

Parents' knowledge about childhood bruxism: a systematic review and meta-analysis

Conhecimento dos pais sobre bruxismo infantil: uma revisão sistemática e meta-análise

Paula Akemi Albuquerque KOMINAMI¹ , Thalita Natalia Nogueira PINTO¹ , Rodrigo Antonio de MEDEIROS¹ , Soraya Coelho LEAL¹ , Eliana Mitsue TAKESHITA¹ , Carla MASSIGNAN¹ 

¹Universidade de Brasília, Faculdade de Ciências da Saúde, Departamento de Odontologia. Brasília, DF, Brasil.

How to cite: Kominami PAA, Pinto TNN, Medeiros RA, Leal SC, Takeshita EM, Massignan C. Parents' knowledge about childhood bruxism: a systematic review and meta-analysis. *Braz. Dent. Sci.* 2026;29: e4845. <https://doi.org/10.4322/bds.2026.e4845>

ABSTRACT

Statement of Problem: Childhood bruxism is a public health concern, and parents/caregivers are the sources of information about children's habits. Purpose: this systematic review aimed to determine the proportion of knowledge of parents and caregivers about sleep and awake bruxism in children. **Material and Methods:** cross-sectional studies were included, sourced from Embase, PubMed, LILACS, Scopus, Web of Science, Google Scholar, and ProQuest. Meta-analyses were conducted using Jamovi 2.3.21 Software. Risk of bias was evaluated using the Joanna Briggs Institute critical appraisal checklist. **Results:** Initially, 580 records were identified of which 20 were selected for full reading and 16 were included in the analysis. For sleep bruxism, 10 were used in the meta-analysis on caregivers' knowledge about childhood and six for the correct definition. One study reported awake bruxism, making it impossible to draw definitive conclusions. Meta-analysis showed that 52% (CI: 0.36 to 0.68; $I^2=99.43\%$; $p<0.001$) of the caregivers declared knowing bruxism (population = 4585), while 69% (CI: 0.49 to 0.88; $I^2=99.62\%$; $p<0.01$) defined it correctly (population = 3650). Studies showed risk of bias, mainly due to confounding factors, questionnaire types, and statistical analyses. **Conclusion:** While half of caregivers knew about sleep bruxism, approximately seven in ten accurately defined it. Awake bruxism had no conclusive results. *Registration:* CRD42023389357.

KEYWORDS

Bruxism; Caregiver; Child; Knowledge; Systematic review.

RESUMO

Justificativa do Problema: bruxismo infantil é uma preocupação de saúde pública, e os pais/cuidadores são as principais fontes de informação sobre os hábitos das crianças. Objetivo: Esta revisão sistemática objetivou determinar a proporção de conhecimento dos pais e cuidadores sobre o bruxismo do sono e o bruxismo em vigília em crianças. **Materiais e Métodos:** Foram incluídos estudos transversais, obtidos nas bases de dados Embase, PubMed, LILACS, Scopus, Web of Science, Google Scholar e ProQuest. Meta-análises foram realizadas utilizando o software Jamovi 2.3.21. Risco de viés foi avaliado por meio do checklist de avaliação crítica do Instituto Joanna Briggs. **Resultados:** 580 estudos foram identificados, desses 20 foram selecionados para leitura completa e 16 foram incluídos. Para o bruxismo do sono, 10 estudos foram utilizados na meta-análise sobre o conhecimento dos cuidadores a respeito do bruxismo infantil e seis para a definição correta do termo. Um estudo abordou o bruxismo em vigília, não sendo possível tirar conclusões. A meta-análise mostrou que 52% (IC: 0,36 a 0,68; $I^2=99,43\%$; $p<0,001$) dos cuidadores declararam conhecer o bruxismo (população = 4585), enquanto 69% (IC: 0,49 a 0,88; $I^2=99,62\%$; $p<0,01$) o definiram corretamente (população = 3650). Os estudos apresentaram risco de viés, principalmente devido a fatores de confusão, tipos de questionários e análises estatísticas. **Conclusão:** Enquanto metade dos cuidadores relatou conhecer o bruxismo do sono, aproximadamente sete em cada dez o definiram corretamente. Para o bruxismo em vigília, os resultados não foram conclusivos. Registro: CRD42023389357

PALAVRAS-CHAVE

Bruxismo; Cuidadores; Criança; Conhecimento; Revisão sistemática.

INTRODUCTION

The definition of bruxism has varied over the years and many authors have proposed different classifications. Following a consensus in 2025, bruxism was classified into three distinct manifestations: unspecified bruxism, sleep bruxism, and awake bruxism. Sleep bruxism is defined as masticatory muscle activity during sleep, characterized by rhythmic (phasic) or non-rhythmic (tonic) episodes, and is not considered a movement disorder or a sleep disorder. Awake bruxism refers to masticatory muscle activity characterized by repetitive or sustained tooth contact and/or by bracing or thrusting of the mandible during wakefulness [1].

The prevalence of possible sleep bruxism reported in children ranges from 25.2% to 34.5% [2] while possible awake bruxism prevalence ranges from 16% to 32% [3]. Some factors reported in consensus and studies may be related to bruxism, for example, awake bruxism may be related to psychosocial and psychopathological factors [4,5]. Sleep bruxism has been associated with personality traits and psychosocial factors, such as stress and anxiety [6]. Recent studies have demonstrated that an increase in screen time and sugar consumption is associated with a higher frequency of sleep bruxism in children [7]. In many cases, it may be a temporary response with potential benefits, like helping to regulate cortisol levels during periods of positive stress. However, in some situations, it can serve as a warning sign of more serious conditions, including obstructive sleep apnea, which may pose risks to the patient's health [8].

A systematic review of risk factors related to bruxism showed that passive smoking, loud snoring, restless sleep, sleeping with the light on, and sleeping less than eight hours may be factors also associated with sleep bruxism [4,9]. In addition, socioeconomic and cultural characteristics may also be associated with bruxism in children, those of better financial conditions more susceptible than those of low income due to the greater number of daily tasks and demands that these children are submitted to [10].

Bruxism is associated with various conditions, including tooth decay, malocclusion, tooth wear, headaches, facial muscle pain, chewing discomfort, limited mouth opening, temporomandibular joint tenderness, reduced salivary flow, lip or cheek biting, and associated

oral habits [10-12]. Studies of bruxism in children and adolescents have increased over the past 20 years and have contributed to the understanding that both sleep and awake bruxism are multidisciplinary and involve multiple techniques [13].

Bruxism was previously classified, according to the 2018 consensus, as "possible sleep/awake bruxism" when based solely on a positive self-report. When is based on a positive clinical examination, with or without self-report, it is classified as "probable sleep/awake bruxism". For "definite sleep/awake bruxism": confirmation is established through instrumental assessment with or without a positive self-report or clinical examination [14]. However, the 2025 consensus proposed a significant shift by abandoning this hierarchical structure. Experts agreed that self-report, clinical examination, and device-based assessments each provide complementary but potentially distinct information about bruxism. The updated approach recommends referring to the assessment method used: subject-based (self-report), clinically based, or device-based [1].

Since self-report is often not feasible in pediatric populations, the identification of bruxism in children relies primarily on observations provided by parents or caregivers. These individuals play a critical role in subject-based assessment, particularly in cases of sleep bruxism, as they are typically the main source of information regarding the child's sleep-related behaviors [15,16]. Their observations are essential for ensuring timely intervention and preventing the progression of the condition [15]. Identifying and addressing contributing factors, particularly those linked to sleep bruxism, are essential for effective clinical management and may help mitigate its impact [6]. They often notice key signs such as teeth grinding, tense facial expressions, and associated symptoms, including pain, discomfort, or hypersensitivity to hot or cold foods [14,17].

However, level of caregiver knowledge about its identification and effects has not been thoroughly studied. Filling this gap by assessing and quantifying caregivers' understanding of bruxism is essential for improving its recognition and assessment. This may provide valuable insights to inform public health strategies, early interventions, and educational programs aimed at reducing the prevalence of undiagnosed bruxism

in children. Therefore, the objective of this systematic review is to determine the proportion of knowledge of caregivers about sleep and awake bruxism in children. Secondary outcomes include the association between childhood bruxism and parental education, as well as factors related to the child's sleep characteristics.

MATERIAL AND METHODS

This systematic review was reported following the Preferred reporting items for systematic reviews and meta-analyses (PRISMA) [18]. This systematic review was registered in the International Prospective Register of Systematic Reviews (PROSPERO; University of York CRD42023389357).

Eligibility criteria

The inclusion criteria were based on the PEOS (participants, exposure, outcomes, and study design) question: *What is the proportion of knowledge of parents/caregivers about sleep and awake bruxism in children?* Where p corresponds to parents/caregivers; e corresponds to knowledge about childhood bruxism; o corresponds to proportion of participants demonstrating knowledge about bruxism (e.g., awareness, self-reported knowledge, or correct identification of its definition or characteristics, as assessed by questionnaires); and s are cross-sectional studies.

All cross-sectional studies showing parental knowledge of childhood bruxism obtained through questionnaires were included, with no restriction on language or year of publication. Letters, systematic reviews, editorials, case reports, case series, in vitro studies, studies without information about the knowledge of parents/caregivers, pragmatic randomized clinical trials, and studies where it was not possible to have access to the full text (even after requesting the authors) were excluded.

Information sources, search strategy and selection process

A librarian helped to build the search strategy with controlled and free vocabulary. Experts were found through the platform "expert escape" by searching for the term "bruxism" and sending an email to the first five names with the most published works in the field.

On January 27th, 2025, the search was applied to the following databases: Embase, PubMed, Lilacs, Scopus, and Web of Science, considering the specifications of each of them. The search was updated on April 6th, 2026 and covered articles from the inception of each database up to the search date. The gray literature was searched in Google Scholar, and ProQuest dissertations and thesis (Supplementary Table 1). References were managed with EndNote desktop where duplicates were removed.

A two-phase selection process was done. Firstly, two independent and trained reviewers (PAAK; TNNP) read the abstracts in the software Rayyan, subsequently, the full text of the potentially eligible studies were read and selected based on the inclusion and exclusion criteria. A third reviewer (CM) helped in any stage of the selection process when a disagreement arose. The reference lists of included studies were also searched.

Data collection process and data items

Two reviewers (PAAK, TNNP) were trained and independently collected the data in a spreadsheet collection form developed and tested for the present review. A third reviewer (CM) helped in case of disagreements. When necessary, the corresponding author was contacted via email to acquire further information. The data collected were studies characteristics' (author, year, country, study design, setting, and author's conflict of interests), population characteristics (number of participants in each group, sex, and age in years), studies objectives, outcome characteristics (measures of caregivers' knowledge and child's habits, kind of sleep, hours of sleep and if the child sleeps alone), findings and main conclusion.

Risk of bias

The risk of bias in the included studies was assessed using the "Joanna briggs institute (JBI)" critical appraisal checklist for analytical cross-sectional studies [19], which consists of eight questions. The answers to each question can be: yes, no, unclear, or not applicable. The same two reviewers (PAAK; TNNP) independently assessed the risk of bias of each included study and any inconsistencies in the ratings were resolved by consensus, or a third reviewer (CM) made the final decision. The JBI classification determined by the authors is available in Supplementary Table 2.

Effect measures and synthesis methods

The proportion of caregivers' knowledge was the primary outcome of this systematic review. Quantitative synthesis was applied and during data extraction, it was observed that the studies had two different ways of collecting knowledge about bruxism. In 13 of them, parents/caregivers were asked if they knew what bruxism was [15,16,20-30]. In seven studies, it was also asked about the correct concept of bruxism [15,22,25,30-33]. To ensure a more consistent analysis, the concept that the authors of each primary study judged as correct at the time of their research was considered.

A proportion meta-analysis was performed to assess caregivers' knowledge about childhood bruxism, including sleep and awake bruxism, as well as their ability to correctly define it. Since some studies did not explicitly report the type of bruxism assessed, the meta-analysis was first performed globally and then stratified into two groups: studies that explicitly specified the type of bruxism and those in which sleep bruxism was inferred based on sleep-related data from the questionnaires used. This approach allowed for an assessment of whether differences existed between these proportions.

Meta-analyses were conducted using Jamovi software 2.3.21 (Sydney, Australia), with a significance level of 5%. Given the expected variability among studies, a random-effects model was applied [34,35]. To assess true variation due to heterogeneity, the I^2 statistic was used. A high I^2 value is common in proportion meta-analyses, which may result from low variance as well as true heterogeneity arising from differences in the time and location of the included studies.

Secondary outcomes, when reported in the studies, included questions assessing the association between childhood sleep and awake bruxism and variables such as parental education level, as well as childhood sleep bruxism and child sleep characteristics.

RESULTS

Study selection

Figure 1 provides a summary of the study selection process. Initially, 580 abstracts were identified in total, 369 from electronic databases,

and 211 studies through complementary search (gray literature and experts). Of the five experts contacted, only one responded and indicated five studies. Of these, four were already in the search and one was not about the caregivers' knowledge about childhood bruxism. After automation removing the duplicates using EndNote, 469 hits remained (265 of electronic databases and 204 of gray literature) and 253 were excluded after reading the abstracts. Twenty-one studies were identified from sources and from reading the references of the selected manuscripts. However, although two of them had different authors, it was noted, after reading that referred to the same thesis. In this way, a decision to combine both was made [21], resulting in the 16 studies.

Study characteristics

Table I summarizes the main findings of the sixteen selected studies included [15,16,20-33]. The types of questionnaires used by each study and who responded to them are described in Table II. Detailed information about the characteristics of the included studies can be observed in Supplementary Table 3. All studies were in English, except for two [23,29], that were in Turkish, and were translated via Google Translator (Google, USA) for data extraction.

All studies that reported caregivers' knowledge about sleep bruxism [16,24,25,27,28,31,33] and awake bruxism [31] were included. Some studies did not report the type of bruxism [15,20-23,26,30,32] that was being investigated, although it could be inferred, by extracting data about the type of sleep, whether the child slept alone and the duration of sleep, that the focus was sleep bruxism [15,20-22,30,32]. One study divided sleep and awake bruxism throughout the study, but did not specify the type of bruxism when asking parents [29].

The children's age was fully presented in nine studies. The mean age of the participants was 7.76 years (± 0.83) [15,22,24,25,28-31,33]. Regarding parents/caregiver mean age, only five studies had this information, and the mean age was 35.37 years (± 1.64) [15,25,26,30,33].

The studies mostly took place in colleges and university hospitals, except for Hafiz et al. [22] and Gurunathan, Varadarajan and Balaji [32], which made a questionnaire available electronically, and Alouda et al. [20] and Lagana et al. [24] which made the questionnaire available both

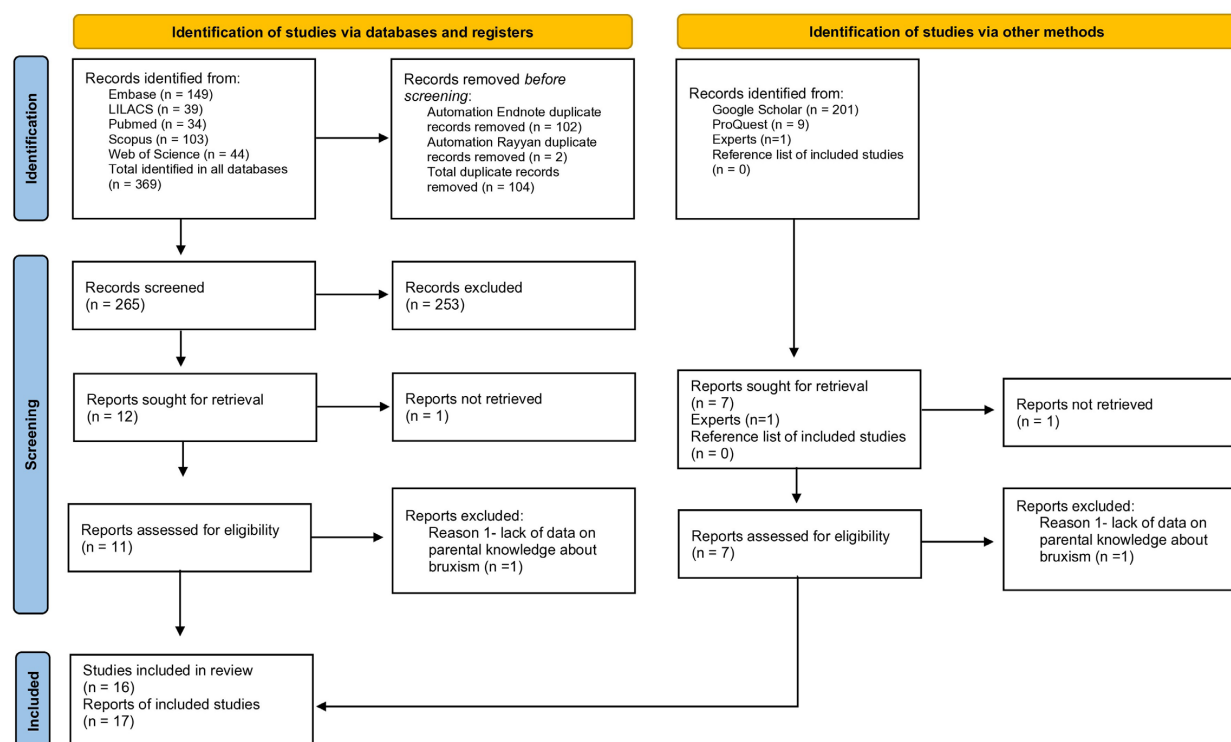


Figure 1 – PRISMA 2020 flow diagram which included searches of databases, registers and other sources.

online and on paper. Of the included studies, twelve used a validated questionnaire about childhood bruxism and childhood sleep habits [15,16,21,22,24,25,27-31,33]. Prasanna and Ravindran [26], Kasimoglu et al. [23], Lagana et al. [24], and Gurunathan, Varadarajan and Balaji [32] developed their own questionnaire in which two of them report the validation done through one of the investigators with experience in bruxism [24,32] and logical reason [26].

Risk of bias

The risk of bias of each study is detailed in Table III. Three studies scored “no” on all questions, which demonstrates that the studies completed the risk of bias criteria [25,28,30]. About question 1 (were the criteria for inclusion in the sample clearly defined?) all studies had well-described information except Alouda et al. [20] in which the information was unclear. All studies (100%) presented a well-described information for question 2 (were the study subjects and the setting described in detail?).

The concern about risk of bias was related to questions 5 (were confounding factors identified?) and 6 (were strategies to deal with confounding factors stated?), only 25% of the studies presented this information. Questions

7 (were the outcomes measured in a valid and reliable way?) and 8 (was appropriate statistical analysis used?) were well described and detailed in most studies (87.5% and 93.75% respectively) except in Kasimogğlu et al. [23] and Prasanna and Ravindran [26] in which the information was unclear. Overall, among all studies, Kasimogğlu et al. [23] and Prasanna and Ravindran [26] were the ones with the most negative or unclear criteria, mainly regarding confounding factors, the type of questionnaire and statistical analysis used for the research.

Synthesis of results

The proportion of knowledge and correct definition were identified by two ways: in 13 studies [15,16,20-30], a direct question was performed with the possibility of answering “yes or no” and two studies reported this information in the text [23,28]. In other four studies [15,22,25,30] the information was gathered through a question about the caregiver’s self-declaration and the concept. In two, only the concept was questioned, and the possible answers were “correct” or “incorrect” [31,33]. Three of them included multiple-choice questions, allowing participants to select the correct option as an alternative to define the concept of bruxism [22,25,32]

Table 1 - Characteristics of included studies

Author, Year, country	Study setting	Participants Characteristics	Type of Bruxism	Self-declaration of knowledge of bruxism	Definition of bruxism	Main Conclusion
Serra-Negra et al., 2013, Brazil [30]	University dental clinic	277 statements of informed consent were distributed and 221 parents/guardians agreed to participate in the study (79.8%). A questionnaire was applied in the waiting room during their children's appointments at the pediatric dentist in the Faculty of Dentistry of the Federal University of Minas Gerais. Child's gender Female: 65.2% Male: 77.34.8%	Not reported	Among all the participants, 210 reported knowledge of bruxism (95%).	95.5% classified correctly.	Parents/guardians are aware of bruxism, although there are a number of distorted concepts that must be clarified.
Tavares Silva et al., 2016, Brazil [33]	University dental clinic	134 guardians of patients who sought treatment at the pediatric dentistry clinic of Federal University of Rio de Janeiro. Child's gender Not reported	Sleep Bruxism	Not reported	Considering the entire sample, only 38.1% of parents/guardians correctly answered the question about the definition of bruxism.	Guardians in this study had a great lack of knowledge about bruxism, with 61.9% reporting incorrect answers. About the definition, 73.9% did not know the etiological factors.
Alouda et al., 2017, Saudi Arabia [20]	College dental setting – waiting room	561 mothers who were in Riyadh Colleges of Dentistry and Pharmacy in Riyadh. Child's Gender Relation of gender of bruxer children was not incorporated in the questionnaire.	Not reported The phrase "bruxism" was changed to "teeth grinding at night" to make it easier for mothers to understand.	44.1% of Working Mothers (WM) and 35% of Non-working Mothers (NWM) had some form of information pertaining to bruxism. Both WM (48.7%) and NWM (48.9%) have noticed bruxism around 1–2 times a week.	Not reported	WM were more likely to have more information about tooth grinding (44.1%) also notice the sounds at night while their child slept (67.5%) and had noticed this in the past few years (42.3%).
Clementino et al., 2017, Brazil [16]	University dental clinic	148 parents/guardians of children aged 3–12 years at The paediatric dentistry clinics of the State University of Paraíba in the city of Campina Grande, Brazil 77% of the participants were mothers, followed by grandfather/grandmother (9.5%) Child's Gender Female: 51.4% Male: 48.6%	Sleep Bruxism	64.2% of parents did not know the meaning of bruxism and 35.8% did.	Not reported	Most parents/guardians did not know the meaning of bruxism.

Note: Working Mothers (WM), Non-working Mothers (NWM), Sleep Bruxism (SB)

Table 1 - Continued...

Author, Year, country	Study setting	Participants Characteristics	Type of Bruxism	Self-declaration of knowledge of bruxism	Definition of bruxism	Main Conclusion
Alves et al., 2019, Brazil [15]	University dental clinic	103 parents or caregivers with children between three and twelve years old.	Not reported	The percentage of those who said they know what Bruxism was 67%. Of these, 52.4% defined it correctly.	95.5% of the participants defined the parafunctional habit correctly	67% know what bruxism is
		Most participants were mothers (63.1%). Conducted at the pediatric dentistry clinic of the Ceuma University in the city of São Luís. Child's Gender Female: 56.3% Male: 43.7%				
Ferreira and de Carvalho, 2019, Brazil [21]	University dental clinic	94 Parents/guardians of children from 05 to 12 years old, with and without self-reported bruxism, assisted at the Infant Internship Clinics located in the Department of Dentistry of the Centro Universitário Doutor Leão Sampaio-UNILEÃO	Not reported	68.1% of the parents stated that they did not know what bruxism is, and 94.7% of the researched guardians never sought help due to bruxism.	It was observed that before the explanation 9.6% of those responsible answered having bruxism, after the interviewer's explanation 20.2% started to report having.	Most of the guardians did not really know what bruxism is.
		Child's Gender Not reported				
Prado et al., 2019, Brazil [25]	Dental clinics from seven universities – multicenter study	1325 parents/caregivers of children awaiting treatment or under treatment at paediatric dental clinics from seven universities from all five regions of Brazil (north, northeast, central-west, southeast, and south).	Sleep Bruxism	In all five regions, many parents/caregivers did not know what SB is (51.4%–63.2%).	Among those who said they knew what SB was, 83.9% reported the correct definition according to the AASM criteria When analysing only the data of parents/caregivers who defined bruxism correctly, according to the AASM definition, 40.5% of participants from total sample did not know what causes SB.	There is a lack of knowledge of parents about sleep bruxism. Sleep bruxism among children, parents' interest in receiving more information and their location were factors associated to their knowledge.
		Child's gender Female: 50.3% Male: 49.7%				

Note: Working Mothers (WM), Non-working Mothers (NWM), Sleep Bruxism (SB)

Table 1 - Continued...

Author, Year, country	Study setting	Participants Characteristics	Type of Bruxism	Self-declaration of knowledge of bruxism	Definition of bruxism	Main Conclusion
Caliskan et al., 2020, Turkey [31]	University dental clinic	265 parents (159 were female and 106 were male) Faculty of Dentistry of the Mersin University, Mersin, Turkey	Awake and Sleep Bruxism		Only 8.3% of the parents were able to correctly define bruxism.	
			Sleep			
			yes=57, no=181			
			Awake yes=19, no=2	Not reported	Most of the parents stated that bruxism was caused by dental problems and emotional factors (33.6% and 32.8%), and that tooth clenching and grinding would negatively impact the health of children (%77.4).	Some parents had inadequate knowledge about bruxism in children and this was mostly related to the educational.
Kasimoglu et al., 2020, Istanbul [23]	Faculty of dentistry	Parents of 367 children at the Faculty of Dentistry at Istanbul University.				
Prasanna and Ravindran, 2020, India [26]	Pediatric dentistry outpatient department	100 parents of children attending the OPD of the Department of Pediatric and Preventive Dentistry				
Kasimoglu et al., 2020, Istanbul [23]	Faculty of dentistry	Parents of 367 children at the Faculty of Dentistry at Istanbul University.				
Prasanna and Ravindran, 2020, India [26]	Pediatric dentistry outpatient department	100 parents of children attending the OPD of the Department of Pediatric and Preventive Dentistry				

Note: Working Mothers (WM), Non-working Mothers (NWM), Sleep Bruxism (SB)

Table I - Continued...

Author, Year, country	Study setting	Participants Characteristics	Type of Bruxism	Self-declaration of knowledge of bruxism	Definition of bruxism	Main Conclusion
Suguna and Gurunathan, 2020 India [27]	Department of Paediatric and Preventive Dentistry, Saveetha Dental College, Chennai Where the data collection took place is not clearly described	Parents of children with (experimental, $n = 36$) and without Sleep Bruxism (control, $n = 36$) from different regions of Chennai Child's gender Female 47.2% Male 52.7%	Sleep Bruxism	Of the children with bruxism, 27.8% of the parents knew what bruxism was. Among children who did not have bruxism, 16.7% of parents knew what bruxism was.	Not reported	Most parents/caregivers were unaware of the meaning of bruxism.
Hafiz et al., 2021, Saudi Arabia [22]	Electronic survey (social media platform)	One thousand five hundred eighty-four parents of children aged between 6-10 years old. Of these, 1,499 who agreed to participate in the study. Child's Gender Female: 45% ($n = 675$). Male: 55% ($n = 824$)	Not reported	The assessment of knowledge towards bruxism among parents shows that 37.5% of parents were aware of what bruxism is, 34.7% were doubtful, and 27.8% were not aware of it, which is statistically significant ($p < 0.0001$). 47.5% have claimed to know what bruxism is.	A higher proportion (91.5%) of parents reported the definition of bruxism as "when a person clenches hard on their teeth, making an audible sound which can be heard by others."	In spite of that almost 38% of the participants in this study reported knowing what bruxism is, 91.5% of the respondents defined bruxism properly by choosing the correct definition in the questionnaire.
Laganà et al., 2021, Albania [24]	School in Tirana, Albania	100 parents and 310 children (173 females and 137 males), from 6 to 12 years old (mean age 8.9 years). The participants were attending the "Ndre Mjeda" school of Tirana (Albania). Child's gender Not reported	Sleep Bruxism	46.5% of parents had no information about the phenomenon of bruxism.	Not reported	46.5% of parents had no information about bruxism.
Us and Us, 2021, Turkey [28]	Pediatric hospital	The questionnaires answered by the parents, clinical examination was performed on all the children by one of the authors to assess SB. The study population were outpatients who were admitted to the Esenler Gynecology and Pediatric Hospital, Department of Pediatrics Child's gender Female: 46.6% Male: 53.4%	Sleep Bruxism	Most parents were not aware of bruxism and its consequences (94.5%) Therefore, it was shown that parents have limited knowledge about Sleep Bruxism.	Not reported	Parents of children with Sleep bruxism have inadequate knowledge and awareness pertaining to Sleep bruxism.

Note: Working Mothers (WM), Non-working Mothers (NWM), Sleep Bruxism (SB)

Table 1 - Continued...

Author, Year, country	Study setting	Participants Characteristics	Type of Bruxism	Self-declaration of knowledge of bruxism	Definition of bruxism	Main Conclusion
Yildirim et al., 2022, Turkey [29]	University dental clinic	Parents of patients aged 4-7 years who applied to Istanbul Yeni Yüzyıl University Faculty of Dentistry, Pedodontics Clinic.		Only 8.3% of the parents have bruxism and only 43.1% are knowledgeable about bruxism. While 72.2% of the parents did not know about the causes of bruxism, 18.1% stated that the reason might be stress.		Only 43.1% of parents had knowledge about bruxism.
		Child's gender				
		Female: 47.2%	Not reported	68.1% of the parents who participated in the study stated that they did not know whether bruxism had an effect on health. Likewise, 86.1% of them do not have information about what can be done for the treatment of bruxism	Not reported	The awareness level of parents about bruxism is quite low.
Gurunathan et al., 2024 India [32]	Electronic survey (Google Forms on the online platform)	1065 parents, either fathers or mothers of children between 3 and 12 years				
		Child's gender				
		Female: 48.5%	Not reported	Not reported	Most of the participants knew that bruxism is clenching or grinding the teeth tightly, 521 (48.9%), 309 (29.0%) thought it was repeatedly closing and opening the mouth like shivering, and 235 (22.1%) thought it was chewing motion during sleep.	The knowledge of parents about the condition is not sufficient. 48.9% of the participants knew what bruxism was.

Note: Working Mothers (WM), Non-working Mothers (NWM), Sleep Bruxism (SB)

Primary outcomes

Self-declaration of sleep bruxism

Ten studies asked parents whether they were aware of their child's sleep bruxism, and the parents self-reported their knowledge. Of these, five explicitly stated in their text that they assessed sleep bruxism [16,24,25,27,28]. Another five did not specify the type of bruxism, however, based on questionnaire data and sleep-related information, it was inferred that they addressed sleep bruxism [15,20-22,30]. The data were analyzed together, as shown in Figure 2, revealing a proportion of 52% (CI: 0.36–0.68; $I^2=99.43\%$; $p<0.001$). In Figure 3, when considering only studies that explicitly identified the condition as sleep bruxism, the proportion was 48% (CI: 0.24–0.73; $I^2=99.41\%$; $p<0.001$). Meanwhile, studies that did not explicitly report the condition as sleep bruxism but collected all relevant data showed a prevalence of 55% (CI: 0.32–0.78; $I^2=99.38\%$; $p<0.001$), as presented in Figure 4.

The studies by Yildirim et al. [29], Kasimoglu et al. [23], and Prasanna and Ravindran [26] collected data on knowledge but did not report sufficient information to determine the type of bruxism.

Concept of sleep bruxism

Six studies questioned parents about the concept of childhood bruxism [15,22,25,30,32,33]. Of these, two explicitly identified the condition as sleep bruxism [25,33] while four were classified as sleep bruxism based on questionnaire data [15,22,30,32]. The meta-analysis, considering all studies together, found a proportion of 69% (CI: 0.49–0.88; $I^2=99.62\%$; $p<0.001$) (Figure 5).

Among the studies that explicitly defined bruxism, Prado et al. [25] reported a proportion of 83.9% correct responses regarding its definition, while Tavares Silva et al. [33] found 38.1%. For studies inferred to be assessing sleep bruxism, the proportion of correct responses was 72% (CI: 0.48–0.97; $I^2=99.67\%$; $p<0.001$), as shown in Figure 6.

Knowledge and right concept of awake bruxism

Only the study by Caliskan et al. [31] differentiated between sleep and awake bruxism. In this study, parents were asked about the concept

of bruxism, and only 8.3% provided a correct definition. However, the study did not specify the definition considered correct and did not present separate data for sleep and awake bruxism.

Secondary outcomes

Parental educational level

Caregiver/parental education level was reported in only four studies. Caliskan et al. [31] and Gurunathan, Varadarajan and Balaji [32] categorized education as completed primary, middle, or high school, and university. On the other hand, Lågana et al. [24] categorized education as completed high school, university, or postgraduate degree. Finally, Us and Us [28] presented education in terms of years of schooling. Due to the heterogeneity in how caregiver/parental education was reported across these studies, a meta-analysis of its association with sleep and awake bruxism was not feasible.

Characteristics of child sleep, child sleeping place and child sleep duration

Data about hours of sleep, kind of sleep, and whether the child sleeps alone were collected to assess whether childhood sleep bruxism is associated with children's sleep [15,16,21,22,25,30-33]. The studies by Hafiz et al. [22] and Serra-Negra et al. [30] found an association between restless sleep and bruxism ($p < 0.001$), as did Clemetino et al. [16] ($p=0.002$). Alves et al. [15] found an association between sleep (whether the child sleeps well or not) and bruxism ($p=0.013$). However, after a complete reading of the primary studies, it was noted that the sleep data were collected through questionnaires and were not presented in a way that would allow the meta-analysis of association with sleep bruxism to be made as expected.

Subject-based prevalence

Data from the included studies allowed for the calculation of the prevalence of sleep bruxism in children based on subject-based assessments (primarily caregiver reports), across 11 studies (total number of children = 5607) [15,16,20-22,24,25,30-33]. Overall, the prevalence was 33% (CI: 0.27–0.40; $I^2=95.89\%$; $p<0.01$), considering both studies that explicitly identified sleep bruxism and those in which it was inferred (Figure S1). When

Table II - Characteristics of the questionnaires used in the included studies

Author, Year, Country	Questionnaire type	Who Answered?	Questionnaire validation
Serra-Negra et al., 2013, Brazil [30]	The questionnaire was designed by a team of researchers based on the criteria of the AASM.	Mother: 84.2% Grandparents 8.1% Father: 5.8% Others: 1.9%	Yes
Tavares Silva et al., 2016, Brazil [33]	Questionnaire previously used by Serra-Negra et al., 2013 [30]. This questionnaire was prepared within the criteria of the AASM.	Mother: 68.7% Father: 14.2% Grandparents: 13.4% Other: 3.7%	Yes
Cocktail			
Alouda et al., 2017, Saudi Arabia [20]	The questions were developed and adapted from a cocktail of questionnaires including and not limited to Weideman's Study, the sleep behaviour scale by Fisher, the paediatric questionnaire, teeth grinding questionnaire and standardized questionnaire.	Not reported	No
Clementino et al., 2017, Brazil [16]	A validated questionnaire (Serra-Negra et al., 2013 [30]; Tavares Silva et al., 2016 [33]) was created based on the criteria of the American Association of Sleep Medicine (AASM 2005; Serra-Negra et al., 2010 [36, 37])	Mother: 77.0% Father: 8.8% Grandfather/grandmother: 9.5% Other: 4.7%	Yes
Alves et al., 2019, Brazil [15]	Questionnaire designed by Serra-Negra et al., 2013 [30] based on the criteria of the American Association of Sleep Medicine (AASM).	Mother: 63.1% Father: 17.5% Grandparent: 7.8% Other: 11.7%	Yes
Ferreira and de Carvalho, 2019, Brazil [21]	A questionnaire prepared by a team of researchers from the Federal University of Minas Gerais (Serra-negra et al., 2013 [30]) based on the criteria of the AASM (Serra-Negra et al., 2013 [30]).	Mother 69.1% Father 18,1% Grandparents 4,3% Others 8,5%	Yes

Note: American Academy of Sleep Medicine (AASM), Children's Sleep Habits Questionnaire (CSHQ), Oral Health Impact Profile (OHIP14), Quality of Life (QoL).

Table II - Continued...

Author, Year, Country	Questionnaire type	Who Answered?	Questionnaire validation
Prado et al., 2019, Brazil [25]	A self-administrated questionnaire based on a previous study and based on Sleep Bruxism criteria of the AASM was used for data collection.	Mother: 72.0% Father: 13.2% Grandfather/grandmother: 7.8% Other: 6.9%	Yes
Caliskan et al., 2020, Turkey [31]	Modified from a questionnaire that was validated by Serra-Negra et al., 2009 [38]	Not reported	Yes
Kasimoglu et al., 2020, Istanbul [23]	Parents answered a questionnaire consisting of 52 questions and the results were recorded.	Not reported	No
Prasanna and Ravindran, 2020, India [26]	A pretested, closed ended questionnaire comprising the following sections formed the Survey instrument.	Not reported	No
Suguna and Gurunathan, 2020 India [27]	The Quality of Life (QoL) of children with SB was evaluated by using the Portuguese version of the Oral Health Impact Profile (OHIP14) questionnaire.	Mother: 58.3% Father: 27.8% Others: 13.9%	Yes
Hafiz et al., 2021, Saudi Arabia [22]	The electronic survey was distributed using the institution's social media platforms.	Not reported	Yes
Laganà et al., 2021, Albania [24]	The questionnaire was designed by one of the investigators.	Not reported	Yes
Us and Us, 2021, Turkey [27] [28]	The study questionnaire consisted of two prepared parts. In the first part of the questionnaire, sociodemographic data were included. In the second part of the questionnaire, the Children's Sleep Habits Questionnaire (CSHQ) was completed for the screening of sleep habits and sleep disorders	Not reported	Yes
Yildirim et al., 2022, Turkey [29]	Parents were asked to fill out a form containing demographic information such as children's age and gender, and a questionnaire consisting of questions questioning their knowledge and awareness of bruxism.	Mother: 75% Father: 23.6% Grandparents: 1.4%	No
Gurunathan et al., 2024 India [32]	The survey was conducted online using Google Forms, and a window period of 3 months was given for submission of responses.	Mother: 65.6% Father: 34.2% Other: 0.2%	Yes

Note: American Academy of Sleep Medicine (AASM), Children's Sleep Habits Questionnaire (CSHQ), Oral Health Impact Profile (OHIP14), Quality of Life (QoL).

Table III – Risk of Bias assessed by the Joanna Briggs Institute Critical Appraisal tools - Checklist for Analytical Cross-Sectional Studies. The studies that presented "yes" for all questions were rated as having low risk of bias, those that presented at least one answer "unclear" was rated as fair, and at least one answer "no" was rated as high risk of bias.

Author, Year	Q1	Q2	Q3	Q4	Q5	Q6	Q 7	Q8
Serra-Negra et al., 2013 [30]	Y	Y	Y	Y	Y	Y	Y	Y
Tavares Silva et al., 2016 [33]	Y	Y	Y	Y	U	U	Y	Y
Alouda et al., 2017 [20]	U	Y	N	Y	Y	Y	NA	Y
Clementino et al., 2017 [16]	Y	Y	Y	Y	N	N	Y	Y
Alves et al., 2019 [15]	Y	Y	Y	Y	N	N	Y	Y
Ferreira and de Carvalho, 2019 [21]	Y	Y	Y	Y	N	N	Y	Y
Prado et al., 2019 [25]	Y	Y	Y	Y	Y	Y	Y	Y
Caliskan et al., 2020 [31]	Y	Y	Y	Y	N	N	Y	Y
Kasimoglu et al., 2020 [23]	Y	Y	N	U	N	N	U	Y
Prasanna and Ravindran, 2020 [26]	Y	Y	N	U	N	N	Y	U
Suguna and Gurunathan, 2020 [27]	Y	Y	Y	U	N	N	Y	Y
Hafiz et al., 2021 [22]	Y	Y	Y	Y	N	N	Y	Y
Lagana et al., 2021 [24]	Y	Y	U	Y	N	N	Y	Y
Us and Us, 2021 [28]	Y	Y	Y	Y	Y	Y	Y	Y
Yildirim, 2022 [29]	Y	Y	U	U	N	N	Y	Y
Gurunathan et al., 2024 [32]	Y	Y	Y	Y	N	N	Y	Y
Total % Yes	93.75	100	68.75	75	25	25	87.5	93.75

Note: Q1- Were the criteria for inclusion in the sample clearly defined?; Q2- Were the study subjects and the setting described in detail? ; Q3- Was the exposure measured in a valid and reliable way?; Q4- Were objective, standard criteria used for measurement of the condition?; Q5- Were confounding factors identified?; Q6- Were strategies to deal with confounding factors stated?; Q7- Were the outcomes measured in a valid and reliable way?Q8- Was appropriate statistical analysis used?; Y: Yes, N: No, U: Unclear, NA: Not Applicable.

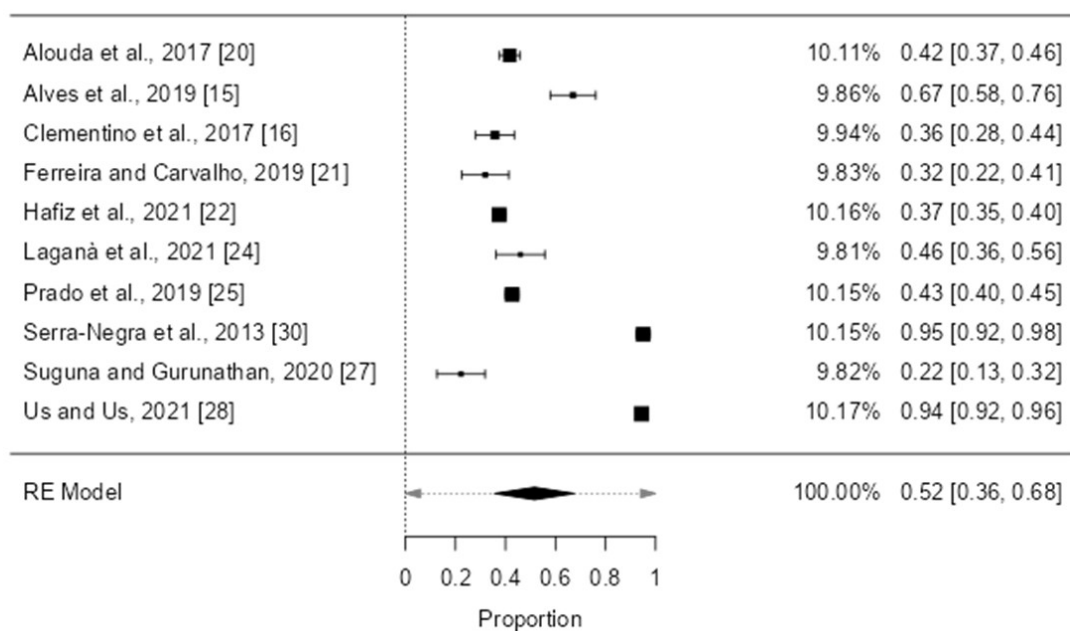


Figure 2 – Proportion meta-analysis forest plot of caregivers' self-declared knowledge of childhood sleep bruxism. The analysis includes studies that explicitly reported sleep bruxism as well as those inferred to assess sleep bruxism based on questionnaire data.

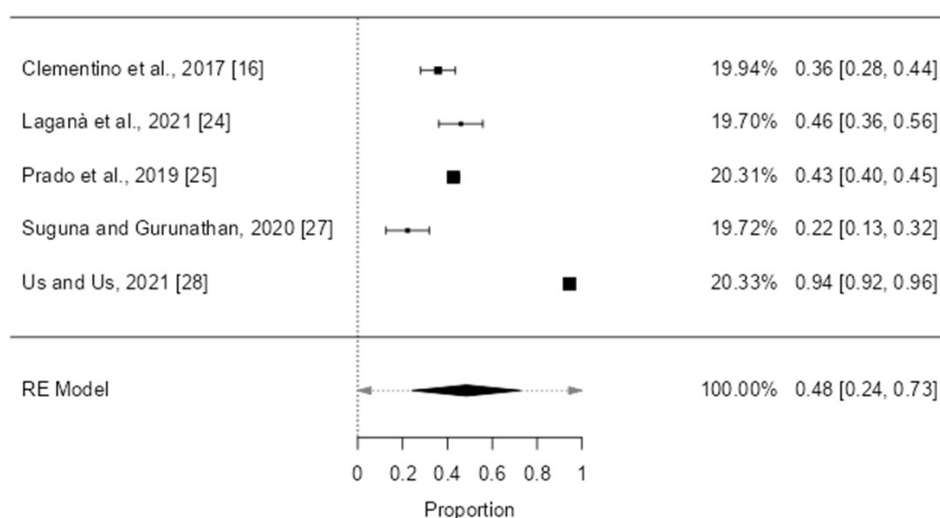


Figure 3 – Proportion meta-analysis forest plot of caregivers' self-declared knowledge of childhood sleep bruxism, including only studies that explicitly reported sleep bruxism.

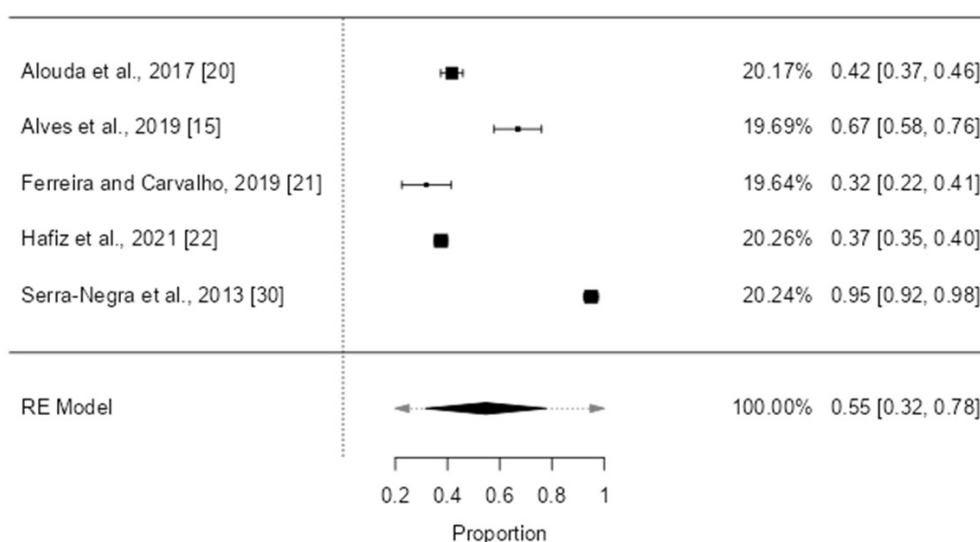


Figure 4 – Proportion meta-analysis forest plot of caregivers' self-declared knowledge of childhood sleep bruxism, including studies in which sleep bruxism was inferred based on questionnaire data.

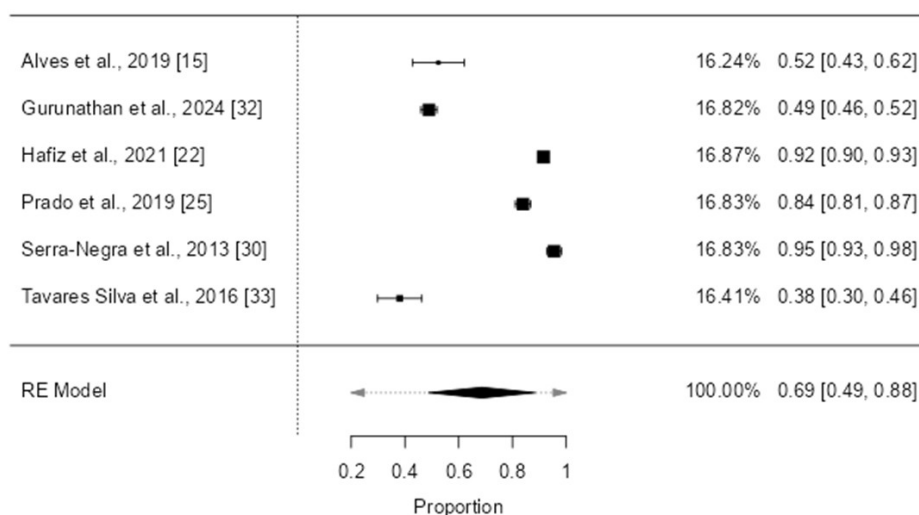


Figure 5 – Proportion meta-analysis forest plot of caregivers' correct definition of childhood sleep bruxism, including studies that explicitly reported sleep bruxism as well as those inferred based on questionnaire data.

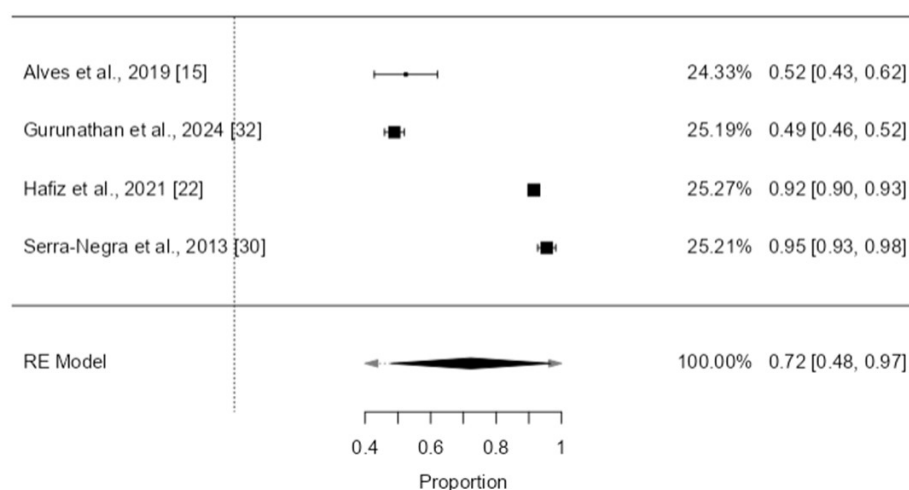


Figure 6 – Proportion meta-analysis forest plot of caregivers' correct definition of childhood sleep bruxism, including only studies in which sleep bruxism was inferred based on questionnaire data.

analyzed separately, the prevalence was 28% (CI: 0.21–0.36; $I^2=90.84\%$; $p<0.01$) in studies that explicitly addressed sleep bruxism and 37% (CI: 0.28–0.46; $I^2=96.34\%$; $p<0.01$) in inferred cases (Figure S2 and S3).

Among caregivers in ten studies (total caregivers = 4947) [15,16,21,22,24,25,30–33], the prevalence of bruxism based on subject-based assessments, including both studies that explicitly reported sleep bruxism and those in which it was inferred, was 28% (CI: 0.12–0.43; $I^2=99.43\%$; $p<0.01$) (Figure S4). When considering only studies that explicitly identified sleep bruxism, the prevalence was 15% (CI: 0.14–0.17; $I^2=0\%$; $p<0.01$) (Figure S5). Finally, in studies where sleep bruxism was inferred, the prevalence was 42% (CI: 0.16–0.67; $I^2=99.6\%$; $p<0.01$) (Figure S6).

The study by Caliskan et al. [31] reported data on possible parental bruxism without distinguishing between awake and sleep bruxism. Yildirim et al. [29] did not specify the type of bruxism in their study but reported a prevalence of 8.3%.

DISCUSSION

This systematic review and meta-analysis explored the extent of caregivers' knowledge about childhood bruxism. The findings revealed that approximately half of the caregivers self-reported being aware of sleep bruxism concept. Notably, most of them were able to accurately define the condition when questioned. Regarding awake bruxism, only one study reported its proportion,

making it impossible to draw definitive conclusions. These results underscore the importance of evaluating how and when information regarding caregivers' knowledge was gathered, providing critical context for interpreting the data.

In 2013, bruxism was defined as repetitive masticatory muscle activity involving clenching or teeth grinding, classified as sleep or awake bruxism [36, 39]. The 2018 consensus expanded this to include possible and probable sleep/awake bruxism, [14] reinforcing self-report as a key assessment method. More recently, the 2025 consensus recognized that self-report, clinical examination, and instrumental assessments capture complementary dimensions of bruxism, and terminology now emphasizes the assessment method used: subject-based, clinically based, or device-based [1]. The definition used in each study was considered correct or incorrect based on knowledge available at the time, and this evolution should be considered when interpreting findings [16,20,30,33]. Most studies did not separate awake and sleep bruxism when asking this question, and two that did not distinguish them and lacked sleep data were conducted after consensus [23,26]. Concepts considered correct in the included studies were: “when a person clenches the teeth so hard that it makes an audible sound that can be heard by others” [22] and the definition “clenching or grinding of teeth” [15,25,30,32,33], while one study did not describe what was considered correct [31].

The predominance of sleep bruxism studies may introduce bias by reinforcing the more

familiar concept of the condition. The term “teeth grinding” is widely associated with bruxism. Asking about “bruxism” [15,16,21–23,25–31,33] differs from asking about “information on teeth grinding” [20,24,32], indicating a questionnaire design issue. Terminology differences can affect response clarity and interpretation, influencing outcomes. One study reported replacing “bruxism” with “teeth grinding” to improve understanding among mothers [20], suggesting caregivers may recognize teeth grinding but not link it to scientific terminology. Such gaps in understanding may lead to underestimation of bruxism prevalence and delay caregivers seeking professional evaluation and early management.

The use of a validated questionnaire reduces the risk of bias in caregiver-reported data. The “Standardized tool for the assessment of bruxism” (STAB) [40] is a validated instrument available for bruxism assessment in adults and more recently, the Awake Bruxism Identification Tool (ABIT) [41] was developed for children and adolescents to facilitate the identification of awake bruxism. This represents an important advancement, as children often have difficulty accurately reporting their own symptoms. However, there remains a need for specific tools designed to assess parental knowledge regarding the different types of bruxism.

Studies assessing the concept of bruxism have provided noteworthy insights. Evidence indicates that while most caregivers recognized that bruxism could be linked to dental problems and emotional factors, only 8.3% were able to accurately define the condition [31]. The studies by Prado et al. [25] and Tavares Silva et al. [33] showed notable differences in the proportion of correct responses regarding the definition of sleep bruxism, with 83.9% and 38.1%, respectively. This discrepancy may be attributed to two key factors. First, Prado et al. [25] collected responses from 1,325 parents, whereas Tavares Silva et al. [33] had a much smaller sample of 134 participants, which could influence the representativeness of the findings. Additionally, Prado et al. [25] conducted their study across seven university clinics in the country and presented the definition of bruxism as multiple-choice options. This format may have facilitated parents' ability to identify the correct answer rather than relying solely on an open-ended judgment of correctness, as done in the study by Tavares Silva et al. [33].

Two studies performed clinical examinations to assess bruxism [28,29], while others relied on caregiver reports of its presence or absence. Data from Yildirim et al. [29] showed that clinically, 48.6% of children had bruxism, but only 15.3% of parents thought their child had the condition. Us and Us [28] assessed sleep bruxism in 160 (32%) of 500 children. These findings indicate that caregiver reports alone are insufficient to assess childhood bruxism, although they remain important. Educating caregivers about the signs and effects of bruxism helps prevent misconceptions. Dentists play a key role by clearly explaining the condition and its potential impacts. Informed caregivers are more likely to recognize bruxism early and seek timely intervention.

The prevalence in this review aligns with an umbrella review reporting sleep bruxism in children and adolescents ranging from 3% to 49%, and the same study also described that most systematic reviews did not specify whether sleep or awake bruxism was analyzed separately [39,42]. In one study with 265 parents, sleep bruxism was reported at 21.5% and awake bruxism at 7.2% [31]. Suguna et al. [27] had an experimental and control group, preventing prevalence calculation, while Kasimogğlu et al. [23] did not specify the type of bruxism or total sample size.

It was not possible to determine how many parents both understood the concept and had bruxism, as these data were unavailable in the studies except in Prado et al. [25], in which 42.7% of caregivers reported knowing what sleep bruxism is, while 57.3% did not. Notably, 27.5% of those who correctly identified the definition had a child with the condition. This may be relevant because parents with bruxism who know this information may more easily recognize the condition in their children. Parental education was a secondary outcome, but data were reported in only four studies and in different ways. Due to methodological differences and data presentation, no association could be established. Regarding children's sleep characteristics, although most studies used questionnaires based on the American association of sleep medicine (AASM) criteria, only Us and Us [28] used the Children's sleep habits questionnaire (CSHQ). Association was also not possible due to differences in the presented data.

An improved understanding of childhood bruxism extends beyond parental awareness to

include its associations, risk factors, and broader clinical implications. Identifying what caregivers need to know, such as early signs and when to seek professional care, is essential to support timely management and reduce potential long-term consequences. These findings highlight the clinical importance of improving caregiver education. Future research should prioritize the development of standardized, validated instruments to assess caregiver knowledge, as well as the use of consistent terminology and clear distinction between sleep and awake bruxism.

This review faced limitations due to the small number of studies, and their limited geographic distribution restricts the generalizability of the findings. Although a comprehensive search, including gray literature, was conducted, many studies relied solely on caregiver reports without clinical confirmation, which may reduce accuracy, particularly given that a substantial proportion of caregivers lacked knowledge of bruxism. Additionally, two full texts could not be retrieved, and two studies were translated via Google Translate, potentially affecting interpretation. Most studies relied on self-reported questionnaires, with only three allowing caregivers to select the correct definition [22,25,32]. Moreover, just 18.75% of the studies met all risk of bias criteria, and most did not account for or analyze potential confounding factors. These limitations highlight the need for more robust and geographically diverse research.

CONCLUSION

While half of caregivers reported knowing about childhood sleep bruxism, approximately seven in ten can correctly define it. Regarding awake bruxism, only one study reported its prevalence, making it impossible to draw definitive conclusions. Although caregiver reports alone may not be sufficient for a comprehensive assessment, they play a crucial role in identifying the condition. Future studies should evaluate caregiver knowledge of both awake and sleep bruxism by integrating concept-based questions, clinical examinations, and targeted educational efforts to enhance early assessment and understanding.

REGISTRATION AND PROTOCOL

The protocol of this systematic review was published and registered in the international

“Prospective register of systematic reviews (PROSPERO)” under registration number: CRD42023389357.

Differences between protocol and review

There were some differences in the protocol and the review. For the planned secondary outcomes of child sleep characteristics, sleep type, sleep duration, and parental education, an association meta-analysis was planned but could not be performed due to differences in the reported data.

In addition, the secondary outcome of prevalence of bruxism in parents and children was not planned, but based on the data presented, it was possible to perform meta-analyses. Therefore, forest plots were added to this review to better understand the prevalence and need for parental/caregiver knowledge about childhood bruxism.

Data availability

The supplementary materials cited in the article can be accessed through the following links: <https://bds.ict.unesp.br/index.php/cob/libraryFiles/downloadPublic/111> (Supplementary Tables 1-3) and <https://bds.ict.unesp.br/index.php/cob/libraryFiles/downloadPublic/112> (Figures S1-S6).

Author's Contributions

PAAK: Investigation, Methodology, Data Curation, Formal Analysis. TNNP: Investigation, Methodology, Data Curation, Formal Analysis. RAM: Writing – Review & Editing. SCL: Writing – Review & Editing. EMT: Writing – Review & Editing. CM: Supervision, Resources, Investigation, Methodology, Data Curation, Formal Analysis.

Conflict of Interest

The authors have no proprietary, financial, or other personal interest of any nature or kind in any product, service, and/or company that is presented in this article.

Funding

PAAK is supported with scholarship by Coordenação de Aperfeiçoamento de Pessoal de Nível Superior—Brasil (CAPES).

Regulatory Statement

The protocol of this systematic review was published and registered in the International Prospective Register of Systematic Reviews (PROSPERO) under registration number: CRD42023389357

REFERENCES

- Verhoeff MC, Lobbezoo F, Ahlberg J, Bender S, Bracci A, Colonna A, et al. Updating the bruxism definitions: report of an international consensus meeting. *J Oral Rehabil.* 2025;52(9):1335-42. <https://doi.org/10.1111/joor.13985>.
- Huynh N, Fabbro CD. Sleep bruxism in children and adolescents: a scoping review. *J Oral Rehabil.* 2024;51(1):103-9. <https://doi.org/10.1111/joor.13603>. PMID:37743603.
- de Oliveira JMD, Pauletto P, Massignan C, D'Souza N, Gonçalves DAG, Flores-Mir C, et al. Prevalence of awake bruxism: a systematic review. *J Dent.* 2023;138:104715. <https://doi.org/10.1016/j.jdent.2023.104715>. PMID:37739056.
- Goldstein G, DeSantis L, Goodacre C. Bruxism: Best Evidence Consensus Statement. *J Prosthodont.* 2021;30(S1):91-101. <https://doi.org/10.1111/jopr.13308>. PMID:33331675.
- Leal TR, de Lima LCM, Neves ÉTB, Arruda MJALLA, Perazzo MF, Paiva SM, et al. Factors associated with awake bruxism according to perceptions of parents/guardians and self-reports of children. *Int J Paediatr Dent.* 2022;32(1):22-30. <https://doi.org/10.1111/ipd.12786>. PMID:33730404.
- Scarpini S, Lira AO, Gimenez T, Raggio DP, Chambrone L, Souza RC, et al. Associated factors and treatment options for sleep bruxism in children : an umbrella review. *Braz Oral Res.* 2023;37:1-15. <https://doi.org/10.1590/1807-3107bor-2023.vol37.0006>. PMID:36629590.
- Restrepo C, Santamaría A, Manrique R. Sleep bruxism in children: relationship with screen-time and sugar consumption. *Sleep Med X.* 2021;3:100035. <https://doi.org/10.1016/j.sleepx.2021.100035>. PMID:34169271.
- Restrepo-Serna C, Winocur E. Sleep bruxism in children, from evidence to the clinic. A systematic review. *Front Oral Health.* 2023;4:1166091. <https://doi.org/10.3389/froh.2023.1166091>. PMID:37252006.
- Guo H, Wang T, Niu X, Wang H, Yang W, Qiu J, et al. The risk factors related to bruxism in children: a systematic review and meta-analysis. *Arch Oral Biol.* 2018;86:18-34. <https://doi.org/10.1016/j.archoralbio.2017.11.004>. PMID:29149621.
- Bulanda S, Ilczuk-rypuła D, Nitecka-buchta A, Nowak Z, Baron S. Sleep bruxism in children : etiology, diagnosis, and treatment — a literature review. *Int J Environ Res Public Health.* 2021;18(18):9544. <https://doi.org/10.3390/ijerph18189544>.
- Rodrigues JA, Solano MP. Sleep bruxism and oral health - related quality of life in children. *Int J Paediatr Dent.* 2020;30(2):136-43. <https://doi.org/10.1111/ipd.12586>. PMID:31630473.
- Ierardo G, Mazur M, Luzzi V, Calcagnile F, Ottolenghi L, Polimeni A. Treatments of sleep bruxism in children: a systematic review and meta-analysis. *Cranio®.* 2021;39(1):58-64. <https://doi.org/10.1080/08869634.2019.1581470>.
- Ribeiro-Lages MB, Jural LA, Magno MB, Vicente-Gomila J, Ferreira DM, Fonseca-Gonçalves A, et al. A world panorama of bruxism in children and adolescents with emphasis on associated sleep features: a bibliometric analysis. *J Oral Rehabil.* 2021;48(11):1271-82. <https://doi.org/10.1111/joor.13249>. PMID:34431126.
- Lobbezoo F, Ahlberg J, Raphael KG, Wetselaar P, Glaros AG, Kato T, et al. International consensus on the assessment of bruxism: report of a work in progress. *J Oral Rehabil.* 2018;45(11):837-44. <https://doi.org/10.1111/joor.12663>.
- Alves CL, Fagundes DM, Ferreira Soares PB, Ferreira MC. Knowledge of parents/caregivers about bruxism in children treated at the pediatric dentistry clinic. *Sleep Sci.* 2019;12(3):185-9. <https://doi.org/10.5935/1984-0063.20190083>. PMID:31890094.
- Clementino MA, Siqueira MB, Serra-Negra JM, Paiva SM, Granville-Garcia AF. The prevalence of sleep bruxism and associated factors in children: a report by parents. *Eur Arch Paediatr Dent.* 2017;18(6):399-404. <https://doi.org/10.1007/s40368-017-0312-x>. PMID:29075962.
- Almeida D, Rodrigues RS, Simão C, Araújo RP, Figueiredo J. Prevalence of sleep bruxism reported by parents / caregivers in a portuguese pediatric dentistry service : a retrospective study. *Int J Environ Res Public Health.* 2022;19(13):7823. <https://doi.org/10.3390/ijerph19137823>.
- Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ.* 2021;372(71):n71. <https://doi.org/10.1136/bmj.n71>. PMID:33782057.
- Stone JC, Barker TH, Aromataris E, Ritskes-Hoitinga M, Sears K, Klugar M, et al. From critical appraisal to risk of bias assessment: clarifying the terminology for study evaluation in JBI systematic reviews. *JBI Evid Synth.* 2023;21(3):472-7. <https://doi.org/10.11124/JBIES-22-00434>. PMID:36882947.
- Alouda R, Ashehri M, Shooq A, Shafique M, Al Khudhair MW. Mother's work status on children's bruxism in a Subset of Saudi Population. *J Int Soc Prevent Communit Dent.* 2017;7(9):S170-8. https://doi.org/10.4103/jispcd.JISPCD_384_17.
- Ferreira DM, de Carvalho PC. Analysis of the knowledge of parents/guardians about bruxism in children treated at the pediatric dentistry clinic of the Doutor Leão Sampaio University Center – Unileão [thesis]. Juazeiro do Norte: Coordination of the Graduate Course in Dentistry, Centro Universitário Doutor Leão Sampaio; 2019.
- Hafiz Z, Alhamid A, Alsaykhan M, Dakhil NB. Parental awareness of bruxism in saudi children: a public health concern. *Biosci Biotechnol Res Commun.* 2021;14(3):974-80. <https://doi.org/10.21786/bbrc/14.3.11>.
- Kasimogğlu Y, Esen M, Firat N, Tuna-Ince EB. Evaluation of knowledge and attitudes of parents about bruxism in children and young adults. *J Dent Fac Atatürk Uni.* 2020;30(3):400-5. <https://doi.org/10.17567/ataunifd.706809>.
- Laganà G, Osmanagiq V, Malara A, Venza N, Cozza P. Sleep bruxism and sdb in albanian growing subjects: a cross-sectional study. *Dent J.* 2021;9(3):1-9. <https://doi.org/10.3390/dj9030025>. PMID:33673649.
- Prado IM, Paiva SM, Fonseca-Gonçalves A, Maia LC, Tavares-Silva C, Fraiz FC, et al. Knowledge of parents/caregivers about the sleep bruxism of their children from all five Brazilian regions: a multicenter study. *Int J Paediatr Dent.* 2019;29(4):507-23. <https://doi.org/10.1111/ipd.12486>. PMID:30805966.
- Prasanna V, Ravindran V. Knowledge and awareness on habits and habit breaking appliances among parents-a questionnaire survey. *J Res Med Dent Sci.* 2020;8(7):122-8.
- Suguna S, Gurunathan D. Quality of life of children with sleep bruxism Sruthi. *J Family Med Prim Care.* 2020;9(1):332-6. https://doi.org/10.4103/jfmpc.jfmpc_820_19. PMID:32110614.
- Us MC, Us YO. Evaluation of the relationship between sleep bruxism and sleeping habits in school-aged children. *Cranio.* 2021;41(6):569-77. <https://doi.org/10.1080/08869634.2021.1890454>. PMID:33616018.

29. Yildirim G, Ozçelik C, Oghan Turkoglu M, Çelik Güven M. Evaluation of the prevalence of bruxism and parents awareness in children aged 4-7: a cross-sectional clinical study. *Turkiye Klinikleri J Dental Sci.* 2022;28(4):825-31. <https://doi.org/10.5336/dentalsci.2022-88813>.
30. Serra-negra JM, Tirsá-costa D, Guimarães FH, Paiva SM, Pordeus IA. Evaluation of parents/guardian knowledge about the bruxism of their children : family knowledge of bruxism. *J Indian Soc Pedod Prev Dent.* 2013;31(3):153-8. <https://doi.org/10.4103/0970-4388.117965>. PMID:24021324.
31. Caliskan S, Delikan E, Ozcan-Kucuk A. Knowledge of parents about bruxism in their children. *ODOVTOS-Int J Dent S.* 2020;22(1):123-32. <https://doi.org/10.15517/ijds.2020.38712>.
32. Gurunathan D, Varadarajan S, Balaji TM. Knowledge, attitude, and awareness of parents on bruxism in children: a questionnaire study. *World J Dent.* 2024;15(2):161-7. <https://doi.org/10.5005/jp-journals-10015-2323>.
33. Tavares Silva C, Calabrio IR, Serra-Negra JM, Fonseca-Gonçalves A, Maia LC. Knowledge of parents/guardians about nocturnal bruxism in children and adolescent. *Cranio.* 2016;35(4):223-7. <https://doi.org/10.1080/08869634.2016.1201633>.
34. Borenstein M, Hedges LV, Higgins JP, Rothstein HR, editors. Meta-analysis methods based on direction and p-values. In: Borenstein M, Hedges LV, Higgins JPT, Rothstein HR. *Introduction to meta-analysis.* Hoboken: John Wiley & Sons Ltd; 2009. <https://doi.org/10.1002/9780470743386>.
35. Veroniki AA, Jackson D, Viechtbauer W, Bender R, Bowden J, Knapp G, et al. Methods to estimate the between-study variance and its uncertainty in meta-analysis. *Res Synth Methods.* 2016;7(1):55-79. <https://doi.org/10.1002/jrsm.1164>. PMID:26332144.
36. American Academy of Sleep Medicine. *International classification of sleep disorders: diagnostic and coding manual.* 2nd ed. Illinois: American Academy of Sleep Medicine; 2005.
37. Serra-Negra JM, Paiva SM, Seabra AP, Dorella C, Lemos BF, Pordeus IA. Prevalence of sleep bruxism in a group of Brazilian schoolchildren. *Eur Arch Paediatr Dent.* 2010;11(4):192-5. <https://doi.org/10.1007/BF03262743>. PMID:20840830.
38. Serra-Negra JM, Ramos-Jorge ML, Flores-Mendoza CE, Paiva SM, Pordeus IA. Influence of psychosocial factors on the development of sleep bruxism among children. *Int J Paediatr Dent.* 2009;19(5):309-17. <https://doi.org/10.1111/j.1365-263X.2009.00973.x>. PMID:19320911.
39. Lobbezoo F, Ahlberg J, Glaros AG, Kato T, Koyano K, Lavigne GJ, et al. Bruxism defined and graded: an international consensus. *J Oral Rehabil.* 2013;40(1):2-4. <https://doi.org/10.1111/joor.12011>. PMID:23121262.
40. Manfredini D, Ahlberg J, Aarab G, Bender S, Bracci A, Cistulli PA, et al. Standardised tool for the assessment of bruxism. *J Oral Rehabil.* 2024;51(1):29-58. <https://doi.org/10.1111/joor.13411>. PMID:36597658.
41. Ribeiro-Araújo NR, da Silva ACF, Marceliano CRV, Gavião MBD. Awake bruxism identification: a specialized assessment tool for children and adolescents-a pilot study. *Int J Environ Res Public Health.* 2025;22(7):982. <https://doi.org/10.3390/ijerph22070982>. PMID:40724049.
42. Melo G, Duarte J, Pauletto P, Porporatti AL, Stuginski-Barbosa J, Winocur E, et al. Bruxism: an umbrella review of systematic reviews. *J Oral Rehabil.* 2019;46(7):666-90. <https://doi.org/10.1111/joor.12801>. PMID:30993738.

Carla Massignan

(Corresponding address)

Universidade de Brasília, Departamento de Odontologia, Brasília, DF, Brasil.

Email: carmassignan@yahoo.com.br

Editor-in-chief: Sergio Eduardo de Paiva Gonçalves

Editor: Cristiane Meira Assunção

Date submitted: 2025 Jun 02

Accept submission: 2026 May 26