety Inventory, Hamilton Anxiety Rating Scale, Hospitality Anxiety and Depression Scale, and Beck Anxiety Inventory.[6,7]

Bruxism Diagnostic Methods

Based on Manfrendini (2016) the method of diagnosing bruxism can be done instrumentally or non-instrumentally. The instrumental diagnosis method can be done by two methods, namely by observing the attrition and polysomnography which measures the activity of the electromyographic masseter. Meanwhile, non-instrumental measurement can be done by distributing questionnaires concerning the characteristics of bruxism.[8,9,10]

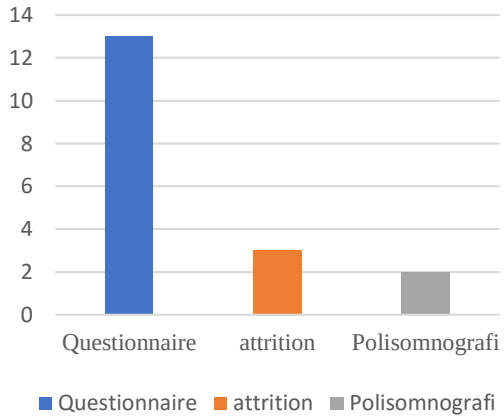

Figure 1. Bar Chart Bruxism Diagnostic Methods

Figure 1 shows that the most widely used bruxism measurement method is the questionnaire method, while the least used bruxism measurement method is the polysomnographic method.

Effect of Age on Anxiety and Bruxism

Based on Tavares (2016) Anxiety can be influenced by age, it was found that adults are vulnerable to being found experiencing anxiety due to the pressures of life and also the demands in work experienced at that age.[10]

Based on Bandodkan (2021) bruxism can be influenced by age. Younger individuals were found to have a higher rate of bruxism than older people, the older they get, the less the incidence of bruxism.[11]

The Effect of Gender on Anxiety

Based on Alkhatatbeh (2021) women have higher anxiety than men. Anxiety in women is higher because women have negative emotional feelings and are more sensitive than men. Anxiety in women tends to be caused by internal factors, and women tend to be more easily depressed and excessive in expressing anxiety.[12]

The Effect of Gender on Bruxism

Table 1. Bruxism is classified based on its severity.

No	Writer	Bruxism	
		Female	Male
1	Goulart C A (2019)	35,12 %	64,88 %
2	Alkhatatbeh M J (2021)	68%	32%
3	Keskinruzgar A (2018)	65%	35%
4	Ahlberg J (2013)	46,34%	56,66%
5	Vieira K R M (2019)	80,5%	19,5%
6	Câmara-Souza M B (2020)	72,5%	27,5%
7	Hashemipour, Mohammadi, Nassab (2021)	58%	42%
8	Kara M I (2012)	49%	51%
9	Bandodkar S, et al (2021)	70,3%	29,7%
10	Tinastepe N (2021)	74,6%	25,4%
11	Li Y (2018)	60,4%	39,6%
12	Montero (2017)	49,8%	50,2%

Table 1 show Table 1 shows that the percentage of bruxism in females is the highest at 80.5% and the lowest at 35.12%, while the percentage of bruxism in males is the highest at 64.88% and the lowest at 19.5%.

Based on Przystanka (2019) it was found that the female gender had a higher rate of bruxism than the male. Bruxism that occurs in women has a relationship with psychological conditions. Bruxism is a manifestation of a psychological condition. Women have a higher level of psychological disorders than men because women tend to have more emotional feelings.[13]

DISCUSSION

Anxiety is a psychological condition that can happen to a person. Anxiety disorders are feelings of worry, anxiety, and restlessness that arise. Everyone's anxiety level is different. There are various methods used in measuring anxiety, namely the Agoraphobic Cognition Questionnaire (ACQ), State-trait Anxiety Inventory (STAI), Hamilton Anxiety Rating Scale (HAM-A), Hospital Anxiety and Depression Scale (HADS), Beck Anxiety Inventory (BAI), Symptom Checklist-90 (SCL-90-R), Modified Dental Anxiety Scale (MDAS), and General Anxiety Disorder-7. Based on the research of Hermesh (2014) The state-trait anxiety inventory (STAI) was used to develop common symptoms of anxiety-like and discovery. The State-trait Anxiety Inventory (STAI) is a method that is often used to measure general anxiety. This method has the advantages of strong validity and is easy to use. This method was developed by Charles D. Spielberger. In using this method, there are two questions that are asked related to the problem of the STAI-E state (temporary emotional state) and the anxiety nature of STAI-R (anxiety, the tendency of participants who are relatively stable in general). These questions are individually graded between one and four. Then, values ranging from 20 to 80 were recorded for the calculation of the state-trait anxiety inventory (STAI).[6,7]

Anxiety can be caused by several factors, namely gender, age, and environment. Tavares' research (2016), which found that adults are prone to experiencing anxiety due to the pressures of life experienced by the individual, but this is in contrast to Hasemipuor's (2021) research, which states that all ages have a risk of experiencing anxiety, because anxiety occurs in individuals does not depend on the age of the individual, but on the social environment or trauma suffered. In the study of Tavares (2016), which found that adults are vulnerable to being found experiencing anxiety due to the pressures of life experienced by these individuals.[10,14]

Research conducted by Ahlberg (2013) found that males who live in metropolitan areas have higher levels of anxiety. This is because the men who are respondents in this study have reached adulthood, which is a productive age at work, so that the higher pressure received causes anxiety, but this is contrary to Alkhatatbeh's (2021) study, which found that the Hospital Anxiety Score and Depression Scale (HADS) for women is higher than for men, because women have negative emotional feelings and are more sensitive than men. Anxiety experienced by women can be influenced by external factors and internal factors such as hormones.[12] Women tend to be excessive in expressing anxiety and are more easily depressed. This is supported by research by Li Y (2018), which states that women are at greater risk of experiencing anxiety and depression compared to men.[15-17]

The influence of age can be related to anxiety, as in Tavares' research (2016), which found that adults are susceptible to experiencing anxiety due to the stresses of life experienced by the individual, but this is contrary to Hasemipuor's (2021) research, which states that all ages have a risk. the occurrence of anxiety experienced, because the anxiety that occurs in individuals does not depend on the age of the individual, but on the social environment or trauma suffered.[10,15]

According to Goulart's research (2019), it is stated that people who live in densely populated environments and have a large number of children cause high anxiety, the use of smartphones, and irregular working hours can also cause anxiety.[6]Anxiety causes manifestations that occur in the body such as excessive sweating, shaking,

muscle tension and parafunctional oral such as bruxism. According to research by Keskinruzgar (2018), it was found that the Stait-Trait Anxiety Inventory (STAI) score was significantly higher in patients with bruxism.[13] This is supported by Hashemipour's study which found that the anxiety score calculated using the Symptom Checklist-90 (SCL 90 R) was significantly higher in people with bruxism.[14]

Bruxism can be diagnosed using 2 methods, namely instrumental methods, and non-instrumental methods. The instrumental method consisted of polysomnography and examination attrition while the non-instrumental method used a questionnaire. The questionnaire method is the most widely used method for diagnosing bruxism because it is considered cheap and easy. In this method, it is done by asking questions regarding the characteristics of bruxism, such as whether the individual is aware of making jaw clenching movements, fatigue, and facial pain occurring, temporomandibular pain, and respondents can answer yes, no, or do not know. Questions can also be included in the questionnaire which aims to determine whether the bruxism experienced is awake bruxism or sleep bruxism. such as the presence or absence of bluffing and jaw clenching activities during the day and the presence or absence of conscious bruxism during sleep. The measurement method using polysomnography (PSG) is the method that is rarely used in reviewed research journals because polysomnography (PSG) has weaknesses, namely the cost required is very high, it takes a long time to manually assess visualization, and the laboratory environment must be specially designed and completed. This tool is also rarely considered for use because it is considered to have only a small impact on the medical world.[8,9,10]

According to Bandodkar (2021) age affects bruxism, this is proven in a study that divided groups of respondents based on their age it was found that the prevalence of bruxism was higher in patients who had an age group of 30 years (56.7%) than patients in the age group of 31-35 years (26.7%) and patients over the age of 35 years (16.7%) in this study, this is because the 30-year-old group experiences more pressure in work and the environment that can cause psychological disorders that affect the occurrence of depression. bruxism. This is supported by the findings of Hashemipour's (2021) study, which conducted a study of ages 34–60 years and found that the increasing age of the respondents, the less the incidence of bruxism.[11,15]

Bruxism in women is higher than in men because bruxism has a relationship with psychological conditions. Bruxism is a manifestation of psychological conditions. Women have a higher level of psychological disorders than men due to the sensitive nature of women compared to men. Research conducted by Przystanka (2019) which examined bruxism found that the female had a higher rate of bruxism than the male gender. This statement is supported by research conducted by Keskinruzgar (2018), who conducted research at Adsaya University Yemen and found that the prevalence of bruxism was found to be higher in women compared to men.[13,14]

Hat arises influences the occurrence of bruxism, especially in adults, which is a person's productive age at work and can cause adverse effects. One of the problems caused by anxiety is bruxism which can affect the quality of human life and leads to problems with damage to the supporting structures of the teeth, tooth wear, bone fractures, wear of dental restorations or implants, temporomandibular and musculoskeletal disorders that cause facial pain.[16,17]

The relationship between anxiety and the occurrence of temporomandibular joint disorders can generally occur because anxiety causes bruxism, which is basically a manifestation of anxiety. It affects the body's muscles (including the temporomandibular muscles) to deal with all forms of threats or burdens that exceed their normal abilities. Changes in these muscles are in the form of an increase in muscle activity (hyperactivity), such as clenching the jaw, opening and closing the jaw hard, grinding and clinching. The state of hyperactivity that lasts a long time or continuously will trigger muscle fatigue, which will be followed by muscle spasms. This muscle spasm will then trigger changes in the pattern of mastication, disharmony in the relationship between the maxillary and mandibular teeth, imbalance in load distribution or excessive loading on the joints. If it lasts long and continuously, it will cause disturbances and even damage. further in the temporomandibular joint and teeth or the surrounding area.[8,18] Can be concluded that anxiety and bruxism that occur in adults have a relationship. Bruxism is a response that arises as a result of anxiety. Individuals who have anxiety are found to suffer from bruxism.

REFERENCES

1. Putri AW, Wibhawa B, Gutama AS. Kesehatan mental masyarakat Indonesia (pengetahuan dan keterbukaan masyarakat terhadap gangguan kesehatan mental). PROSIDING KS: RISET & PKM. 2015; 2(2): 252-258.
2. Kementrian Kesehatan Republik Indonesia. Laporan Nasional Riskesdas tahun 2018. LPB. 2019; Hal: 227-228.
3. Udawiyah R, Ariani NKP, Lesmana CBJ. Prevalensi kecemasan pada Caregiver pasien kanker di RSUP Sanglah periode Januari 2019. 2019; 50(3): 470-473.
4. Rofiqah T. Konseling religius: mengatasi rasa kecemasan dengan mengadopsi terapi zikir berbasis religiopsikoneuroimunologi. Jurnal KOPASTA. 2016; 3(2): 75-85.
5. Gunawan H, Ifwandi, Rahmayani L. Gambaran Kasus Deviasi Mandibula Pada Mahasiswa Fakultas Kedokteran Gigi Unsyiah Angkatan 2011-2015 Yang Memiliki Aktivitas Parafungsi (Bruxism). Journal Caninus Denstistry. 2017; 2(2): 97-103.
6. Goulart A C, Arap AM, Bufarah HB, Danielle B, Marcos R, Danielli HS, Yuan PW. Anxiety, Depression, and Anger in Bruxism: A Cross-sectional Study among Adult Attendees of a Preventive Center. Psychiatry Research. 2021: 1-5.
7. Hermesh H, Schapir L, Marom S, Skopski R, Barnea A, Weizman A, Winocur E. Bruxism and oral parafunctional hyperactivity in social phobia outpatients. Journal of Oral Rehabilitation. 2014; 42: 90-97.
8. Wagner B A, Filho PFM, Bernardo VG. Association of bruxism and anxiety symptoms among military firefighters with frequent episodic tension type headache and temporomandibular disorders. Arq Neuropsiquiatr. 2019; 77(7): 478-484.
9. Manfredini D, Arreghini A, Lambardo L, Alessandra V, Silvia C, Tommaso C, Giuseppe S. Assessment of anxiety and coping features in bruxers: A portable Electromyographic and Electrocardiographic Study. Journal of oral & Facial pain and Headhace. 2016: 249-253.
10. Tavares L, Macedo L, Duarte C, Gilberto S, Ricardo S. Cross-sectional study of anxiety symptoms and self-report of awake and sleep bruxism in female TMD patients. CRANIO®. 2016: 1-5.
11. Bondodkar S, Tripathi S, Chand Pooran, Saumyendre, Deeksha A, Lakshya K, Rameshwari S, Adarsh T. A study to evaluate psychological and occlusal parameters in bruxism. journal of Oral Biology and Craniofacial Research. 2021: 38-41.
12. Alkhatatbeh MJ, Hmoud ZL, Razzak KKA, Esam M. Self-reported sleep bruxism is associated with vitamin D defciency and low dietary calcium intake: a case-control study. BMC Oral Health. 2021: 1-10.
13. Przystan´ska A, Jasielska A, Ziarko M, Molgorzata P, Zofia M, Agata P, Magdalena, Malgorzata G, Agata C. Psychosocial Predictors of Bruxism. Hindawi. 2019: 1-7.
14. Keskinruzgar A, Aysun K, Yavuz GY, Aysdan S. Investigation of neurodegenerative and inflammatory processes in sleep bruxism. CRANIO®. 2018: 1-9.
15. Hashemipour MA, Mohammadi L, Nassab SAHG. Self-reported bruxism and stress and anxiety in adults: A study from Iran. Vesnu Publications. 2020; 10(2): 86-92.
16. Ahlberg J, Frank L, Kristiina A, Daniele M, Christer H, Muono K, Aslak S. Self-reported bruxism mirrors anxiety and stress in adults. Med Patol Oral Cir Bucal. 2013; 18(1): 7-11.
17. Fellbyan, Rahmad A, Galuh DS. Correlation between stress and temporomandibular disorder in orphaned adolescent in Banjarmasin. Dentino Jurnal Kedokteran Gigi. 2020; 5(2): 127-132
18. Li Y, Yu F, Niu L, Yong L, Franklin R, Jihua C. Association between bruxism and symptomatic gastroesophageal reflux disease: A case-control study. Journal of Dentistry. 2018: 1-8.
19. Tinastepe N, Iscan I. Relationship between bruxism and smartphone overuse in young adults. CRANIO®. 2021: 1-8.