

# Buspirone Effectiveness in treatment of SSRI induced Bruxism, a comprehensive systematic review

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## Systematic Review

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# Abstract

The aim of this paper is to do a systematic review using the PRISMA flow system about Buspirone role in treatment of induced bruxism by selective serotonin reuptake inhibitors SSRIs families. We did a comparison between patients with bruxism who received intervention by Buspirone and the controls of Buspirone intervention in a review. We included in the review the research articles including case reports and full text articles and excluded the systematic and literature reviews in purpose of having specific data about the topic. The databases were Pubmed and Google scholar.

## Background:

Bruxism is defined as a repetitive masticatory muscle activity characterized by clenching or thrusting of the mandible [1] although the exact etiology hasn't been fully understood there are many case reports highlighting the potential involvement of pharmacologic agents such as SSRIs. Selective Serotonin Reuptake Inhibitors or SSRI are a class of antidepressants widely used in the treatment of psychiatric disorders such as major depressive disorders, anxiety disorders and others. Buspirone has been used in the treatment of SSRI induced bruxism

We present a systematic review of published case reports evaluating the effectiveness of Buspirone in treating SSRI induced bruxism retrieved from 17 papers

The SSRI used drugs for intervention:

1. Buspirone
2. Aripiprazole
3. Gabapentin

The inducing bruxism drugs:

1. paroxetine-induced bruxism
2. Citalopram-induced bruxism
3. antihistaminergic drugs
4. Fluoxetine-induced sleep bruxism
5. Antidepressant-induced bruxism
6. Bruxism Induced by Venlafaxine
7. Duloxetine-Induced Nocturnal Bruxism
8. Fluvoxamine-Induced Bruxism
9. Sertraline induced bruxism
10. venlafaxine-induced diurnal bruxism

We explored the available and recent research articles and systematic reviews, as well as the chapters and letters for SSRI and Bruxism relation including treatments interventions and we collected our databases according to our selected topic which is Buspirone relation to Bruxism. We chose Buspirone from the rest of the drugs because it is the most effective and the one with the most published literature. We aim to add more useful reviews for researchers to collect better information about Buspirone and Bruxism.

A study summarizes the clinical features and treatment of antidepressant-associated bruxism and associated jaw pain through a systematic review of case reports [2]. 4 cases support the concept of buspirone acting as a full agonist at the presynaptic 5-HT somatodendritic receptors located on the cell bodies of raphe serotonergic neurons that project to the ventral tegmental area VTA of the midbrain [3]. Another study suggests an association between SSRI treatment and the onset or exacerbation of nocturnal bruxism. In addition, they suggest that a decrease in SSRI dosage or the addition of buspirone may relieve SSRI-associated NB [4]. The use of SSRIs might be associated with the occurrence of bruxism [5]. A review states that there is insufficient evidence based data to draw definite conclusions concerning the effects of various drugs on bruxism [6]. Clinicians should be aware that the potential for paroxetine-induced bruxism exists and that buspirone may be an appropriate therapeutic intervention [7]. Many cases highlight that nocturnal bruxism can occur in response to any of the SSRIs, and that induction may be dose-dependent. They add to the literature suggesting that nocturnal bruxism can be treated with buspirone [8]. a study reports the case of a patient with severe OCD and SSRI-induced bruxism successfully treated with low-dose aripiprazole [9]. Purpose of one of the literature reviews is to better understand the mechanism of SSRI-induced bruxism, as well as discuss alternative antidepressant options for treating depression and anxiety in patients with bruxism and TMD [10]. The case of antihistaminergic drugs which may induce bruxism as a consequence of their disinhibitory effect on the serotonergic system [11]. Another study highlights the importance of recognizing SSRI-induced bruxism and the possible related adverse dental side effects. Furthermore, this report supports the efficacy of a treatment strategy in adolescents, which has previously been reported only for adult patients [12]. One study reports cases of bruxism induced by high doses of escitalopram (first report of escitalopram-induced bruxism) and venlafaxine, who were treated by dose adjustment. Subsequently we discuss the need for buspirone in such cases [13]. Another study evaluates reported bruxism among children affected by attention deficit hyperactivity disorder (ADHD) [14]. Bruxism should be considered as a possible adverse effect of venlafaxine [15]. A study reports a case of duloxetine-induced bruxism in a patient with generalized anxiety disorder [16]. Fluoxetine and paroxetine, SSRIs used for the treatment of anxiety and depression, may initiate or aggravate SB. Clinicians should consider that SSRIs may be the cause of SB when SSRI users are referred to dental clinics for SB symptoms. As there is a shortage of research on this subject [17]. Another study presents a narrative literature on medications and addictive substances potentially inducing or aggravating sleep bruxism and/or awake bruxism and on medications potentially attenuating sleep bruxism and/or awake bruxism [18].

Effective treatment of social phobia SP may mitigate bruxism [19]. A study documents the successful monitoring of fluoxetine-induced nocturnal bruxism in a healthy adult without a change in the patient's

medication regimen [20].

A 61-year-old patient with major depression and selective serotonin reuptake inhibitor-induced bruxism was successfully treated with a course of bilateral electroconvulsive therapy. Both the depressive symptoms and bruxism completely remitted after six treatments. Possible mechanisms of this effect are discussed [21].

The collected studies explore the role of Buspirone in treatment of bruxism. A study used Buspirone in the intervention for one patient [23]. Another study used a group of medications (SSRI): temozolamide. L-dopa, gabapentin, clonazepam, clonidine, baclofen, buspirone, and propranolol were not effective for bruxism. Mirtazapine 15 mg/day was started and increased to 30 mg/day [24]. A case report for two patients detects symptoms of fear, headache, anxiety (something will happen to his mother) stomachache and diagnosis: separation anxiety disorder [25]. The primary Intervention: 15 mg/day fluoxetine and the mother complained her son, the patient, grinds his teeth 1-2 h/night. Second intervention was fluoxetine continued, added 5 mg Buspirone three times a day [25]. A study of one patient aging 7 years old had symptoms: fear of darkness, inattention, hyperactivity, difficulty in concentration, fear of losing his mother and tooth grinding, no abnormal nocturnal movement [26]. Diagnosis was ADHD and SAD. Intervention was 5mg/d single dose Buspirone [26]. Another study of a patient also had 7 years old had symptoms of severe bruxism, mostly diurnal, previously diagnosed PDD NOS, born prematurely, complex medical history (born THC+, developed necrotizing enterocolitis, chronic lung disease, unspecified metabolic disease, asthma, GERD, short intestine syndrome, cirrhosis, portal hypertension [27]. Intervention was 1.5 mg buspirone daily for a week then 2.5 mg x2 daily. 5mg x3 daily showed improvement, later given melatonin to treat insomnia caused by Buspirone 6mg daily [27].

Another study of a patient aging 6 years old had symptoms of lack of attention, lack of concentration, getting bored with activities quickly, failure in school, and behavioral problems. Medication was atomoxetine 10 mg/day, increased to 18 mg/day. Later on to 40 mg/day (at 40 mg nocturnal bruxism started) following discontinuation of atomoxetine, bruxism stopped, after continuation of atomoxetine bruxism reappeared, later started on 5 mg Buspirone [28]. Participant 1: Age: 48, Sex: male, general anxiety disorder, anankastic personality disorder. Meds: 40 mg/d escitalopram, 50 mg/d losartan. Onset of bruxism that went away on 25 mg/d escitalopram. Participant 2: Age: 18, sex: female, complicated grief, suicidal thoughts, Meds: 37.5 mg/d venlafaxine increased to 225mg/d over 3 weeks. Patient started grinding, and venlafaxine was decreased to 187.5 mg/d [29]. Another study of a patient of 28 years old received Meds: Paroxetine 10 mg/d increased to 20 mg/d (dentist noted signs of bruxism 4 months after treatment) started on 5 mg/d Buspirone [30]. A study of a patient aging 6 years old and sex was female, had Separation Anxiety Disorder. Medication used was: Fluoxetine 7.5 mg/d resulted in nocturnal bruxism, treated with Buspirone 5 mg/d, fluoxetine increased to 10 mg/d and then to 30 mg/d [31].

Another study conducted using intervention of buspirone on four patients [32]. A study done on one patient aging 15 years old. The used medications were: fluoxetine 20 mg/d. Symptoms after intervention were severe bruxism and intervention was Buspirone 10 mg/night added [33]. Symptoms: severe

headaches, anhedonia, feeling of worthlessness and sadness, inability to concentrate. Diagnosis was depressive mood, muscle contraction headaches. Medications used were paroxetine 10 mg/nightly, doubled after 7 days. Side effects were severe nocturnal bruxism. Treatment used was 5 mg/nightly Buspirone [34]. Diagnosis of another patient was Generalized Anxiety Disorder. Medications used were started on 60 mg/d Duloxetine (started experiencing onsets of bruxism so dosage was reduced to 30 mg/d), Duloxetine stopped, patient then started on 5 mg/d Buspirone, increased to 20 mg/d [35]. Case 1: age: 29, sex: female, Diagnosis: type 2 bipolar disorder. Previous meds: couldn't tolerate sertraline. paroxetine induced bruxism and tinnitus. Mood lability stabilized with valproic acid. Venlafaxine 37.5 mg/d for a week, increased to 75 mg/ x2 a day. (After two weeks of 75 mg x2 a day she started experiencing bruxism symptoms) Started on 10 mg/d Buspirone, increased to 30 mg/ x2 a day and Venlafaxine adjusted to 75 mg/d. Case 2: age: 36, sex: female, diagnosis: major depressive disorder, panic disorder. Previous meds: Phenelzine 75 mg/d. Another patient reported symptoms of this period when she was being titrated with phenelzine, she developed akathisia in addition to other complications such as anticholinergic toxicity (confusion, ataxia, urinary retention, and blurry vision) and orthostatic hypotension, started on Buspirone 10 mg/d [36]. Meds: venlafaxine 37.5 mg/d titrated up to 150 mg/d. Patient reported severe nocturnal bruxism after a week. (Patient previously reported bruxism on escitalopram and fluoxetine) Clonazepam 2 mg/d started and no relief in bruxism. Buspirone started 10 mg/d then increased to 20 mg/d [37].

Other patients received medications: antidepressant dosage n=1, Buspirone n=3. Patients developed nocturnal bruxism in 2 to 4 weeks after starting treatment with fluoxetine and sertraline [38]. Another patient received atomoxetine 10 mg/d. Onsets of bruxism began in 4 weeks, and started Buspirone 10 mg/d and showed significant improvement [39].

## Methods:

We selected the systematic review type of reviews to answer a question we proposed about bruxism and SSRI. The proposed question is:

- a. What is the effect of Buspirone in the treatment of bruxism resulting from SSRI induced bruxism?
- b. What are the types of interventions and the dosage used in the treatment by Buspirone of bruxism?
- c. What are the consequences of treatment by Buspirone of bruxism, if any?

Study identifying:

We made an inclusion and exclusion criteria for the systematic review. We searched using the terms "Buspirone and Bruxism" in the databases' search engine. The inclusion criteria were research articles and case reports. We decided the exclusion criteria to be the books, chapters, reviews, and letters to the editors.

Study selection:

We used the PRISMA flow chart system by generating a chart on the PRISMA flow chart generator [22]. We searched using the terms Buspirone and Bruxism in the database Pubmed and Google Scholar. A total of 68 citations were obtained: 23 citations in PubMed and 45 citations in Google Scholar. The inclusion criteria applied were research articles and case reports, while the exclusion criteria were reviews, letters to the editor, books, and chapters. A total of 44 articles were excluded after the first screening: title and abstract reading. A total of 7 articles were excluded after the second screening: full text reading and data extraction. The included papers were 17 papers.

Charting the data:

## **Results:**

The data of the collected papers are represented in a table.

Study (Author, Year)	Patient Information	Diagnosis	Medication	Dosage
Dora Pedroso Kowacs et al, 2021	NOP:4	Bruxism	Buspirone	N/A
Mohsen Khosravi, 2020	NOP: 1 Age: 41, sex: male	Glioblastoma, PTSD, onsets of diurnal bruxism	temozolomide. L-dopa, gabapentin, clonazepam, clonidine, baclofen, buspirone, and propranolol were not effective for bruxism	Mirtazapine 15 mg/day was started and increased to 30 mg/day
Rukiye Çolak Sivri et al, 2016	NOP: 1 Age: 7, male  Symptoms: fear, headache, anxiety, stomachache	separation anxiety disorder	Flouxetine, Buspirone	Primary Intervention: 15 mg/day fluoxetine.  Second intervention: fluoxetine continued, added 5 mg Buspirone three times a day
Ebru Sağlam et al, 2019	NOP: 1 Age: 7, male  Symptoms: fear of darkness, inattention, hyperactivity, difficulty in concentration, fear of losing his mother and tooth grinding, no abnormal nocturnal movement	ADHD, SAD	Buspirone	5mg/d single dose Buspirone

Study (Author, Year)	Patient Information	Diagnosis	Medication	Dosage
Danielle K Orsagh-Yentis, 2011	NOP: 1 Age: 7, male  Symptoms: severe bruxism, mostly diurnal	PDD NOS, born prematurely, complex medical history (born THC+, developed necrotizing entérocolites, chronic lung disease, unspecified metabolic disease, asthma, GERD, short intestine syndrome, cirrhosis, portal hypertension)	propranolol, lansoprazole, fluticasone, phytonadione, codeine sulfate, cetirizine, montelukast, and albuterol, along with vitamin K injections, Buspirone	1.5 mg buspirone daily for a week then 2.5 mg x2 daily. 5mg x3 daily showed improvement, later give melatonin to treat insomnia caused by Buspirone 6mg daily
Murat Yüce et al, 2013	NOP: 1 Age: 8, male  Symptoms: lack of attention, lack of concentration, getting bored with activities quickly, failure in school, and behavioral problems	Bruxism	Atomoxetine, Buspirone	atomoxetine 10 mg/day, increased to 18 mg/day. Later on to 40 mg/day (at 40 mg nocturnal bruxism started) following discontinuation of atomoxetine, bruxism stopped, after continuation of atomoxetine bruxism reappeared.  Later started on 5 mg Buspirone
Sanjeev Ranjan et al, 2002	NOP: 2 Participant 1: Age: 48, Sex: male  —  Participant 2: Age: 18, sex: female	general anxiety disorder, anankastic personality disorder  —  complicated grief, suicidal thoughts	Escitalopram, Losartan  —  Venlafaxine	40 mg/d escitalopram, 50 mg/d losartan  —  37.5 mg/d venlafaxine increased to 225mg/d over 3 weeks. Patient started grinding, venlafaxine was decreased to 187.5 mg/d.
F Romanelli et al, 1996	NOP: 1, age: 28, female	Depression	Paroxetine, Buspirone	Paroxetine 10mg/d increased to 20 mg/d (dentist noted signs of bruxism 4 months after treatment) started on 5 mg/d Buspirone.

Study (Author, Year)	Patient Information	Diagnosis	Medication	Dosage
Betül Akbaş et al, 2018	NOP: 1, age: 6, sex: female	Seperation Anxiety Disorder	Fluoxetine, Buspirone	Fluoxetine 7.5 mg/d resulted in nocturnal bruxism, treated with Buspirone 5 mg/d, fluoxetine increased to 10 mg/d and then to 30 mg/d.
J M Bostwick et al, 1999	NOP:			
Osman Sabuncuoglu et al, 2009	NOP: 1, age: 15, sex: female	Major Depression	Fluoxetine, Buspirone	Fluoxetine 20 mg/d, patient started having episodes on SB, 10 mg/nightly Buspirone added
Aysel Milanlioglu, 2012	NOP: 1, age: 38, sex: female	Depressive mood, Muscle Contractions, Headaches	Paroxetine, Buspirone	Paroxetine 10 mg/d doubled after 7 days, onsets of severe SB occurred, Buspirone 5 mg/nightly added
Yakup Albayrak et al. 2011	NOP: 1, age: 32, sex: female	Generalized Anxiety Disorder	Duloxetine, Buspirone	Duloxetine 60 mg/d reduced to 30 mg/d after onsets of bruxism began. Duloxetine discontinued and  Buspirone 5 mg/d increased to 20 mg/d

Study (Author, Year)	Patient Information	Diagnosis	Medication	Dosage
M S Jaffee et al. 2000	NOP: 2 Participant 1: age: 29, sex: female --- Participant 2: age: 36, sex: female	participant 1: type II bipolar disorder --- Participant 2: Major Depressive Disorder, Panic Disorder	Participant 1: Valproic Acid, Venlafaxin, Buspirone --- Participant 2: Phenelzine, Buspirone	participant 1: Venlafaxine 37.5 mg/d for a week, increased to 70 mg twice a day, Bruxism started. --- Participant 2: Buspirone 10 mg/d increased to 30 mg/d Venlafaxine adjusted to 75 mg/d --- Participant 2: Phenelzine 75 mg/d Buspirone 10 mg/d
M Kuloglu et al. 2010	NOP: 1, age: 31, sex: female	Major Depressive Disorder	Venlafaxine, Clonazepam, Buspirone	Venlafaxine 37.5 mg/d increased to 150 mg/d when patient experienced bruxism  Clonazepam 2mg/d started with no relief  Buspirone 10 mg/d increased to 20 mg/d
J M Ellison et al, 1993	NOP: 4 age N/A, sex N/A	Nocturnal Bruxism	antidepressants (fluoxetine, sertraline)  Buspirone	antidepressants n=1 Buspirone n=3
Dattatreya Mendhekar et al. 2009	NOP: 1, age: 12, sex: male	ADD	Atomoxetine, Buspirone	Atomoxetine 10 mg/d  Buspirone 10 mg/d

## Conclusions:

After doing the study and filtering the results according to our proposed question and the collected papers and previous research, we found the following conclusions:-

1. Buspirone can be a good medication for SSRI induced bruxism and nocturnal bruxism.
2. The used doses of Buspirone are taken orally and usually ranging from 15-40 mg/d for old patients (40-60 years old), and 2.5-18 mg/d for children (6-7 years old).
3. No relief in bruxism using Clonazepam medication and other SSRI medicines.
4. There are no consequences for Buspirone.

## Declarations

We declare that the data used and authorship is ethically approved by the board ethical research guidelines.

Conflict of interest:

There is no conflict of interests.

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## References

- 1- Lobbezoo F, Ahlberg J, Raphael KG, Wetselaar P, Glaros AG, Kato T, Santiago V, Winocur E, De Laat A, De Leeuw R, Koyano K, Lavigne GJ, Svensson P, Manfredini D. International consensus on the assessment of bruxism: Report of a work in progress. *J Oral Rehabil.* 2018 Nov;45(11):837-844. doi: 10.1111/joor.12663. Epub 2018 Jun 21. PMID: 29926505; PMCID: PMC6287494.
- 2- Garrett AR, Hawley JS. SSRI-associated bruxism: A systematic review of published case reports. *Neurol Clin Pract.* 2018 Apr;8(2):135-141. doi: 10.1212/CPJ.0000000000000433. PMID: 29708207; PMCID: PMC5914744.
- 3- Bostwick JM, Jaffee MS. Buspirone as an antidote to SSRI-induced bruxism in 4 cases. *J Clin Psychiatry.* 1999 Dec;60(12):857-60. doi: 10.4088/jcp.v60n1209. PMID: 10665633.
- 4- Ellison JM, Stanziani P. SSRI-associated nocturnal bruxism in four patients. *J Clin Psychiatry.* 1993 Nov;54(11):432-4. PMID: 8270587.
- 5- Lobbezoo F, van Denderen RJ, Verheij JG, Naeije M. Reports of SSRI-associated bruxism in the family physician's office. *J Orofac Pain.* 2001 Fall;15(4):340-6. PMID: 12400402.
- 6- Winocur E, Gavish A, Voikovitch M, Emodi-Perlman A, Eli I. Drugs and bruxism: a critical review. *J Orofac Pain.* 2003 Spring;17(2):99-111. PMID: 12836498.

- 7- Romanelli F, Adler DA, Bungay KM. Possible paroxetine-induced bruxism. *Ann Pharmacother*. 1996 Nov;30(11):1246-8. doi: 10.1177/106002809603001107. PMID: 8913405.
- 8- Wise, M. (2001). Citalopram-induced bruxism. *British Journal of Psychiatry*, 178(2), 182-182. doi:10.1192/bjp.178.2.182.
- 9- Oulis P, Dimitrakopoulos S, Konstantakopoulos G, Tsaltas E, Kollias K. Low-dose aripiprazole in the treatment of SSRI-induced bruxism. *J Neuropsychiatry Clin Neurosci*. 2012 Summer;24(3):E39. doi: 10.1176/appi.neuropsych.11070175. PMID: 23037677.
- 10- Rajan R, Sun YM. Reevaluating Antidepressant Selection in Patients With Bruxism and Temporomandibular Joint Disorder. *J Psychiatr Pract*. 2017 May;23(3):173-179. doi: 10.1097/PRA.000000000000227. PMID: 28492455.
- 11- Falisi G, Rastelli C, Panti F, Maglione H, Quezada Arcega R. Psychotropic drugs and bruxism. *Expert Opin Drug Saf*. 2014 Oct;13(10):1319-26. doi: 10.1517/14740338.2014.947262. Epub 2014 Sep 6. PMID: 25195948.
- 12- Sabuncuoglu O, Ekinci O, Berkem M. Fluoxetine-induced sleep bruxism in an adolescent treated with buspirone: a case report. *Spec Care Dentist*. 2009 Sep-Oct;29(5):215-7. doi: 10.1111/j.1754-4505.2009.00091.x. PMID: 19740153.
- 13- Ranjan S, S Chandra P, Prabhu S. Antidepressant-induced bruxism: need for buspirone? *Int J Neuropsychopharmacol*. 2006 Aug;9(4):485-7. doi: 10.1017/S1461145705005985. Epub 2006 Jun 6. PMID: 16753073.
- 14- Malki GA, Zawawi KH, Melis M, Hughes CV. Prevalence of bruxism in children receiving treatment for attention deficit hyperactivity disorder: a pilot study. *J Clin Pediatr Dent*. 2004 Fall;29(1):63-7. doi: 10.17796/jcpd.29.1.3j86338656m83522. PMID: 15554406.
- 15- Alonso-Navarro H, Martín-Prieto M, Ruiz-Ezquerro JJ, Jiménez-Jiménez FJ. Bruxism possibly induced by venlafaxine. *Clin Neuropharmacol*. 2009 Mar-Apr;32(2):111-2. doi: 10.1097/WNF.0b013e31816a3519. PMID: 19512964.
- 16- Albayrak Y, Ekinci O. Duloxetine-induced nocturnal bruxism resolved by buspirone: case report. *Clin Neuropharmacol*. 2011 Jul-Aug;34(4):137-8. doi: 10.1097/WNF.0b013e3182227736. PMID: 21768799.
- 17- Isa Kara M, Ertaş ET, Ozen E, Atıcı M, Aksoy S, Erdogan MS, Kelebek S. BiteStrip analysis of the effect of fluoxetine and paroxetine on sleep bruxism. *Arch Oral Biol*. 2017 Aug;80:69-74. doi: 10.1016/j.archoralbio.2016.12.013. Epub 2017 Feb 3. PMID: 28391088.
- 18- de Baat C, Verhoeff M, Ahlberg J, Manfredini D, Winocur E, Zweers P, Rozema F, Vissink A, Lobbezoo F. Medications and addictive substances potentially inducing or attenuating sleep bruxism and/or awake

bruxism. *J Oral Rehabil.* 2021 Mar;48(3):343-354. doi: 10.1111/joor.13061. Epub 2020 Aug 10. PMID: 32716523; PMCID: PMC7984358.

19- Hermesh H, Schapir L, Marom S, Skopski R, Barnea E, Weizman A, Winocur E. Bruxism and oral parafunctional hyperactivity in social phobia outpatients. *J Oral Rehabil.* 2015 Feb;42(2):90-7. doi: 10.1111/joor.12235. Epub 2014 Sep 19. PMID: 25238249.

20- Iskandar JW, Wood B, Ali R, Wood RL. Successful monitoring of fluoxetine-induced nocturnal bruxism: a case report. *J Clin Psychiatry.* 2012 Mar;73(3):366. doi: 10.4088/JCP.11cr07321. PMID: 22490260.

21- Miyaoka T, Yasukawa R, Mihara T, Shimizu Y, Tsubouchi K, Maeda T, Mizuno S, Uegaki J, Inagaki T, Horiguchi J, Tachibana H. Successful electroconvulsive therapy in major depression with fluvoxamine-induced bruxism. *J ECT.* 2003 Sep;19(3):170-2. doi: 10.1097/00124509-200309000-00010. PMID: 12972988.

22- <http://prisma.thetacollaborative.ca/generator>.

23- Kowacs DP, Folchini CM, de Moura Vieira KR, Giraldes JA, Kowacs PA. Use of Buspirone in the Treatment of Nonpharmacological Bruxism: About 4 Cases. *Clin Neuropharmacol.* 2021 Nov-Dec 01;44(6):247-249. doi: 10.1097/WNF.0000000000000486. PMID: 34767327.

24- Khosravi M. Treatment of cerebral glioblastoma-caused bruxism with mirtazapine: a case report. *JA Clin Rep.* 2020 Mar 21;6(1):23. doi: 10.1186/s40981-020-00329-4. PMID: 32200532; PMCID: PMC7085486.

25- Çolak Sivri R, Akça ÖF. Buspirone in the Treatment of Fluoxetine-Induced Sleep Bruxism. *J Child Adolesc Psychopharmacol.* 2016 Oct;26(8):762-763. doi: 10.1089/cap.2016.0075. Epub 2016 Jun 17. PMID: 27315110.

26- Sağlam E, Akça ÖF. Treatment of Sleep Bruxism With a Single Daily Dose of Buspirone in a 7-Year-Old Boy. *Clin Neuropharmacol.* 2019 Jul/Aug;42(4):131-132. doi: 10.1097/WNF.0000000000000350. PMID: 31157634.

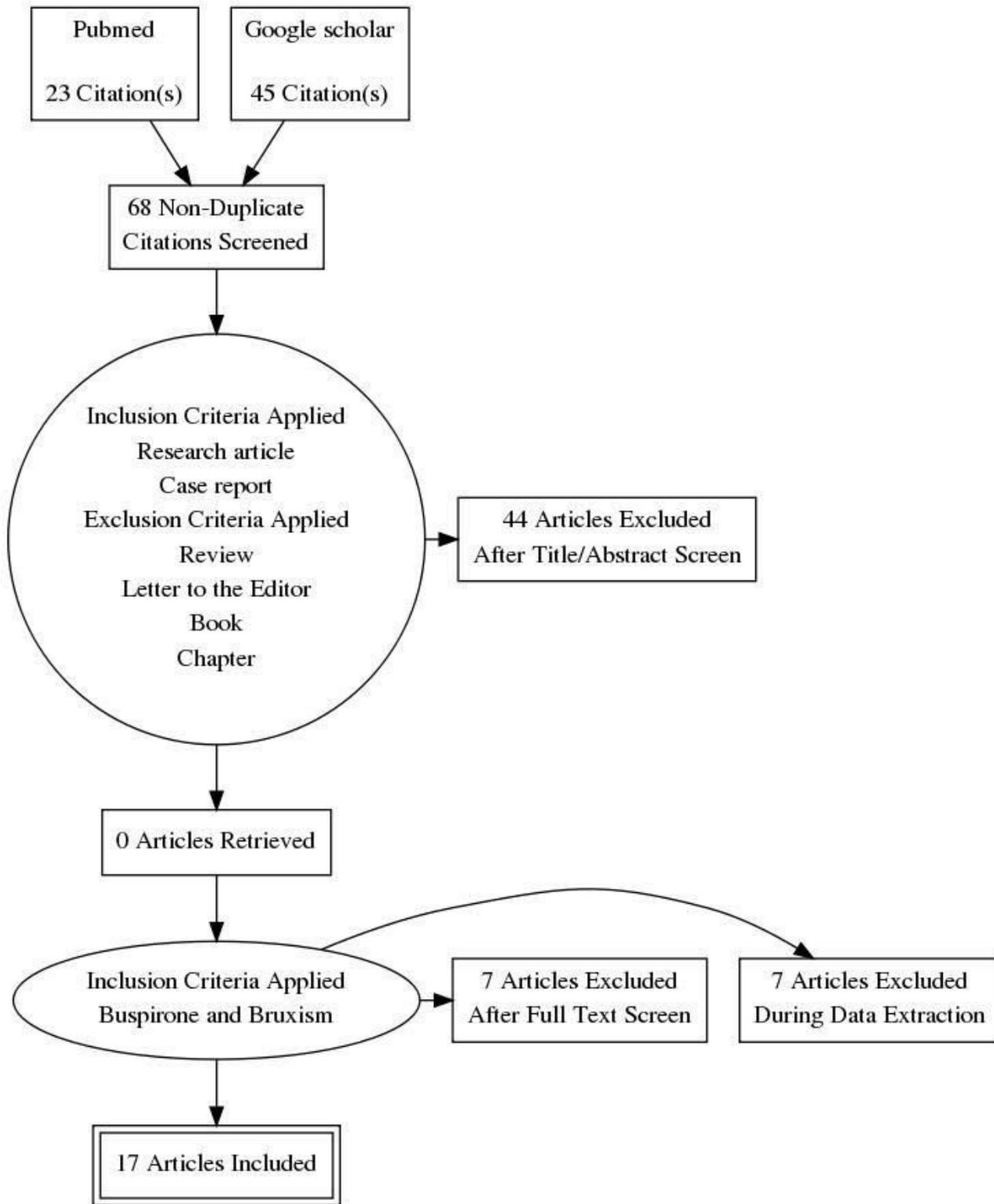
27- Orsagh-Yentis DK, Wink LK, Stigler KA, Erickson CA, McDougale CJ. Buspirone for bruxism in a child with pervasive developmental disorder-not otherwise specified. *J Child Adolesc Psychopharmacol.* 2011 Dec;21(6):643-5. doi: 10.1089/cap.2010.0137. Epub 2011 Dec 2. PMID: 22136097.

28- Yüce M, Karabekiroğlu K, Say GN, Müjdecı M, Oran M. Buspirone use in the treatment of atomoxetine-induced bruxism. *J Child Adolesc Psychopharmacol.* 2013 Nov;23(9):634-5. doi: 10.1089/cap.2013.0087. Epub 2013 Nov 9. PMID: 24206098; PMCID: PMC3842865.

29- Ranjan S, S Chandra P, Prabhu S. Antidepressant-induced bruxism: need for buspirone? *Int J Neuropsychopharmacol.* 2006 Aug;9(4):485-7. doi: 10.1017/S1461145705005985. Epub 2006 Jun 6. PMID: 16753073.

- 30- Romanelli F, Adler DA, Bungay KM. Possible paroxetine-induced bruxism. *Ann Pharmacother.* 1996 Nov;30(11):1246-8. doi: 10.1177/106002809603001107. PMID: 8913405.
- 31- Akbaş B, Bilgiç A. Fluoxetine-Induced Sleep Bruxism Rapidly Treated With Once-Nightly Dosing of Buspirone in a 6-Year-Old Girl. *Clin Neuropharmacol.* 2018 Sep/Oct;41(5):197-198. doi: 10.1097/WNF.000000000000293. PMID: 29979192.
- 32- Bostwick JM, Jaffee MS. Buspirone as an antidote to SSRI-induced bruxism in 4 cases. *J Clin Psychiatry.* 1999 Dec;60(12):857-60. doi: 10.4088/jcp.v60n1209. PMID: 10665633.
- 33- Sabuncuoglu O, Ekinci O, Berkem M. Fluoxetine-induced sleep bruxism in an adolescent treated with buspirone: a case report. *Spec Care Dentist.* 2009 Sep-Oct;29(5):215-7. doi: 10.1111/j.1754-4505.2009.00091.x. PMID: 19740153.
- 34- Milanlioglu A. Paroxetine-induced severe sleep bruxism successfully treated with buspirone. *Clinics (Sao Paulo).* 2012;67(2):191-2. doi: 10.6061/clinics/2012(02)17. PMID: 22358247; PMCID: PMC3275112.
- 35- Albayrak Y, Ekinci O. Duloxetine-induced nocturnal bruxism resolved by buspirone: case report. *Clin Neuropharmacol.* 2011 Jul-Aug;34(4):137-8. doi: 10.1097/WNF.0b013e3182227736. PMID: 21768799.
- 36- Jaffee MS, Bostwick JM. Buspirone as an antidote to venlafaxine-induced bruxism. *Psychosomatics.* 2000 Nov-Dec;41(6):535-6. doi: 10.1176/appi.psy.41.6.535. PMID: 11110119.
- 37- Kuloglu M, Ekinci O, Caykoylu A. Venlafaxine-associated nocturnal bruxism in a depressive patient successfully treated with buspirone. *J Psychopharmacol.* 2010 Apr;24(4):627-8. doi: 10.1177/0269881109102612. Epub 2009 Mar 5. PMID: 19264817.
- 38- Ellison JM, Stanziani P. SSRI-associated nocturnal bruxism in four patients. *J Clin Psychiatry.* 1993 Nov;54(11):432-4. PMID: 8270587.
- 39- Mendhekar D, Lohia D. Worsening of bruxism with atomoxetine: a case report. *World J Biol Psychiatry.* 2009;10(4 Pt 2):671-2. doi: 10.1080/15622970802576488. PMID: 19165653.

## Figures



**Figure 1**

Buspirone and Bruxism PRISMA Flow Chart.