UNIVERSIDADE FEDERAL DE MINAS GERAIS
Faculdade de Odontologia
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Letícia Fernanda Moreira dos Santos

POSSÍVEL BRUXISMO DO SONO E EM VIGÍLIA NA INFÂNCIA: *PREVALÊNCIA, FATORES ASSOCIADOS E ANÁLISE DE CAMINHOS*

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Tese apresentada ao Colegiado de Pós-Graduação em Odontologia da Faculdade de Odontologia da Universidade Federal de Minas Gerais, como requisito parcial à obtenção do grau de Doutor em Odontologia - área de concentração em Odontopediatria

Orientadora: Profa. Dra. Júnia Maria Cheib Serra-Negra
Coorientadora: Profa. Dra. Isabela Almeida Pordeus
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POSSÍVEL BRUXISMO DO SONO E EM VIGÍLIA NA INFÂNCIA: PREVALÊNCIA, FATORES ASSOCIADOS E ANÁLISE DE CAMINHOS

LETÍCIA FERNANDA MOREIRA DOS SANTOS

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sua risada?

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“Educar é mostrar a vida a quem ainda não a viu.”

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RESUMO

O bruxismo é definido como um comportamento de etiologia multifatorial ainda pouco explorado na primeira infância. Esta tese é composta por dois artigos que avaliaram a prevalência, os fatores associados e os caminhos de associação do possível bruxismo do sono (PBS) e do possível bruxismo em vigília (PBV) em crianças. O artigo I avaliou a associação entre estilos parentais, traços de personalidade de crianças e a gravidade do PBS. O artigo II identificou os caminhos que influenciam o PBS e o PBV. Este estudo, aprovado pelo comitê de ética, envolveu 301 pais/cuidadores de crianças de quatro a sete anos, residentes em Divinópolis, Minas Gerais. Foram excluídos pais/cuidadores cujos filhos usavam anticonvulsivantes ou apresentavam síndromes e/ou alterações neurológicas. Os dados foram coletados por meio de um questionário eletrônico no *Google Forms*, respondido pelos pais/cuidadores. Inicialmente, dez escolas (cinco públicas e cinco privadas) foram selecionadas por conveniência, e os professores distribuíram o *link* da pesquisa em grupos de WhatsApp®. Posteriormente, utilizou-se amostragem bola de neve, na qual os pais/cuidadores foram convidados a distribuir a pesquisa a outros que tivessem filhos na faixa etária mencionada. As características socioeconômicas coletadas incluíram sexo e idade da criança, renda familiar, escolaridade e composição familiar. Para avaliar os estilos parentais (autoritário, permissivo e democrático) e os traços de personalidade (psicoticismo, extroversão e neuroticismo) das crianças, foram utilizadas as versões brasileiras dos questionários Estilos e Dimensões Parentais e *Eysenck Personality Junior*, respectivamente. A maior frequência relatada de PBS (ranger e *bracing*) e PBV (ranger e apertar) nas duas semanas anteriores foi utilizada para classificar a gravidade dos comportamentos em ausente, leve e moderada/grave. Também foram avaliadas as características do sono das crianças, como duração, qualidade, ronco e babar no travesseiro. A prevalência de PBS e PBV foi de 31,1% e 16,3%, respectivamente. O artigo I, por meio da regressão logística multinomial, revelou que o sexo masculino (OR=2,07; IC 95%=1,09−3,91) e o ronco (OR=2,98; IC 95%=1,55–5,73) estavam associados ao PBS leve. O sexo masculino (OR=2,61; IC 95%=1,20–5,70) e alto neuroticismo (OR=2,27; IC 95%=1,06–4,86) estavam associados ao PBS moderado/grave. Atitudes parentais mais democráticas reduziram a probabilidade do PBS moderado/grave (OR=0,37; IC 95%=0,16–0,86). O artigo II, por meio da análise de caminhos, demonstrou que atitudes parentais menos democráticas contribuem indiretamente para o PBS e o PBV, mediadas por alto neuroticismo (β=−0.217; p<0.01) e má qualidade do sono (β=−0.189; p=0.01). PBS e PBV estão relacionados entre si (β=0.517; p=0.04). O sexo masculino (β=0.183; p<0.01), psicoticismo alto (β=0.323; p=0.02) e sono insuficiente (β=0.069; p=0.01) tiveram um efeito direto sobre o PBS. A idade da criança teve um efeito direto no PBS (β=0.287; p<0.01) e no PBV (β=−0.189; p=0.01). Concluiu-se que, no artigo I, atitudes parentais mais democráticas, alto neuroticismo e ronco foram associados à gravidade do PBS. No artigo II, atitudes parentais menos democráticas, alto neuroticismo e psicoticismo, sexo, idade e sono insuficiente influenciaram o PBS. O PBV foi influenciado pela idade e má qualidade do sono.

Palavras-chave: bruxismo; bruxismo do sono; bruxismo em vigília; criança; parentalidade; personalidade.

ABSTRACT

Possible sleep and awake bruxism in childhood: prevalence, associated factors, and path analysis

Bruxism is a behavior with multifactorial etiology that remains underexplored, especially in early childhood. This thesis comprises two articles that evaluated the prevalence, associated factors, and pathways for possible sleep bruxism (PSB) and possible awake bruxism (PAB) in children. Article I assessed the association between parenting styles, children's personality traits, and the severity of PSB. Article II identified the pathways influencing PSB and PAB. This study, approved by the ethics committee, involved 301 parents/caregivers of children aged four to seven years residing in Divinópolis, Minas Gerais. Parents/caregivers whose children were using anticonvulsants or had syndromes and/or neurological disorders were excluded. Data were collected through an electronic questionnaire on Google Forms, completed by the parents/caregivers. Initially, ten schools (five public and five private) were selected for convenience, and teachers distributed the survey link in WhatsApp® groups. Snowball sampling was subsequently used, inviting parents/caregivers to share the survey with others who had children in the specified age range. Socioeconomic characteristics collected included the child's sex and age, family income, education level, and family composition. Parenting styles (authoritarian, permissive, and authoritative) and children's personality traits (psychoticism, extraversion, and neuroticism) were assessed using the Brazilian versions of the Parenting Styles and Dimensions Questionnaire and the Eysenck Personality Questionnaire Junior, respectively. The higher reported frequency of PSB (grinding and bracing) and PAB (grinding and clenching) in the previous two weeks was used to classify the severity of the behaviors as absent, mild, and moderate/severe. Children's sleep characteristics, such as duration, quality, snoring, and drooling on the pillow, were also assessed. The prevalence of PSB and PAB was 31.1% and 16.3%, respectively. Through multinomial logistic regression, Article I revealed that the male sex (OR=2.07; 95% CI=1.09–3.91) and snoring (OR=2.98; 95% CI=1.55–5.73) were associated with mild PSB. Male sex (OR=2.61; 95% CI=1.20–5.70) and high neuroticism (OR=2.27; 95% CI=1.06–4.86) were associated with moderate/severe PSB. More authoritative parenting attitudes reduced the likelihood of moderate/severe PSB (OR=0.37; 95% CI=0.16–0.86). Article II, through path analysis, showed that less authoritative parenting attitudes indirectly contribute to PSB and PAB, mediated by high neuroticism (β=−0.217; P<0.01) and poor sleep quality (β=−0.189; P=0.01). PSB and PAB are related to each other (β=0.517; P=0.04). Male sex (β=0.183; P<0.01), high psychoticism (β=0.323; P=0.02), and insufficient sleep (β=0.069; P=0.01) had a direct effect on PSB. The child's age has a direct effect on PSB (β=0.287; P<0.01) and PAB (β=−0.189; P=0.01). In conclusion, Article I found that more authoritative parenting attitudes, high neuroticism, and snoring were associated with the severity of PSB. Article II concluded that less authoritative parenting attitudes, high neuroticism and psychoticism, sex, age, and insufficient sleep influenced PSB. PAB was influenced by age and poor sleep quality.

Keywords: awake bruxism; bruxism; child; parenting; personality; sleep bruxism.

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METODOLOGIA EXPANDIDA

LISTA DE ABREVIATURAS E SIGLAS

AAMS	Academia Americana de Medicina do Sono
BMMW	*Brazilian Monthly Minimum Wage*
CAPES	Coordenação de Aperfeiçoamento de Pessoal de Nível Superior
CFI	*Comparative Fit Index*
COEP	Comitê de Ética e Pesquisa
COVID-19	*Corona Virus Diasease*
DAG	*Diagram Acyclic Graph*
EMG	Eletromiografia
EPQ-J	*Eysenck Personality Questionnaire-Junior*
FAO	Faculdade de Odontologia
IBGE	Instituto Brasileiro de Geografia e Estatística
IDH	Índice de Desenvolvimento Humano
PAB	Possible Awake Bruxism
PBS	Possível Bruxismo do Sono
PBV	Possível Bruxismo em Vigília
PRINT	Programa Institucional de Internacionalização
PROEX	Programa de Excelência Acadêmica
PSB	*Possible Sleep Bruxism*
PSG	Polissonografia
PSB	*Possible Sleep Bruxism*
QDEP	Questionário Dimensões e Estilos Parentais
RMSEA	*Root Mean Square Error of Approximation*
SCA	Saúde Bucal da Criança e do Adolescente
SPSS	*Statistical Package for Social Sciences*
SRMR	*Standardized Root Mean Square Residual*
STAB	*Standardised Tool for the Assessment of Bruxism (STAB)*
STROBE	*Strengthening the Reporting of Observational Studies in Epidemiology*
TCLE	Termo de Consentimento Livre e Esclarecido
TLI	*Tucker-Lewis Index*
UFMG	Universidade Federal de Minas Gerais

SUMÁRIO

1 CONSIDERAÇÕES INICIAIS

1.1 Definição, classificação e prevalência do bruxismo do sono e em vigília

Durante décadas, o bruxismo infantil foi considerado um fenômeno fisiológico. No entanto, a compreensão da sua etiologia evoluiu significativamente, levando a uma mudança de paradigma, refletida na definição atual (LOBBEZOO *et al.,* 2018). De acordo com o consenso internacional, o bruxismo é um comportamento caracterizado por atividades repetitivas dos músculos da mastigação, apresentando-se em duas manifestações circadianas: bruxismo do sono e bruxismo em vigília (LOBBEZOO *et al.,* 2018). Em 2018, o consenso também reconheceu atividades que não envolvem necessariamente contatos dentários, como *bracing* – quando a mandíbula é mantida forçosamente em uma posição e *thrusting* – quando a mandíbula é movimentada forçosamente em uma direção anterior ou lateral (LOBBEZOO *et al.,* 2018). Assim, o bruxismo pode envolver contatos dentários, atividades repetitivas dos músculos da mastigação e movimentos mandibulares (LOBBEZOO *et al.,* 2018; MANFREDINI *et al.,* 2023).

O bruxismo pode ser diagnosticado por meio das avaliações não instrumentais e instrumentais (LOBBEZOO *et al.,* 2018). A avaliação não instrumental inclui o autorrelato (questionários e anamnese) e o exame clínico. Já a avaliação instrumental abrange a polissonografia (PSG) e a eletromiografia (EMG) (LOBBEZOO *et al.,* 2018). Dependendo da abordagem de avaliação, o bruxismo pode ser classificado em três categorias: possível, provável e definitivo (LOBBEZOO *et al.,* 2018). O possível bruxismo é identificado com base em um autorrelato positivo. O provável bruxismo é diagnosticado com base em um autorrelato positivo ou negativo, combinado com sinais e sintomas clínicos. O bruxismo definitivo é confirmado por meio de PSG ou EMG (LOBBEZOO *et al.,* 2018).

O bruxismo representa um fator risco para diversas consequências clínicas no sistema estomatognático (BULANDA *et al.,* 2021; LOBBEZOO *et al.,* 2018). Entre as consequências mais prevalentes em crianças estão o desgaste dentário e a dor de cabeça (SOARES *et al.,* 2021). Outros sinais e sintomas documentados incluem dor na articulação temporomandibular, fraturas de restaurações, linha alba e marcas de

endentação na língua (BORTOLETTO *et al.,* 2017; GOMES *et al.,* 2018; MASSIGNAN *et al.,* 2019; PALINKAS *et al.,* 2016; SERRA-NEGRA *et al.,* 2012).

Embora o consenso reconheça a importância de avaliar sinais e sintomas clínicos, a definição desses critérios por faixa etária ainda não está bem estabelecida (LOBBEZOO *et al.,* 2018). Sabe-se que os sinais e sintomas clínicos do bruxismo podem variar entre diferentes idades, o que ressalta a necessidade de critérios específicos para cada faixa etária (SOARES *et al.,* 2021). Além disso, o desgaste dentário, por exemplo, pode ser tanto o resultado de atividades recentes do bruxismo quanto a consequência de comportamentos passados, o que destaca a importância do relato de pais/cuidadores (SOARES *et al.,* 2021).

Em levantamentos epidemiológicos e na prática clínica da Odontopediatria, o relato de pais/cuidadores sobre as atividades de bruxismo de crianças é a ferramenta de diagnóstico mais frequentemente utilizada (BULANDA *et al.,* 2021; DUARTE *et al.,* 2019, SERRA-NEGRA *et al.,* 2017). No entanto, esse tipo relato apresenta limitações, incluindo o viés de memória e a influência de fatores locais, como a distância do quarto das crianças e o fato de manter as portas dos quartos fechadas durante a noite (RESTREPO *et al.,* 2017). Ainda assim, um estudo prévio demonstrou que a acurácia do relato de pais/cuidadores sobre o bruxismo do sono foi satisfatória, com 83% dos relatos coincidentes com aqueles confirmados pela PSG (HUYNH; DESPLATS; BELLERIVE, 2016).

O uso da PSG é limitado em levantamentos epidemiológicos devido ao alto custo e aos critérios de avaliação disponíveis, que são baseados em parâmetros de sono de pacientes adultos (ALFANO; BOWER; MEERS, 2018; RESTREPO *et al.,* 2017). Além disso, a análise do sono por meio da PSG pode ser influenciada pelo aumento do estresse e da ansiedade, causados pelo desconforto do monitoramento em um ambiente laboratorial e dos eletrodos utilizados na técnica (ALFANO; BOWER; MEERS, 2018).

A prevalência de bruxismo do sono entre crianças varia de 3,0% a 49,0% (MELO *et al.,* 2019). Uma revisão sistemática concluiu que o bruxismo do sono afeta uma em cada quatro crianças brasileiras (FERRARI-PILONI *et al.,* 2022). Por outro lado, a prevalência do bruxismo em vigília foi estimada entre 16% a 32% (OLIVEIRA *et al.,* 2023), com uma faixa específica para crianças e adolescentes variando de 12,4% a 37,3% (CARRA *et al.,* 2011; EMODI PERLMAN *et al.,* 2016; FRIEDMAN RUBIN *et al.,* 2018). A ampla variação da prevalência do bruxismo pode ser atribuída

às diferenças metodológicas entre os estudos avaliados. Uma revisão guarda-chuva estudo identificou uma grande variabilidade das revisões sistemáticas existentes sobre bruxismo (MELO *et al.,* 2019). A maioria dos estudos focava exclusivamente no bruxismo do sono, com alguns utilizando termos genéricos como "bruxismo" ou "hábitos parafuncionais" (MELO *et al.,* 2019). Além disso, os critérios diagnósticos foram heterogêneos: enquanto a maioria dos estudos empregou questionários ou exames clínicos, poucos utilizaram PSG ou eletromiografia EMG para confirmação diagnóstica (MELO *et al.,* 2019).

Recentemente, foi desenvolvida a ferramenta *Standardised Tool for the Assessment of Bruxism* (STAB), com o objetivo de fornecer uma avaliação multidimensional do bruxismo, incluindo suas comorbidades, etiologia e consequências do comportamento. A ferramenta consiste em dois eixos: o Eixo A, voltando especificamente para avaliação do bruxismo e de suas consequências, e o Eixo B, focado na avaliação de fatores etiológicos, de comorbidades e do risco ao bruxismo (MANFREDINI *et al.,* 2023). Vale ressaltar que o processo de validação da STAB ainda não foi completamente concluído e que sua aplicação tem um enfoque predominantemente em pacientes adultos (MANFREDINI *et al.,* 2023).

1.2 Fatores associados ao comportamento bruxômano

Historicamente, fatores periféricos e morfológicos, como desarmonias oclusais e anatomia das estruturas ósseas da região orofacial, eram considerados relevantes na etiologia do bruxismo (LOBBEZOO; NAEIJE, 2001). No entanto, atualmente, sabe-se que não há associação entre maloclusões e bruxismo do sono (RIBEIRO-LAGES *et al.,* 2020), corroborando com evidências anteriores de que o comportamento bruxômano é regulado principalmente pelo sistema nervoso central (LOBBEZOO; NAEIJE, 2001). Com isso, o foco das pesquisas atuais tem se voltando para a investigação de fatores centrais e fisiopatológicos associados ao bruxismo (LOBBEZOO; NAEIJE, 2001; MAFREDINI *et al.,* 2023).

O bruxismo é um comportamento multifatorial que pode estar associado a diversas condições médicas, como enurese, insônia, refluxo gastroesofágico e apneia obstrutiva do sono (BULANDA *et al.,* 2021; MAFREDINI *et al.,* 2023). As atividades de bruxismo do sono parecem contribuir para o restabelecimento do padrão respiratório

normal em pacientes com apneia obstrutiva, sugerindo um possível papel protetor do bruxismo do sono (LOBBEZZO *et al.,* 2018).

Uma revisão sistemática com meta-análise concluiu que características do sono como ronco, respiração bucal e babar no travesseiro, são fatores de risco ao bruxismo do sono na infância (GUO *et al.,* 2017). Esses fatores possivelmente alteram o relógio biológico interno da criança, levando à fragmentação do sono (RIBEIRO *et al.,* 2018). Como consequência, a duração e a qualidade do sono podem ser comprometidas devido ao aumento da frequência de microdespertares noturnos (DUARTE *et al.,* 2019, RIBEIRO-LAGES *et al.,* 2021). Episódios de bruxismo do sono podem ocorrer durante microdespertares, que correspondem à súbita mudança da profundidade do sono, na qual o indivíduo transita de um estágio do sono mais profundo para outro mais leve, ou até mesmo é despertado (LOBBEZOO; NAEIJE, 2001).

Além disso, aspectos psicossociais e sintomas psicopatológicos, incluindo estresse, ansiedade, transtorno depressivo maior materno, bullying e traços de personalidade têm sido amplamente estudados como fatores associados ao bruxismo do sono e em vigília (ALONSO *et al.,* 2021; DRUMOND *et al.,* 2020; GOETTEMS *et al.,* 2017; LEAL *et al.,* 2021; SERRA-NEGRA *et al.,* 2013).

1.3 Traços de personalidade e estilos parentais

Os traços de personalidade influenciam a qualidade das respostas emocionais das crianças diante de diferentes situações (SANTOS; FLORES-MENDOZA, 2012). O modelo PEN, desenvolvido por Hans Eysenck, propõe três traços fundamentais da personalidade humana: psicoticismo (P), extroversão (E) e neuroticismo (N) (SANTOS; FLORES-MENDOZA, 2012). O psicoticismo elevado está associado a características como impulsividade, criatividade e obstinação. A alta extroversão está relacionada à sociabilidade, enquanto o neuroticismo elevado está associado à ansiedade, depressão e timidez (SANTOS; FLORES-MENDOZA, 2012).

Durante a infância, investigar diferenças individuais na personalidade pode ser desafiador devido à dificuldade em elaborar medidas válidas. Além disso, as características psicológicas das crianças estão em desenvolvimento, o que pode levar a mudanças rápidas e significativas (SANTOS; FLORES-MENDOZA, 2012). Quando a idade da criança ou a natureza da característica psicológica, como o comportamento

antissocial, impede a autoavaliação, relatos de pais/cuidadores e de professores tornam-se os métodos mais adequados para identificar diferenças individuais relacionadas à personalidade (SANTOS; FLORES-MENDOZA, 2012). É importante considerar que fatores como cognição, autoestima e autoconceito ainda estão em desenvolvimento em crianças, o que pode comprometer a confiabilidade das descrições que elas fazem sobre si mesmas (ROTHBART; AHADI; EVANS, 2000). Nesse contexto, os relatos de pais/cuidadores são essenciais, pois eles observam os comportamentos das crianças em diversas situações ao longo do tempo, identificando padrões que podem não ser evidentes para outros (ROTHBART; BATES, 1998).

Determinantes biológicos, como a genética, influenciam a personalidade das crianças, que também é modulada pelo meio social e familiar, contribuindo para a formação da personalidade adulta (BRILEY; TUCKER-DROB, 2014; HOWENSTEIN *et al.,* 2015). Os estilos parentais desempenham um papel crucial, pois, por meio deles, os pais/cuidadores podem apoiar e promover o desenvolvimento físico, emocional, mental e social durante a infância (OLIVEIRA *et al.,* 2018).

Os estilos parentais referem-se às atitudes e práticas que pais/cuidadores adotam na criação dos filhos, influenciando como comportamentos e regras são estabelecidos na rotina familiar (OLIVEIRA *et al.,* 2018). A psicóloga americana Diana Baumrind identificou três tipologias parentais: autoritário, democrático e permissivo (BAUMRIND, 1971). Tradicionalmente, os estilos parentais são categorizados em duas dimensões principais: controle parental (incluindo disciplina, monitoramento e concessão de autonomia) e afeto (abrangendo carinho, aceitação e responsividade). A predominância de comportamentos em cada uma dessas dimensões ajuda a definir o estilo parental dominante (AMINABADI *et al.,* 2015; BAUMRIND, 1971). Pais/cuidadores que exibem principalmente comportamentos de controle parental e menos afeto são classificados como autoritários; aqueles que demonstram tanto controle parental quanto afeto são considerados democráticos; e pais e cuidadores que priorizam o afeto e apresentam baixo controle parental são classificados como permissivos (BAUMRIND, 1971).

Evidências sugerem que o estilo democrático e a expressão de afeto pelos pais/cuidadores podem ter um impacto positivo sobre a saúde física e mental, contribuindo para o bem-estar na vida adulta (DING; HE, 2022, WANG *et al.,* 2021). Na prática clínica da Odontopediatria, os estilos parentais parecem mediar o comportamento infantil (AMINABADI *et al.,* 2015). Observou-se que filhos de

pais/cuidadores democráticos apresentaram níveis significativamente mais baixos de ansiedade e de problemas de comportamento durante o tratamento odontológico, enquanto filhos de pais/cuidadores autoritários e permissivos mostraram níveis mais elevados de ansiedade e de problemas de comportamento (AMINABADI *et al.,* 2015).

Em síntese, crianças tendem a desenvolver e a regular adequadamente suas emoções quando seus pais/cuidadores mantêm um equilíbrio entre controle e afeto (SMETANA, DADDIS; 2002). Excesso ou deficiência nesses fatores pode levar a um aumento na internalização de sintomas como estresse e ansiedade nas crianças, que são comprovadamente desencadeadores de bruxismo (DRUMOND *et al.,* 2018; GUO *et al.,* 2017; SERRA-NEGRA *et al.,* 2013; SMETANA, DADDIS; 2002).

1.4 Plausabilidade do estudo da associação entre traços de personalidade, estilos parentais e bruxismo do sono e em vigília na infância

Diversos estudos sobre o bruxismo investigaram separadamente as características psicológicas de pais/cuidadores e de crianças (GOETTEMS *et al.,* 2017; LEAL *et al.,* 2021; SERRA-NEGRA *et al.,* 2013). Um estudo realizado com crianças brasileiras de 7 a 10 anos revelou que aquelas com altos níveis de neuroticismo foram mais propensas ao bruxismo do sono (SERRA-NEGRA *et al.,* 2013). O neuroticismo refere-se a uma maior suscetibilidade a emoções negativas, o que pode comprometer a capacidade dos indivíduos de lidar com conflitos emocionais (SANTOS; FLORES-MENDOZA, 2012). Dessa forma, crianças com alto neuroticismo podem utilizar o bruxismo do sono como um mecanismo de alívio da tensão emocional e da pressão que encontram dificuldade em gerenciar (SERRA-NEGRA *et al.,* 2013).

A identificação e o manejo dos fatores associados ao bruxismo parecem ser a estratégia mais eficaz para o controle clínico dos episódios de bruxismo infantil (DUARTE *et al.,* 2019; SCARPINI *et al.,* 2021; AGUIAR *et al.,* 2024). Para avançar as evidências disponíveis, é fundamental explorar os caminhos de associação com base em modelos conceituais, permitindo uma maior compreensão do ambiente familiar real, no qual os estilos parentais podem influenciar o desenvolvimento psicológico das crianças. Essas, por sua vez, podem manifestar, por meio dos traços de personalidade, a probabilidade de se envolverem em comportamentos bruxômanos. Além disso, embora o bruxismo do sono seja comum em crianças menores de 5 anos, a maioria das pesquisas concentra-se em crianças e adolescentes entre 6 e 17 anos

(DE LUCA CANTO *et al.,* 2014). Isso ressalta a necessidade de avaliar o bruxismo em crianças mais novas, uma vez que esse comportamento pode variar ao longo do tempo, demandando estratégias de manejo específicas para cada faixa etária (SERRA-NEGRA *et al.,* 2021; BRACCI *et al.,* 2023). Assim, este estudo transversal foi delineado para avaliar prevalência, os fatores associados e os caminhos de associação do possível bruxismo do sono (PBS) e do possível bruxismo em vigília (PBV) em crianças de 4 a 7 anos.

2 OBJETIVOS

2.1 Objetivo geral

Avaliar a associação entre estilos parentais, traços de personalidade infantil, possível bruxismo do sono (PBS) e possível bruxismo em vigília (PBV) em crianças de 4 a 7 anos de acordo com os pais/cuidadores.

2.2 Objetivos específicos

2.2.1 Objetivos específicos artigo I

a) Avaliar a prevalência e a gravidade do PBS, incluindo atividades de ranger os dentes e *bracing* em crianças, com base na frequência relatada pelos pais/cuidadores;
b) Analisar a prevalência de características sociodemográficas entre os participantes (idade, sexo, renda familiar mensal, escolaridade dos pais/cuidadores, posição da criança na família e composição familiar) segundo o relato de pais/cuidadores;
c) Investigar a prevalência características sono (babar no travesseiro e roncar) em crianças, conforme relatado de pais/cuidadores;
d) Avaliar a prevalência dos traços de personalidade (neuroticismo, psicoticismo e extroversão) em crianças, de acordo com o relato dos pais/cuidadores;
e) Examinar a prevalência dos estilos parentais (autoritário, permisso e democrático), conforme relatado pelos pais/cuidadores;

2.2.2 Objetivos específicos artigo II

a) Avaliar a prevalência e a gravidade do PBV, incluindo atividades de ranger e de apertar os dentes em crianças, com base na frequência relatada pelos pais/cuidadores;
b) Investigar a prevalência características sono (duração do sono e qualidade do sono) em crianças, conforme relatado de pais/cuidadores;

c) Construir e testar um modelo conceitual por meio da análise de caminhos;
d) Compreender e discutir potenciais caminhos de associação dos fatores socioeconômicos, características do sono, estilos parentais e traços de personalidade das crianças na ocorrência de PBS e PBV.

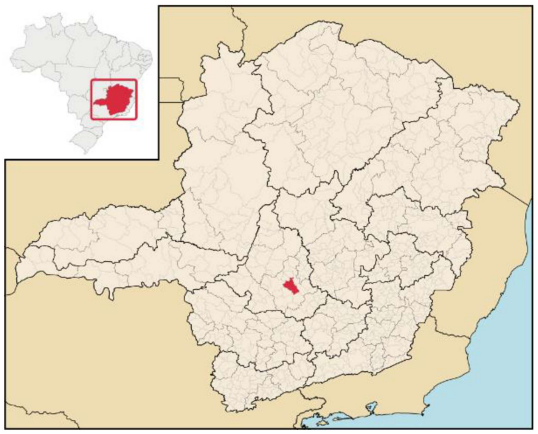
3 METODOLOGIA EXPANDIDA

A metodologia e os resultados deste estudo foram apresentados de acordo com as recomendações do *checklist Strengthening the Reporting of Observational Studies in Epidemiology* (STROBE) (CUSCHIERI, 2019).

3.1 Local de estudo

Este estudo foi conduzido em Divinópolis, uma cidade localizada no estado de Minas Gerais, na região Sudeste do Brasil (FIGURA 1). Segundo o Instituto Brasileiro de Geografia e Estatística (IBGE), a população estimada de Divinópolis é de 242.505 habitantes, distribuídos em uma área de 708,115 km^2 (IBGE, 2020; IBGE, 2021). Aproximadamente, 9.470 indivíduos estão na faixa etária de zero a quatro anos de idade e 13.790 na faixa etária de cinco a nove anos (IBGE, 2010c). Em 2010, a taxa de escolarização de crianças e de adolescentes de seis a 14 anos era de 98,6% (IBGE, 2010a). O município conta com 80 escolas de ensino fundamental e 24.352 matrículas (INEP, 2021a; INEP, 2021b). O Índice de Desenvolvimento Humano de Divinópolis (IDHM) é 0,76 e o Índice de Gini é de 0,47 (IBGE, 2010b; IBGE 2022).

Figura 1 − Localização de Divinópolis no estado de Minas Gerais, Brasil.



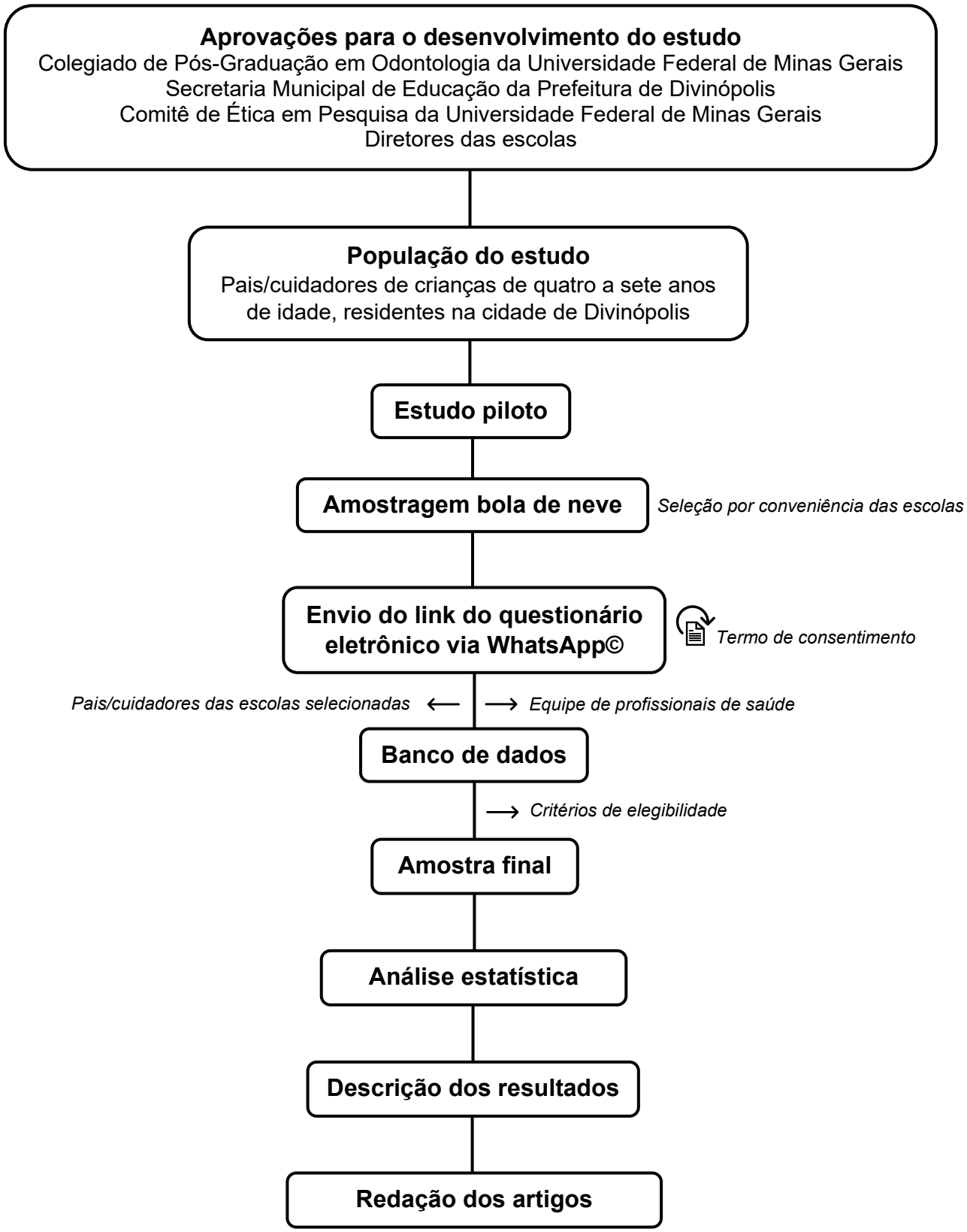
Fonte: pt.wikipédia.org

3.2 Desenho de estudo e seleção da amostra

Desenvolveu-se um estudo transversal on-line com pais/cuidadores de crianças de quatro a sete anos de idade, residentes na cidade de Divinópolis, entre agosto e novembro de 2021. A coleta de dados foi conduzida por meio de um questionário eletrônico na plataforma *Google Forms* (Google Inc., Menlo Park, CA, EUA). O estudo obteve a autorização da Secretaria Estadual de Educação de Divinópolis para ser desenvolvido em escolas públicas e privadas da cidade. Dez escolas (5 públicas e 5 privadas) foram selecionadas por conveniência para participar.

Inicialmente, as pesquisadoras entraram em contato com os professores das salas de aula, que distribuíram o *link* da pesquisa aos pais/cuidadores por meio de grupos de WhatsApp© (WhatsApp Inc. California, EUA). Posteriormente, foi utilizada a técnica de amostragem bola de neve, que consiste em solicitar a alguns indivíduos da população-alvo que identifiquem outros indivíduos da mesma população, e assim por diante (HANDCOCK; GILE, 2011). Essa técnica foi empregada devido à impossibilidade de realizar uma amostragem probabilística no momento (HANDCOCK; GILE, 2011). É valido destacar que a coleta de dados ocorreu no período em que medidas de restrição de convívio social ainda estavam em vigor devido à pandemia global do coronavírus (causador da *Corona Virus Disease* [COVID-19]). Assim, os pais/cuidadores foram incentivados a compartilhar o *link* da pesquisa com outros residentes de Divinópolis com filhos na faixa etária especificada. Além disso, uma equipe de profissionais de saúde, incluindo odontopediatra, pediatra, nutricionista e fonoaudióloga e psicóloga, também contribuiu na divulgação do estudo. A Figura 2 apresenta um fluxograma do delineamento do estudo.

Figura 2 − Fluxograma do delineamento do estudo.



Fonte: Elaborado pela autora, 2024.

3.3 Cálculo amostral

Com base em um estudo anterior envolvendo pré-escolares brasileiros, o tamanho da amostra foi calculado assumindo uma margem de erro de 5%, um nível de confiança de 95% e uma prevalência de comportamentos de segurança (SB) de 26,9% (GOMES *et al.,* 2018). Inicialmente, foi determinado um tamanho de amostra de 302 participantes, com um adicional de 10% para compensar possíveis perdas. Portanto, a amostra do estudo deveria considerar 332 pais e cuidadores.

3.4 Critérios de elegibilidade

Foram incluídos pais/cuidadores de crianças de quatro a sete anos residentes em Divinópolis. Foram excluídos pais/cuidadores de crianças com síndromes e/ou alterações neurológicas, como Síndrome de Down e paralisia cerebral, e/ou que faziam uso de medicação anticonvulsivante (GOMES *et al.,* 2018; SOARES *et al.,* 2020). As informações sobre a condição de saúde das crianças e o uso de medicamentos foram fornecidas pelos pais/cuidadores.

3.5 Coleta de dados

Os pais/cuidadores acessaram a plataforma *Google Forms* manualmente, clicando no *link* enviado pelo WhatsApp© e responderam a um questionário autoaplicável. Estudos indicam que resultados obtidos com questionários formato papel e lápis e eletrônicos são equivalentes (COLASANTE *et al.,* 2019). O formato *Google* é simples, confiável e eficiente, permitindo a criação de questionários adaptáveis a diferentes tipos de resposta (RAYHAN *et al.,* 2013). As respostas dos participantes foram armazenadas automaticamente, permitindo os pesquisadores acessarem o banco de dados em tempo real, salvassem em arquivo *Excel* e o importassem para o *software* estatístico.

O questionário consistia em cinco seções, totalizando 73 questões. Na primeira seção, os pais/cuidadores forneceram o consentimento digital por meio do Termo de Consentimento Livre e Esclarecido (TCLE) (APÊNDICE A). Após o consentimento, foram direcionados para as seções subsequentes, que abordavam características sociodemográficas e psicológicas, características do sono, bem como

os comportamentos de PBS e PBV. O tempo para o preenchimento do questionário foi de aproximadamente 10 a 15 minutos. Após o envio, não foi possível revisar ou alterar as respostas.

3.6 Variáveis do estudo

3.6.1 Características sociodemográficas

A segunda seção do questionário eletrônico abordou as características sociodemográficas, incluindo: sexo e idade da criança e dos pais/cuidadores; posição da criança na família, com as opções filho único, mais novo, do meio ou mais velho; renda familiar mensal, com base no salário mínimo brasileiro, que era de R$1.100,00 à época do estudo; escolaridade dos pais/cuidadores, com as opções de resposta de analfabeto, ensino fundamental incompleto, ensino fundamental completo, ensino médio incompleto, ensino médio completo, ensino superior incompleto, ensino superior completo; e a composição familiar, indicando se os pais/cuidadores moram juntos ou separados (APÊNDICE B).

3.6.2 Características psicológicas

A terceira e a quarta seções do questionário eletrônico abordaram, respectivamente, as características psicológicas dos pais/cuidadores e das crianças. Essas variáveis foram detalhadamente descritas nos itens seguir: (BAUMRIND, 1971; EYSENK, 1992; OLIVEIRA *et al.,* 2018; SANTOS; FLORES-MENDOZA, 2012).

3.6.2.1 Estilos parentais dos pais/cuidadores

Os estilos parentais foram avaliados utilizando a versão curta brasileira do Questionário Dimensões e Estilos Parentais (QDEP) (OLIVEIRA *et al.,* 2018) (ANEXO A). Esse questionário foi traduzido e adaptado para o contexto brasileiro por meio de uma metodologia rigorosa, resultando em uma versão que demonstrou validade e confiabilidade adequadas (OLIVEIRA *et al.,* 2018). O QDEP consiste em 32 questões distribuídas em três domínios que correspondem às tipologias parentais descritas por Baumrind: democrático, autoritário e permissivo (BAUMRIND, 1971). Por exemplo, a

afirmação “Eu explico ao(à) meu (minha) filho(a) as razões pelas quais as regras devem ser obedecidas” está associada ao estilo parental democrático; “Eu castigo meu (minha) filho(a) lhe tirando privilégios com pouca ou nenhuma explicação” está associado ao estilo parental autoritário; e “Eu acabo cedendo quando meu (minha) filho(a) faz birra por alguma coisa” refere-se ao estilo parental permissivo (OLIVEIRA *et al.,* 2018).

As opções de reposta são baseadas em uma escala de cinco pontos: nunca (1), poucas vezes (2), algumas vezes (3), muitas vezes (4) e sempre (5). O estilo parental democrático é avaliado por 15 itens divididos em três dimensões: apoio e afeto, regulação e autonomia (o escore total varia de 15 a 75). O estilo parental autoritário é avaliado por 12 itens e inclui três dimensões: coerção física, hostilidade verbal e punição (o escore total varia de 12 a 60). O estilo parental permissivo é avaliado por única dimensão, a indulgência, composta por cinco itens (o escore total varia de cinco a 25). A média aritmética do escores totais de cada domínio foi calculada, variando de 1 a 5. O estilo parental predominante foi identificado pela maior pontuação entre os três domínios. Por exemplo, se um pai/cuidador apresentou as seguintes médias: 4,47 para o estilo democrático, 1,92 para o estilo autoritário e 2,20 para o estilo permissivo, esse pai/cuidador seria classificado como predominantemente democrático.

3.6.2.2 Traços de personalidade das crianças

O Questionário de Personalidade de Eysenck-Júnior (versão heterorrelato) foi utilizado para avaliar os traços de personalidade das crianças nas escalas de psicoticismo (cinco itens), extroversão (quatro itens) e neuroticismo (dez itens) (SANTOS; FLORES-MENDOZA, 2012) (ANEXO B). Desenvolvido na Inglaterra em 1969, o instrumento original foi validado para pré-escolares brasileiros, demonstrando propriedades psicométricas satisfatórias (EYSENK, 1992; SANTOS; FLORES-MENDOZA, 2012). Esse instrumento baseia-se no modelo PEN proposto por Hans Eysenck, que descreve três traços fundamentais da personalidade: psicoticismo, extroversão e neuroticismo, os quais podem ser observados desde os primeiros anos de vida (EYSENCK, 1992)

O instrumento foi respondido pelos pais/cuidadores utilizando uma escala de três pontos: não (1), mais ou menos (2) e sim (3). Pontuações altas na escala de

psicoticismo indicam características como agressividade, frieza, egocentrismo, impessoalidade, impulsividade, antissocialidade, falta de empatia, criatividade e obstinação. Indivíduos com escores baixos nessa escala tendem a apresentar características opostas, como maior controle dos impulsos. Na dimensão do neuroticismo, pontuações altas sugerem ansiedade, depressão, tensão, irracionalidade, timidez, melancolia, emotividade, tendência a sentir culpa e baixa autoestima. Escores baixos nessa dimensão sugerem maior estabilidade emocional. Para a extroversão, pontuações altas são associadas a características como sociabilidade, animação, atividade, cordialidade e espírito aventureiro. Pontuações baixas na escala de extroversão refletem características opostas, definindo o indivíduo como mais introvertido (SANTOS; FLORES-MENDOZA, 2012).

3.6.3 Características do sono, bruxismo do sono e em vigília

A quinta seção do questionário abordou características do sono, como a duração e a qualidade do sono, além da presença de ronco e baba no travesseiro, conforme relatado pelos pais/cuidadores. O questionário também avaliou a gravidade das atividades de PBS (ranger e *bracing*) e PBV (ranger e apertar) (LOBBEZOO *et al.,* 2018; PAESANI *et al.,* 2013; SOARES *et al.,* 2020) (ANEXO C). A duração do sono foi determinada com base nos horários de dormir e de acordar das crianças fornecidos pelos pais/cuidadores. A qualidade do sono foi classificada em: ruim, razoável, boa e muito boa. Para ronco e baba no travesseiro, as opções de reposta foram “não” e “sim”. O diagnóstico de PBS e PBV foi baseado em um recordatório das duas semanas anteriores, com as seguintes perguntas (LOBBEZOO *et al.,* 2018; PAESANI *et al.,* 2013; SOARES *et al.,* 2020):

1. Atividade PBS de ranger os dentes – Nas duas últimas semanas, seu(sua) filho(a) rangeu os dentes durante o sono?
2. Atividade PBS de *bracing* – Nas duas últimas semanas, ao acordar de manhã ou à noite, seu(sua) filho(a) estava com os dentes travados e/ou apresentou dificuldade para abrir a boca porque a mandíbula dele(a) estava travada em uma mesma posição?
3. Atividade PBV de ranger os dentes – Nas últimas duas semanas, você notou que seu filho está rangendo os dentes enquanto está acordado?

4. Atividade PBV de apertar os dentes – Nas últimas duas semanas, você notou que seu filho está apertando os dentes enquanto está acordado?

Os pais/cuidadores responderam a essas perguntas com base em três opções de resposta: “Não, nenhuma vez”, “Sim, às vezes (pelo menos uma vez por semana)” e “Sim, frequentemente (mais de duas vezes por semana)” (PAESANI *et al.,* 2013). Essas frequências foram usadas para determinar a gravidade do PBS e do PBV em “ausente”, “leve” e “moderado/grave”, respectivamente.

3.7 Categorização das variáveis do estudo

O Quadro 1 apresenta a organização das variáveis do estudo quanto à coleta de dados, à classificação da variável e/ou à referência empregada para sua categorização.

3.7.1 Características sociodemográficas

A renda familiar mensal e a escolaridade dos pais/cuidadores foram dicotomizadas pela mediana em ≤ ou > três salários mínimos brasileiros e em ≤ ou >12 anos de estudo, respectivamente. A variável “posição da criança na família” foi categorizada em filho único ou não, e a variável “composição familiar” foi categorizada em pais/cuidadores vivem juntos ou pais/cuidadores vivem separados.

3.7.2 Estilos parentais dos pais/cuidadores e traços de personalidade das crianças

Os coeficientes alfa de Cronbach para o PSDQ e o EPQ-J foram calculados como 0,74 e 0,63, respectivamente. Um coeficiente é geralmente considerado aceitável quando excede 0,7. No entanto, coeficientes acima de 0,6 são considerados aceitáveis para escalas com poucos itens, como o EPQ-J (OLIVEIRA *et al.,* 2018). Os estilos parentais foram incorporados às análises estatísticas como variáveis numéricas (média aritmética do escore total de cada domínio). Essa estratégia auxiliou a identificação de diferenças dentro de um estilo parental específico, considerando que as tipologias parentais não são mutuamente exclusivas (AMINABADI *et al.,* 2015). Em relação aos traços de personalidade, as pontuações de cada escala foram

somadas, e uma análise de cluster em duas etapas com a medida de distância de log-verossimilhança foi realizada para categorizar os participantes em três grupos: alto ou baixo psicoticismo, alto ou baixo neuroticismo e alta ou baixa extroversão (SERRA-NEGRA *et al.,* 2019). A análise de cluster em duas etapas considera o padrão de resposta para cada item separadamente e a importância de cada item para a formação dos clusters (NORUSIS, 2008). O teste qui-quadrado foi utilizado para mostrar o padrão de resposta para cada item do questionário de personalidade de Eysenck. Houve diferenças significativas entre os grupos para cada item ($p < 0,05$), o que confirmou que a formação dos grupos foi adequada.

3.7.3 Características do sono, bruxismo do sono e em vigília

O número de horas de sono das crianças foi categorizado como insuficiente ou suficiente, de acordo as recomendações da Academia Americana de Medicina do Sono (AAMS) (PARUTHI *et al.,* 2016). Para crianças de 4 a 5 anos, 10 a 13 horas de sono foram consideradas suficientes, enquanto para crianças de 6 a 7 anos, 9 a 12 horas de sono foram consideradas suficientes. A qualidade do sono foi categorizada em duas categorias: ruim ou razoável ou boa ou muito boa. As atividades de PBS e PBV foram combinadas em uma única variável com base no comportamento mais grave relatado. Por exemplo, se um pai/cuidador relatou PBS ranger leve e PBS *bracing* moderado/grave, o PBS foi classificado como moderado/grave. Da mesma forma, se um pai/cuidador relatou PBV ranger leve e PBV apertar moderado/grave, o PBV foi classificado como moderado/grave.

Quadro 1 − Organização das variáveis do estudo quanto à coleta de dados, à classificação da variável e/ou à referência empregada para sua categorização.

Variável	**Coleta de dados**	**Classificação da variável e/ou referência da categorização**
Características sociodemográficas		
Sexo da criança	Sexo da criança	Variável categórica Duas categorias: feminino e masculino
Idade da criança	Data de nascimento	Variável numérica
Idade do respondente	Data de nascimento	Variável numérica
Renda familiar mensal	Número de salários mínimos que recebe a família em um mês, somando o salário de todos os moradores da casa Opções de resposta: Nenhuma renda 1 a 2 salários (R$1.100,00 a R$2.200,00) 3 salários (R$3.300,00) 4 a 5 salários (R$4.400,00 a R$5.500,00) Mais que 5 salários (mais de R$5.500,00)	Variável categórica De acordo com a mediana dos dados, representada por 3 salários mínimos, foram definidas duas categorias: ≤ 3 salários mínimos e > 3 salários mínimos
Escolaridade do respondente	Escolaridade do respondente do questionário Opções de resposta: Analfabeto Ensino fundamental incompleto Ensino fundamental completo Ensino médio incompleto Ensino médio completo Ensino superior incompleto Ensino superior completo	Variável categórica Utilizou-se como referência para a categorização dos dados o ensino médio completo (12 anos de estudo), foram definidas duas categorias: ≤ 12 anos de estudo e > 12 anos de estudo

Filho único	Posição da criança na família Filho único Filho mais novo Filho do meio Filho mais velho	Variável categórica Foram definidas duas categorias: filhos únicos e filhos mais novos, do meio somados aos filhos mais velhos
Composição familiar	Com quem a criança mora Opções de resposta: Mãe e pai juntos Somente mãe Somente pai Outros (resposta aberta)	Variável categórica Foram definidas duas categorias de acordo com o relato dos respondentes da amostra: pais/cuidadores vivem juntos ou pais/cuidadores vivem separados
Características psicológicas da criança e do respondente		
Traços de personalidade	Questionário Personalidade de Eysenck - Júnior (versão heterorrelato) O instrumento apresenta três escalas: Neuroticismo (dez itens) Psicoticismo (cinco itens) Extroversão (quatro itens)	Cada escala corresponde à uma variável categórica A partir do escore total de cada escala, foram definidas duas categorias de acordo com os grupos formados pela análise de Cluster: alto ou baixo neuroticismo, alto ou baixo psicoticismo e alta ou baixa extroversão
Estilos parentais	Versão curta brasileira do Questionário Dimensões e Estilos Parentais Estilos parentais avaliados: Democrático Autoritário Permissivo	Três variáveis numéricas representas pelas médias do escore total de cada domínio

Características do sono		
Babar no travesseiro	Relato de babar no travesseiro com base em um recordatório de um mês Opções de resposta: Não Sim	Variável categórica Foram definidas duas categorias: babar no travesseiro ou não babar no travesseiro
Roncar	Relato de roncar com base em um recordatório de um mês Opções de resposta: Não Sim	Variável categórica Foram definidas duas categorias: roncar ou não roncar
Duração do sono	Relato do horário de dormir e de acordar da criança nos dias de semana	Variável categórica Foram definidas duas categorias: suficiente e insuficiente. Para crianças de 4 a 5 anos, considerou-se que de 10 a 13 horas de sono são suficientes, enquanto para crianças de 6 a 7 anos, de 9 a 12 horas de sono são suficientes.
Qualidade do sono	Relato da qualidade do sono Opções de resposta: Ruim Razoável Boa Muito boa	Variável categórica Foram definidas duas categorias: ruim/razoável e boa/muito boa

Atividades de bruxismo		
Possível bruxismo do sono (PBS) ranger e *bracing*	Relato de ranger os dentes durante a noite e/ou apresentar dentes travados / e/ou apresentar dificuldade para abrir a boca porque a mandíbula estava travada em uma mesma posição com base em um recordatório de um mês Opções de resposta Não, nenhuma vez Sim, às vezes (pelo menos uma vez) Sim, muitas vezes (mais de duas vezes)	Variável categórica Foram definidas três categorias de acordo com a gravidade do comportamento, determinada pela maior frequência relatada do PBS ranger e/ou *bracing*: ausente (nenhuma vez), leve (às vezes, pelo menos uma vez) e moderado/grave (muitas vezes, mais de duas vezes)
Possível bruxismo em vigília (PBV) ranger e apertar	Relato de ranger e/ou apertar os dentes durante o dia enquanto acordado Opções de resposta: Não, nenhuma vez Sim, às vezes (pelo menos uma vez) Sim, muitas vezes (mais de duas vezes)	Variável categórica Foram definidas três categorias de acordo com a gravidade do comportamento, determinada pela maior frequência relatada do PBV ranger e/ou apertar os dentes: ausente (nenhuma vez), leve (às vezes, pelo menos uma vez) e moderado/grave (muitas vezes, mais de duas vezes)

Fonte: Elaborado pela autora, 2024.

3.8 Análise estatística

Os dados foram armazenados no software *Statistical Package for the Social Sciences* (SPSS) para Windows, versão 21.0 (IBM, Armonk, NY, EUA).

3.8.1 Análise estatística artigo I

Foi construído um gráfico acíclico direcionado para ilustrar as hipóteses e as possíveis direções de associação entre as variáveis testadas neste estudo. A análise dos dados foi realizada utilizando o SPSS para Windows, versão 21.0 (IBM, Armonk, NY, EUA). Foram realizadas análises descritivas seguidas de regressão logística multinomial, tanto não ajustada quanto ajustada. Variáveis com $p < 0,20$ na análise não ajustada foram incorporadas ao modelo de regressão ajustado, e aquelas com $p < 0,05$ no modelo final foram consideradas estatisticamente associadas ao PBS leve e moderado/grave.

3.8.2 Análise estatística artigo II

A análise descritiva foi conduzida com o SPSS para Windows, versão 21.0 (IBM, Armonk, NY, EUA), que forneceu frequências para variáveis categóricas e calculou médias e desvios padrão para variáveis contínuas. Para explorar as relações entre características socioeconômicas, estilos parentais, traços de personalidade, características do sono, PAB e PBS, foi realizada uma análise de caminhos usando o Stata 18 (Stata Corp. LLC, 2023). O modelo analítico hipotético foi desenvolvido com base na literatura existente (DUARTE *et al.,* 2019; GOMES *et al.,* 2018; GUO *et al.,* 2017; SERRA-NEGRA *et al.,* 2014). Os efeitos totais compreenderam tanto efeitos diretos (associações/caminhos diretos entre variáveis) quanto efeitos indiretos (associações/caminhos mediados por outras variáveis). Caminhos não significativos com valores de p maiores que 0,40 foram gradualmente removidos, e índices de modificação foram usados para melhorar o ajuste estatístico do modelo final. Coeficientes padronizados (valores β) e índices gerais foram calculados para avaliar o ajuste do modelo. Um ajuste adequado do modelo foi indicado por um *Root Mean Square Error of Approximation* (RMSEA) < 0,07, um *Standardized Root Mean Square*

Residual (SRMR) < 0,08, um *Comparative Fit Index* (CFI) > 0,95 e um *Tucker-Lewis Index* (TLI) > 0,95 (HOOPER; COUGHLAN; MULLEN, 2008).

3.9 Estudo piloto

Foi realizado um estudo piloto online com dez pais/cuidadores de crianças de quatro a sete anos, residentes em Divinópolis, selecionados por conveniência. O objetivo foi avaliar a compreensão dos pais/cuidadores em relação ao questionário e testar o método proposto. Durante a administração do questionário, a equipe de pesquisa, incluindo uma psicóloga para esclarecer dúvidas sobre o EPQ-J, esteve disponível para suporte. Os resultados indicaram que os pais/cuidadores compreenderam todas as perguntas, e nenhuma alteração no método foi considerada necessária.

3.10 Aspectos éticos

Este estudo foi submetido e aprovado pelo Colegiado de Pós-Graduação em Odontologia da Universidade Federal de Minas Gerais (UFMG). Com o parecer consubstanciado do Colegiado, foi obtida a Declaração de Autorização e Concordância da Secretaria Municipal de Educação da Prefeitura de Divinópolis. Em seguida, este estudo foi submetido ao Comitê de Ética em Pesquisa da UFMG (CEP/UFMG) e recebeu autorização para desenvolvimento sob o protocolo #3.589.079 (ANEXO D).

Todos os pais/cuidadores consentiram digitalmente a participação por meio do TCLE e foram devidamente informados sobre os objetivos do estudo. Eles também receberam orientações sobre os riscos e benefícios associados à pesquisa. O principal risco identificado é o constrangimento potencial ao responder o questionário eletrônico, o qual foi minimizado com a garantia de confidencialidade das respostas. Os benefícios incluem a contribuição para a produção de conhecimento científico, particularmente no entendimento, prevenção e controle de problemas bucais na infância, como o bruxismo do sono. Além disso, os pais e cuidadores receberam informações sobre cuidados de saúde bucal por meio de uma cartilha educativa on-line.

3.11 Apoio financeiro

Este estudo foi parcialmente financiado pela Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES) por meio do Programa de Excelência Acadêmica (PROEX), que concedeu uma bolsa de doutorado na Universidade Federal de Minas Gerais, e pelo Programa Institucional de Internacionalização (PRINT), que concedeu uma bolsa de doutorado sanduíche na *University of Alberta*.

4 ARTIGOS

A partir dos resultados desta tese, foram elaborados dois artigos científicos, detalhados nos tópicos 4.1 e 4.2.

4.1 Artigo I

O manuscrito I foi elaborado seguindo as normas de publicação do periódico *The Journal of Craniomandibular & Sleep Practice (CRANIO®)* (ANEXO E), que possui fator de impacto 2.0 (2023).

Original Article

Is there an association between parenting styles, personality traits, and parent-reported sleep bruxism in Brazilian children?

Abstract

Objective: To explore the relationship between parenting styles and children's personality traits and parent-reported sleep bruxism (SB), considering sociodemographic characteristics and children's sleep-related behaviors as confounders.

Methods: This cross-sectional study involved 301 parents/caregivers of Brazilian children aged 4 to 7 years, selected through snowball sampling. Parents/caregivers completed an online questionnaire addressing sociodemographic characteristics and sleep-related behaviors, including parent-reported SB severity of grinding and bracing. The Brazilian versions of the Parenting Styles and Dimensions Questionnaire and the Eysenck Personality Questionnaire-Junior assessed parenting styles and children's personality traits, respectively. Finally, descriptive analysis and multinomial logistic regression were performed.

Results: The prevalence of mild and moderate/severe parent-reported SB was 18.3% and 13.0%, respectively. Male sex (OR=2.07; 95% CI=1.09–3.91) and snoring (OR=2.98; 95% CI=1.55–5.73) were associated with mild parent-reported SB. Male sex (OR=2.61; 95% CI=1.20–5.70) and high levels of neuroticism (OR=2.27; 95% CI=1.06–4.860) were associated with moderate/severe parent-reported SB. More authoritative parenting attitudes decreased the likelihood of moderate/severe parent-reported SB (OR=0.37; 95% CI=0.16–0.86).

Conclusions: Our findings indicate that male children with high neuroticism levels who snored exhibited greater severity of parent-reported SB. In contrast, those whose parents/caregivers displayed more authoritative attitudes had a lower prevalence of moderate/severe parent-reported SB.

Keywords: Child; Parenting; Personality; Sleep bruxism

INTRODUCTION

Sleep bruxism (SB) in children, once regarded as a physiological condition, is now better understood as a behavior involving repetitive jaw muscle activity characterized by clenching or grinding the teeth or bracing or thrusting the mandible during sleep [1]. In bracing, the mandible is forcibly held in a rigid position, while in thrusting, the mandible is forcibly moved in an anterior or lateral direction. These activities may occur without dental contact [1].

According to the recent conceptualization of bruxism, a comprehensive assessment of SB may require a combination of subject-based, clinical, and instrumental information to ensure accurate diagnosis and management [2]. Parental reports are a widely recognized method for gathering data in population-based studies of large pediatric samples [3-7].

An umbrella review showed that the prevalence of SB among children ranged from 3.0% to 49.0% [8]. SB negatively impacts children's oral health [3], with primary canine wear, dental wear, and headache reported as the most prevalent clinical signs and symptoms [9]. In addition, SB is linked to sleep and breathing disorders [3, 10-12], maternal psychological characteristics like stress and depression [13, 14], and children's psychological characteristics such as stress, anxiety, and personality traits [14, 15].

Personality traits influence how children respond emotionally to situations [16]. The psychoticism, extraversion, and neuroticism (PEN) model proposed by Hans Eysenck encompasses the three fundamental personality traits [16]. High psychoticism levels indicate impulsiveness, creativity, and obstinacy. High extraversion levels denote sociability, while high neuroticism levels are linked to anxiety, depression, and shyness [16]. Evidence suggests that neuroticism is related to an increased likelihood of SB in childhood [15].

Biological factors like genetics and family environment may shape a child's personality [17]. In this context, parenting styles play an important role in children's physical, emotional, mental, and social development [18, 19]. These styles reflect how parents raise their children, focusing on two dimensions: parental control and affection [20]. Authoritarian parents emphasize control with little affection, authoritative parents balance control with affection, and permissive parents emphasize affection over control [20]. Emotional regulation in children

often results from well-balanced parenting that integrates control and affection. Imbalances in these dimensions can lead to increased stress and anxiety in children, which are recognized as triggers for SB and are associated with high neuroticism levels [10, 15].

Understanding bruxism, particularly its etiology and psychological underpinnings [21], requires considering its multifaceted nature at the intersection of the dental and medical fields [22]. Thus, the present study aimed to explore the relationship between parenting styles, children's personality traits, and the severity of parent-reported SB activities, such as grinding and bracing, while considering family sociodemographic characteristics and children's sleep-related behaviors as confounders. We hypothesized that children exhibiting higher levels of neuroticism and those exposed to less authoritative or more authoritarian parenting styles are more prone to mild or moderate/severe SB.

MATERIALS AND METHODS

This study was approved by the Research Ethics Board of the Federal University of Minas Gerais, Brazil (protocol #3.589.079). All parents/caregivers signed an informed consent form to participate before data collection following the Helsinki Declaration. The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) checklist was followed [23].

Study design, setting, and sample

This cross-sectional online survey was conducted in Divinópolis, a city in the state of Minas Gerais in southeast Brazil, between August and November 2021. The study included the parents/caregivers of children aged 4 to 7 years of both sexes living in Divinópolis. Parents/caregivers whose children were using anticonvulsant medications or had syndromes and/or cognitive disorders were excluded [4]. Information regarding children's health status and medication use was based on reports provided by the parents/caregivers.

Based on a previous study involving Brazilian preschoolers, the sample size was calculated assuming a 5% margin of error, a 95% confidence level, and a prevalence of parent-reported SB of 26.9% [4]. Initially, a sample size of 302 participants was determined, with an additional 10% added to account for potential losses. Therefore, 332 parents/caregivers should be considered for the study sample.

Data collection

An online questionnaire was used to collect data from the parents/caregivers. The questionnaire was hosted on the Google Forms platform (Google Inc., Menlo Park, CA, USA) and distributed

via WhatsApp© (WhatsApp Inc., California, USA). Approval was obtained from the principals of 10 schools (five public and five private) in Divinópolis city, selected via convenience sampling. Researchers contacted class teachers who were responsible for forwarding the survey link to parents/caregivers via WhatsApp groups. Subsequently, the snowball sampling technique was used [24]. Health professionals in Divinópolis city—including a pediatric dentist, pediatrician, nutritionist, speech therapist, and psychologist—along with parents/caregivers were invited to assist in disseminating the survey link. Data collection continued until the predetermined sample size was achieved as per the initial calculation.

The parents/caregivers accessed the platform by clicking on the link and completed a five-section questionnaire with 67 questions. The first section included a consent form. Upon agreeing to participate, respondents proceeded to the next section, which included 10 questions about the family's sociodemographic characteristics. These questions covered the child's and parents/caregivers' sex and age, monthly family income (measured relative to the Brazilian monthly minimum wage [BMMW] of approximately US$ 212 at the time), parents'/caregivers' schooling, family composition (whether parents live together or apart), the child's birth order (e.g., only child, youngest, middle, or oldest), and information on the child's health and medication use.

The third and fourth sections assessed the psychological characteristics of the parents/caregivers and children, respectively. A psychologist joined the research team, providing expertise in psychological theory and assisting in result interpretation. The parenting styles of the parents/caregivers were evaluated using the short Brazilian version of the Parenting Styles and Dimensions Questionnaire (PSDQ) [25], consisting of 32 questions divided into three domains: authoritative, authoritarian, and permissive [20, 25]. Respondents rated their responses on a scale ranging from "Never" (1) to "Always" (5). The authoritative parenting style, encompassing 15 items, assessed support, regulation, and autonomy (score range: 15−75). The authoritarian style, comprising 12 items, evaluated physical coercion, verbal hostility, and punishment (score range: 12−60). The permissive style, with five items, focused on indulgence (score range: 5−25). The arithmetic mean of the total score for each domain was calculated, ranging from 1 to 5. The highest score among the three domains indicated the predominant parenting style [25].

The Eysenck Personality Questionnaire-Junior (EPQ-J), validated in Portuguese and adapted for Brazilian preschoolers, was used to assess the children's personality traits [16]. This tool evaluates psychoticism (five items), extraversion (four items), and neuroticism (10 items) using a three-point scale: "No" (1), "More or less" (2), and "Yes" (3) [16]. Scores for each scale

were summed, and a two-step cluster analysis was performed, as detailed in the statistical analysis section.

The fifth section included questions about the children's sleep-related behaviors over the past 2 weeks. It addressed sleep duration, snoring, drooling on the pillow, and parent-reported severity of SB activities, such as grinding and bracing. Sleep duration was calculated based on the parents'/caregivers' report of the children's bedtime and waking times. Responses for snoring and drooling were "No" and "Yes." SB activities were assessed using the criteria proposed by Lobbezoo et al. and developed according to the questions used by Paesani et al. [1, 26]. The questions were as follows:

1. Parent-reported SB grinding activity − Did you notice your child grinding the teeth during sleep in the last 2 weeks?
2. Parent-reported SB bracing activity − When waking up in the morning or at night, did your child have his jaw in a steady/rigid position (with difficulty opening the mouth) in the last 2 weeks?

Parents/caregivers answered these questions with three response options: "No, not once," "Yes, sometimes (at least once a week)," and "Yes, often (more than twice a week)". Parent-reported SB was categorized as follows: "Absent" if not reported, "Mild" if occurring at least once a week, and "Moderate/severe" if occurring more than twice a week. Griding and bracing parent-reported SB activities were treated as one outcome based on the most severe behavior reported. For example, if a parent/caregiver reported that a child exhibited mild grinding and moderate/severe bracing, the outcome was considered moderate/severe parent-reported SB. It took the parents/caregivers approximately 10 to 15 minutes to complete the questionnaire. They were unable to review or revise their responses after submission.

Pilot study

A pilot study was conducted online with 10 parents/caregivers of children aged 4 to 7 years, selected for convenience from Divinópolis. It aimed to ensure that the parents/caregivers understood the questionnaire and test the proposed method. During questionnaire administration, a research team, including a psychologist for questions regarding the EPQ-J, was available for clarification. The results showed that the parents/caregivers understood all the questions, and no changes to the method were deemed necessary.

Statistical analysis

A directed acyclic graph (DAG) was constructed (Fig. 1). Data were analyzed using SPSS software (version 21.0, IBM, Armonk, NY, USA). Children's personality traits were analyzed using two-step cluster analysis with the log-likelihood distance measure, categorizing them into three groups based on high or low levels of psychoticism, extraversion, and neuroticism. The chi-square test was used to assess significant differences between groups for each item of the EPQ-J (Supplemental Material). Family income and parents'/caregivers' schooling were dichotomized based on median values as ≤ or > three times the BMMW and ≤ or > 12 years of study, respectively. Birth order was classified as an only child or not, and sleep duration was treated as a quantitative variable. Originally, parenting styles were conceptualized as non-mutually exclusive typologies despite the parents having a dominant parenting style. Thus, parenting styles were also treated as quantitative variables using the mean scores of the three domains [27]. Cronbach's alpha coefficients for the PSDQ and EPQ-J were calculated as 0.74 and 0.63, respectively. A coefficient is generally considered acceptable when it exceeds 0.7. However, coefficients above 0.6 are acceptable for scales with few items, such as the EPQ-J [25]. Descriptive statistics were initially calculated, followed by unadjusted and adjusted multinomial logistic regression analyses. Variables with $P < 0.20$ in the unadjusted analysis were included in the adjusted regression model, and those with $P < 0.05$ in the final model were considered statistically associated with mild and moderate/severe parent-reported SB.

RESULTS

A total of 318 parents/caregivers completed the questionnaire. Seventeen parents/caregivers were excluded because their child did not meet the age requirements or had a parent-reported neurological disorder. Thus, the final sample comprised 301 participants. The mean age of the children was 5.24 ± 1.17 years, and that of the parents/caregivers was 35.0 ± 6.09 years. The prevalence of mild and moderate/severe parent-reported SB was 18.3% and 13.0%, respectively, resulting in an overall prevalence of 31.3% for parent-reported SB (Table 1).

Tables 2 and 3 display the sample distribution according to the severity of parent-reported SB and categorical and quantitative variables, respectively. In the final adjusted model, male children (OR = 2.07; 95% CI = 1.09–3.91; $P = 0.025$) and snoring (OR = 2.98; 95% CI = 1.55–5.73; $P = 0.001$) were found to be associated with mild parent-reported SB. Male children (OR = 2.61; 95% CI = 1.20–5.70; $P = 0.015$) and children with a high level of neuroticism (OR = 2.27; 95% CI = 1.06–4.860; $P = 0.034$) were more likely to exhibit moderate/severe parent-reported SB. Furthermore, an increase of one point in the authoritative parental style resulted

in a 63% decrease in the prevalence of moderate/severe parent-reported SB (OR = 0.37; 95% CI = 0.16–0.86; *P* = 0.022); see Table 4.

DISCUSSION

This study explored the relationship between parenting styles, children's personality traits, and parent-reported SB severity in childhood. Our findings may clarify two important issues: the role of parenting attitudes in the severity of SB activities and how children's personality traits can indicate their likelihood of engaging in such behavior.

Children whose parents/caregivers exhibited more authoritative attitudes showed a lower prevalence of moderate/severe parent-reported SB. Generally, authoritative parents/caregivers support children's independence [19, 20]. Therefore, authoritative parents/caregivers are expected to be more likely to promote their children's autonomy, thereby enhancing the development of social skills and coping strategies to manage stress and anxiety [18, 19]—known triggers for SB [10, 14, 15]. Authoritative parents set rules and consistently enforce them due to their high responsiveness [18, 20, 27]. A previous study reported that authoritative parents/caregivers of children aged 4 to 6 years were more likely to have positive attitudes toward and reinforce preventive oral health behaviors [27]. Thus, authoritative parents/caregivers are possibly more likely to establish sleep routines—crucial for preventing and controlling SB—and reinforce them more often. This study did not assess the impact of parenting styles on sleep routines and SB but suggests it as a direction for future research. Given the link between early second-hand smoking (SHS) and sleep-wake disorders like bruxism [28], further research on the association between SB, parenting styles, and SHS is also recommended, as parental attitudes can influence children's exposure to smoking behaviors [29].

This study also found that higher levels of neuroticism are linked to parent-reported SB severity. This aligns with prior research on Brazilian children aged 7 to 10 years, which showed that children with high neuroticism are more prone to SB [15]. Neuroticism involves increased susceptibility to negative emotions, affecting how well individuals cope with emotional challenges [16]. Therefore, children with high neuroticism levels may turn to SB to relieve the emotional tension and pressure they struggle to manage [16].

The prevalence of parent-reported SB was high and fell within the range reported in an umbrella review (3.0−49.0%) [8] and a systematic review involving Brazilian children (10.2−39.7%) [5]. With a low certainty of evidence, SB rates among Brazilian children were suggested not to vary according to gender, assessment method, or geographic region [5]. The high parent-reported SB prevalence observed here may reflect the unique context of data

collection during the COVID-19 (coronavirus disease) pandemic, a period linked to increased sleep disorders [12]. Social distancing may have heightened parental awareness of children's sleep patterns, increasing reports of tooth grinding. This aligns with the work of Segù et al. (2020), who found a correlation between parent-reported tooth grinding and bedtime problems [7].

Snoring was found to be associated with mild parent-reported SB. Evidence shows that snoring, mouth breathing, and drooling on the pillow increase the risk of parent-reported SB in childhood [10]. These factors can disrupt sleep by causing frequent microarousals, affecting sleep duration and quality [3, 11]. SB episodes may occur during these micro-arousals, which involve sudden shifts from a deeper sleep stage to a lighter one [30].

Male children were found to be more likely to experience mild and moderate/severe parent-reported SB. The relationship between sex and SB appears conflicting in the literature [9, 10, 31]. Cultural expectations, such as the belief, "Boys don't cry," may contribute to boys having difficulty expressing emotions, possibly leading to SB. Research also shows that girls may use emotional expression strategies more frequently than boys when they feel sad, anxious, or angry [32]. However, age and interpersonal context can influence these differences in emotional expression [32].

This study has limitations. The potential for social desirability bias must be considered, particularly in responses related to physical punishment (e.g., "I grab our child when he is being naughty") [27]. Although we ensured confidentiality and utilized an online questionnaire, which may have partially mitigated self-reporting bias, this method of participant recruitment could introduce selection bias. Specifically, it may favor individuals with internet access and familiarity with digital platforms. Nonetheless, according to the Brazilian Institute of Geography and Statistics data from 2021, around 90% of the population had internet access, and 96% had mobile phones [33]. Therefore, while the potential for selection bias exists, its overall impact on the studied sample is likely minimal.

Due to COVID-19 restrictions, clinical inspections were not feasible. Parents' reports of SB have previously shown reasonable accuracy, with 83% of reported grinding aligning with polysomnography (PSG) findings [34]. However, potential memory biases should be considered [3], as parents/caregivers may be unaware of their child's behavior due to factors such as bedroom distance [3, 4, 5]. To minimize this bias, parents were advised to keep bedroom doors open at night [6].

According to the Standardised Tool for the Assessment of Bruxism (STAB), the use of PSG should be optionally evaluated based on the number of arousal-related and unrelated SB

events [2]. However, PSG is both costly and logistically demanding as it requires overnight assessments in controlled environments, making it impractical for large pediatric samples [6, 10]. Future research should focus on combining subject-based, clinical, and instrumental assessments, as proposed by the STAB, to facilitate standardized and comprehensive data collection on bruxism [2]. Additionally, further studies on dentists' knowledge and clinical practices should be encouraged [35], as inconsistencies therein may undermine the effective assessment and management of SB.

This study's strength lies in its assessment of SB severity based on the frequency of grinding and bracing activities, as recommended by consensus, which reduces memory bias and improves diagnostic accuracy [1, 31]. The inclusion of bracing activities emphasizes that SB involves more than just tooth contact [1, 2]. The study also highlights the multifactorial nature of SB, linking it to parenting styles and children's personality traits. It underscores the critical role of pediatric dentists in adopting a holistic approach to bruxism management and the need to update professional knowledge on this subject [35]. By broadening the perspective beyond dentistry, bruxism can be seen as a gateway to underlying medical disorders [22, 36], reinforcing the need for interdisciplinary collaboration to manage this complex behavior.

Conclusions

Our findings indicated that male children with high neuroticism levels who snored exhibited greater severity of parent-reported SB. In contrast, those whose parents/caregivers displayed more authoritative attitudes had a lower prevalence of moderate/severe parent-reported SB.

Disclosure of interests

The authors declare no potential conflicts of interest.

Institutional review board statement

This study followed the precepts of the 2013 Declaration of Helsinki and was approved by the ethics committee for human research at the participating institution (protocol #3.589.079).

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Table 01. Characterization of the sample (n=301).

Quantitative variables	**Mean (SD)**
Child's age (years)	5.24 (±1.17)
Parent's/caregiver's age (years)	35.0 (±6.09)
Authoritative parenting style domain†	4.28 (±0.43)
Authoritarian parenting style domain†	1.92 (±0.55)
Permissive parenting style domain†	2.35 (±0.58)
Sleep duration (hours)	9.93 (±1.14)
Categorical variables	**n (%)**
Child's sex	
Male	149 (49.5)
Female	152 (50.5)
Monthly family income††	
≤ 3 BMMW	154 (51.2)
> 3 BMMW	140 (46.5)
Parent's/caregiver's schooling	
≤ 12 years	132 (43.9)
> 12 years	169 (56.1)
Only child	
Yes	115 (38.2)
No	186 (61.8)
Family composition	
Parents/ caregivers live apart	54 (17.9)
Parents/ caregivers live together	247 (82.1)
Predominant parenting style	
Authoritarian	02 (0.7)
Permissive	01 (0.3)
Authoritative	298 (99.0)
Neuroticism	
High	135 (44.9)
Low	166 (55.1)
Psychoticism	
High	39 (13.0)
Low	262 (87.0)
Extraversion	
Low	227 (75.4)
High	74 (24.6)
Parent-reported sleep bruxism	
Moderate/Severe	39 (13.0)
Mild	55 (18.3)
Absent	207 (68.8)
Drool on the pillow	
Yes	185 (61.5)
No	116 (38.5)
Snoring	
Yes	185 (61.5)
No	116 (38.5)

Abbreviations: SD, Standard deviation; BMMW, Brazilian monthly minimum wage.

† The values are the arithmetic mean of the total score for each domain.

†† 06 parents/caregivers did not answer.

Table 02. Sample distribution according to the severity of parent-reported sleep bruxism (n=301).

Categorical variables	Parent-reported sleep bruxism n (%)		
	Absent	**Mild**	**Moderate/Severe**
Child's sex			
Male	91 (61.1)	32 (21.5)	26 (17.4)
Female	116 (76.3)	23 (15.1)	13 (08.6)
Monthly family income[†]			
≤ 3 BMMW	104 (67.5)	24 (15.6)	26 (16.9)
> 3 BMMW	99 (70.7)	30 (21.4)	11 (07.9)
Parent's/caregiver's schooling			
≤ 12 years	88 (66.7)	28 (21.2)	16 (12.1)
> 12 years	119 (70.4)	27 (16.0)	23 (13.6)
Only child			
Yes	75 (65.2)	24 (20.9)	16 (13.9)
No	132 (71.0)	31 (16.7)	23 (12.4)
Family composition			
Parents/caregivers live apart	38 (70.4)	10 (18.5)	06 (11.1)
Parents/caregivers live together	169 (68.4)	45 (18.2)	33 (13.4)
Neuroticism			
High	85 (63.0)	25 (18.5)	25 (18.5)
Low	122 (73.5)	30 (18.1)	14 (08.4)
Psychoticism			
High	30 (76.9)	06 (15.4)	03 (07.7)
Low	177 (67.6)	49 (18.7)	36 (13.7)
Extraversion			
Low	158 (69.9)	39 (17.2)	30 (13.2)
High	49 (66.2)	16 (21.6)	09 (12.2)
Drool on the pillow			
Yes	73 (62.9)	28 (24.1)	15 (12.9)
No	134 (72.7)	27 (14.6)	24 (13.0)
Snoring			
Yes	66 (56.9)	33 (28.4)	17 (14.7)
No	141 (76.2)	22 (11.9)	22 (11.9)

Abbreviations: SD, Standard Deviation; BMMW, Brazilian monthly minimum wage.
[†] 06 parents/caregivers did not answer.

Table 03. Sample distribution according to the severity of parent-reported sleep bruxism (n=301).

Quantitative variables	Parent-reported sleep bruxism Mean (SD) Median (min-max)		
	Absent	**Mild**	**Moderate/Severe**
Child's age (years)	4.64 (±0.85) 4.00 (4 – 7)	6.34 (±0.47) 6.00 (6 – 7)	6.89 (±0.30) 7.00 (6 – 7)
Parent's/caregiver's age (years)	35.12 (±6.19) 35.00 (18 – 51)	34.20 (±5.99) 35.00 (23 – 47)	35.74 (±5.73) 36.00 (23 – 49)
Authoritarian parenting style†	1.90 (±0.55) 1.83 (1.00 – 3.75)	1.97 (±0.52) 1.91 (1.17 – 3.25)	2.01 (0.61) 1.83 (1.08 – 3.83)
Permissive parenting style†	2.33 (±0.59) 2.20 (1.00 – 3.80)	2.34 (±0.50) 2.20 (1.40 – 3.60)	2.44 (0.61) 2.40 (1.40 – 4.00)
Authoritative parenting style†	4.30 (±0.40) 4.33 (2.87 – 5.00)	4.31 (±0.47) 4.40 (3.13 – 5.00)	4.14 (0.50) 4.20 (2.73 – 5.00)

† The values are the arithmetic mean of the total score for each domain

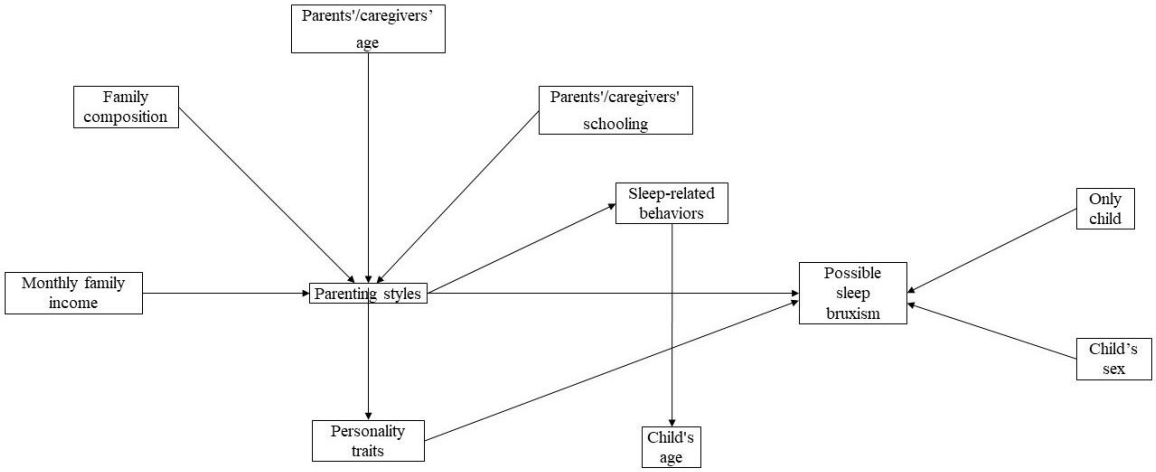
Table 04. Multinomial logistic regression for parent-reported sleep bruxism associated with sociodemographic and psychological characteristics, and sleep-related behaviors.

Covariables	PARENT-REPORTED SLEEP BRUXISM							
	Mild				Moderate/Severe			
	Bivariate	*P*-value	Multivariate	P-value	Bivariate	*P*-value	Multivariate	*P*-value
	Unadjusted OR* (95% CI)		Adjusted OR** (95% CI)		Unadjusted OR* (95% CI)		Adjusted OR** (95% CI)	
Child's sex								
Male	1.77 (0.97 – 3.23)	0.062	2.07 (1.09 – 3.91)	**0.025**	2.54 (1.24 – 5.23)	0.011	2.61 (1.20 – 5.70)	**0.015**
Female	1		1				1	
Parents/caregivers' age	0.97 (0.92 – 1.02)	0.319			1.01 (0.961 – 1.07)	0.557		
Monthly family income								
≤ 3 BMMW	0.76 (0.41 – 1.39)	0.376	0.76 (0.409 – 1.44)	0.412	2.25 (1.05 – 4.79)	0.036	2.06 (0.93 – 4.59)	0.075
> 3 BMMW	1		1		1		1	
Parent's/caregiver's schooling								
≤ 12 years	1.40 (0.77 – .54)	0.266	-	-	0.94 (0.46 – 1.88)	0.863	-	-
> 12 years	1				1			
Only child								
Yes	1.36 (0.74 – 2.49)	0.315	-	-	1.22 (0.60 – 2.46)	0.570	-	-
No	1				1			
Family composition								
Parents/caregivers live together	1.01 (0.46 – 2.18)	0.976	-	-	1.23 (0.48 – 3.16)	0.657	-	-
Parents/caregivers live apart	1				1			
Authoritarian parenting style	1.28 (0.75 – 2.17)	0.351	-	-	1.41 (0.78 – 2.56)	0.254	-	-
Permissive parenting style	1.01 (0.60 – 1.69)	0.958	-	-	1.35 (0.75 – 2.41)	0.306	-	-
Authoritative parenting style	1.06 (0.52 – 2.17)	0.860	0.93 (0.44 – 1.97)	0.868	0.45 (0.21 – 0.95)	0.036	0.37 (0.16 – 0.86)	**0.022**
Neuroticism								
High	2.56 (1.26 – 5.21)	0.558	0.91 (0.480 – 1.73)	0.779	2.56 (1.26 – 5.21)	0.009	2.27 (1.06 – 4.86)	**0.034**
Low	1		1		1		1	
Psychoticism								
High	0.72 (0.28 – 1.83)	0.494	-	-	0.49 (0.14 – 1.69)	0.262	-	-
Low	1				1			
Extraversion								
Low	0.75 (0.38 – 1.46)	0.409	-	-	1.03 (0.45 – 2.32)	0.936	-	-
High	1				1			

Drool on the pillow								
Yes	1.90 (1.04 – 3.47)	**0.036**	1.63 (0.86 – 3.09)	0.131	1.14 (0.56 – 2.32)	0.703	1.06 (0.49 – 2.30)	0.872
No	1		1				1	
Snoring								
Yes	3.20 (1.73 – 5.91)	**<0.001**	2.98 (1.55 − 5.73)	**0.001**	1.65 (0.82 – 3.31)	0.159	2.15 (0.98 – 4.72)	0.055
No	1		1		1		1	
Sleep duration	0.86 (0.66 – 1.12)	0.269	0.91 (0.69 – 1.21)	0.551	1.29 (0.95 – 1.74)	0.092	1.36 (0.98 – 1.90)	0.063

Abbreviations: OR, odds ratio; CI, confidence interval; BMMW, Brazilian monthly minimum wage.
*Multinomial logistic regression not adjusted for independent variables and parent-reported sleep bruxism; **Multinomial logistic regression adjusted for independent variables and parent-reported sleep bruxism.
Bold values are statistically significant.

Fig.1. Directed Acyclic Graph of sociodemographic and psychological characteristics, and sleep-related behaviors related to parent-reported sleep bruxism in children 4 to 7 years of age.



Supplemental material

Table 1. Characterization of groups defined by cluster analysis based on each Eysenck Personality Questionnaire scale (n = 301).

Neuroticism Scale Items (01 – 10)	**Neuroticism** n (%)		P-value*
	High group	**Low group**	
01 Does he/she often have fears (like fear of witches, monsters, etc.) or nightmares that keep him/her awake when she/he goes to sleep?			
No	21 (15.3)	116 (84.7)	
More or less	53 (57.0)	40 (43.0)	<0.001
Yes	61 (85.9)	10 (14.1)	
02 Is he/she irritable (i.e., complains or feels irritable about many things)?			
No	19 (17.1)	92 (82.9)	
More or less	75 (52.8)	67 (47.2)	<0.001
Yes	41 (85.4)	07 (14.6)	
03 When someone corrects you in front of her/his peers, does he/she feel embarrassed?			
No	09 (20.9)	34 (79.1)	
More or less	25 (26.6)	69 (73.4)	<0.001
Yes	101 (61.6)	63 (38.4)	
04 Does he/she get very upset when someone tells him/her he/she was wrong to do something?			
No	03 (07.1)	39 (92.9)	
More or less	40 (27.6)	105 (72.4)	<0.001
Yes	92 (80.7)	22 (19.3)	
05 Does he/she get scared or impressed when he/she sees someone hurt?			
No	17 (25.0)	51 (75.0)	
More or less	55 (42.6)	74 (57.4)	<0.001
Yes	63 (60.6)	41 (39.4)	
06 Does he/she often feel tired for no reason?			
No	102 (39.1)	159 (60.9)	
More or less	26 (81.3)	06 (18.8)	<0.001
Yes	07 (87.5)	01 (12.5)	
07 Does he/she get hurt or sad very easily?			
No	17 (15.3)	94 (84.7)	
More or less	58 (49.6)	59 (50.4)	<0.001
Yes	60 (82.2)	13 (17.8)	
08 He/she thinks that the punishment imposed by the teacher or parents is to make us afraid of them.			
No	93 (39.6)	142 (60.4)	
More or less	31 (59.6)	21 (40.4)	0.001
Yes	11 (78.6)	03 (21.4)	
09 Does he/she usually change moods very easily? For example, he/she quickly goes from laughing to crying (or vice versa).			
No	61 (32.8)	125 (67.2)	<0.001
More or less	46 (59.0)	32 (41.0)	

Yes	28 (75.7)	09 (24.3)	
10 When left alone, even for a short time, does he/she usually complain?			
No	37 (23.6)	120 (76.4)	<0.001
More or less	37 (64.9)	20 (35.1)	
Yes	61 (70.1)	26 (29.9)	
Psychoticism scale items (11 – 15)	**Psychoticism** n (%)		P-value
	High group	**Low group**	
11 Does he/she think it's funny when a classmate falls and gets hurt?			
No	13 (05.4)	229 (94.6)	<0.001
More or less	18 (39.1)	28 (60.9)	
Yes	08 (61.5)	05 (38.5)	
12 Does he/she like to tease and annoy animals?			
No	08 (03.1)	247 (96.9)	<0.001
More or less	17 (53.1)	15 (46.9)	
Yes	14 (100.0)	0 (0)	
13 In general, does he/she find it fun to annoy people?			
No	10 (04.0)	240 (96.0)	<0.001
More or less	25 (54.3)	21 (45.7)	
Yes	04 (80.0)	01 (20.0)	
14 Does he/she like to tease or play pranks on colleagues?			
No	20 (08.0)	230 (92.0)	<0.001
More or less	16 (33.3)	32 (66.7)	
Yes	03 (100.0)	0 (0)	
15 Does he/she like it when he/she sees other people fighting?			
No	37 (12.7)	255 (87.3)	0.029
More or less	01 (20.0)	04 (80.0)	
Yes	01 (25.0)	03 (75.0)	
Extraversion scale items (16 – 19)	**Extraversion** n (%)		P-value*
	High group	**Low group**	
16 When going to the amusement park, does he/she express a desire to go on the roller coaster?			
No	0(0)	207 (100.0)	<0.001
More or less	22 (52.4)	20 (47.6)	
Yes	52 (100.0)	0(0)	
17 Does he/she like to make fun of others?			
No	23 (34.8)	43 (65.2)	0.024
More or less	25 (24.3)	78 (75.7)	
Yes	26 (19.7)	106 (80.3)	
18 Does he/she like to throw himself/herself or jump in the water as soon as he/she sees a pool or goes to the sea?			
No	25 (35.7)	45 (64.3)	0.003
More or less	21 (28.4)	53 (71.6)	

Yes	28 (17.8)	129 (82.2)	
19 Does he/she usually call children he/she doesn't know to play?			
No	16 (41.0)	23 (59.0)	0.012
More or less	19 (25.3)	56 (74.7)	
Yes	39 (20.9)	148 (79.1)	

*Linear-by-linear test

4.2 Artigo II

O manuscrito II foi elaborado seguindo as normas de publicação do periódico *Community Dentistry & Oral Epidemiology* (ANEXO F), que possui fator de impacto 1.8 (2023).

Original Article

Factors influencing possible sleep and awake bruxism in children: a path analysis

Objective

To identify the pathways influencing possible sleep bruxism (PSB) and possible awake bruxism (PAB) in children.

Methods

This cross-sectional study was conducted with 301 parents/caregivers of Brazilian children aged 4 to 7, recruited via snowball sampling. Parents/caregivers completed a structured questionnaire covering socioeconomic characteristics, the Brazilian versions of the Parenting Styles and Dimensions Questionnaire, and the Eysenck Personality Questionnaire-Junior. Additional data on the children's PSB, PAB, sleep duration, snoring, and drooling on the pillow were collected using a questionnaire based on the International Consensus on Bruxism. Data analysis involved descriptive statistics and path analysis.

Results

Less authoritative parenting practices indirectly contribute to PSB and PAB, mediated by high neuroticism levels (β=−0.217; *P*<0.01) and poor sleep quality (β=−0.189; *P*=0.01). PSB and PAB are related to each other (β=0.517; *P*=0.04). Male sex (β=0.183; *P*<0.01), high psychoticism levels (β= 0.323; *P*=0.02), and insufficient sleep (β=0.069; *P*=0.01) had a direct effect on PSB. The child's age had a direct impact on both PSB (β=0.287; *P*<0.01) and PAB (β=−0.189; *P*=0.01).

Conclusions

Less authoritative parenting practices, high levels of neuroticism and psychoticism, sex, age, and insufficient sleep influence the paths taken by PSB. PAB was influenced by age and sleep quality.

Keywords: child; awake bruxism; bruxism; parenting; personality; sleep bruxism

1 INTRODUCTION

For decades, childhood bruxism was regarded as a physiological phenomenon. However, paradigms have shifted with an evolving understanding of its etiology, as reflected in the current definition.[1,2] Bruxism is a behavior characterized by masticatory muscle activity with two distinct circadian manifestations: sleep bruxism and awake bruxism.[1] The 2018 consensus also includes activities that may not necessarily involve dental contact, such as bracing − the mandible is forcibly held in a rigid position − and thrusting, the mandible is moved in an anterior or lateral direction.[1] Bruxism is classified based on the diagnostic approach: possible when identified through self-report; probable, requiring positive clinical findings, with/without self-report; and definite, confirmed through polysomnography or electromyography.[1]

Several studies have explored the role of psychosocial factors in triggering bruxism in children, particularly those associated with stress and anxiety.[1,3-6] Children's reactions to these negative emotions are shaped by personality traits: those with high neuroticism may struggle to manage these feelings,[7] while those with high psychoticism may exhibit impulse control issues that impact their social interactions.[7]

Personality development involves both intrinsic maturation (e.g., genetic mechanisms) and environmental influences (e.g., family environment).[8-10] In this sense, parents/caregivers can influence a child's personality by fostering emotional health and social well-being through educational practices.[11,12] Thus, parenting styles, such as authoritative, authoritarian, and permissive,[13] reflect the practices that parents/caregivers use to raise their children, potentially contributing to the child's susceptibility to anxiety disorders.[10] Consequently, anxiety may be associated with bruxism activities.

Identifying and managing associated factors appears to be the most effective strategy for clinically controlling bruxism episodes in childhood.[5,12-14] To advance the available evidence, it is essential to explore association pathways based on conceptual models.[15] Although sleep bruxism is common in children under 5 years old, most research has focused on children and adolescents aged 6 to 17.[3] This underscores the need for evaluating these factors in younger children, as bruxism may fluctuate over time and require age-specific management plans.[2,16] Therefore, this study aimed to identify the direct and indirect impact of children's personality traits and the parenting styles of their parents/caregivers on the occurrence of possible sleep bruxism (PSB) and possible awake bruxism (PAB).

2 METHODOS

The study adhered to the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines.

2.1 Study sample and eligibility criteria

This cross-sectional online survey was conducted with parents/caregivers of children aged four to seven years in Divinópolis, southeastern Brazil. Data collection was carried out between August and November 2021. Permission to conduct the study in public and private schools in Divinópolis was obtained from the State Education Secretary. Ten schools (five public and five private) were selected through convenience sampling to participate. Researchers first contacted class teachers, who distributed the survey link to parents/caregivers through WhatsApp (WhatsApp Inc., California, USA) groups. The snowball sampling technique was then used,[17] encouraging parents/caregivers to share the survey with others who had children in the specified age range. Additionally, child health professionals (including a dentist, physician, nutritionist, speech therapist, and psychologist) from Divinópolis were invited to assist in further distributing the survey link.

The inclusion criteria were parents/caregivers of children aged 4 to 7 years, of both sexes, from Divinópolis, with no known disorders or neurological conditions.[18] Parents/caregivers provided information regarding children's health status and medication use.

2.2 Sample size calculation

The sample size was calculated using a 95% confidence interval, a standard error of 5%, and a prevalence of sleep bruxism of 26.9%.[18] To account for potential losses, the calculated sample size was increased by 10%. Consequently, the final required sample size was 332 parents/caregivers.

2.3 Ethical issues

Approval was obtained from the Human Research Ethics Committee under protocol number #3.589.079. All procedures adhered to the 1964 Helsinki Declaration and its later amendments, or comparable ethical standards. Participants were fully informed about the study objectives and consented to participate by signing a consent form.

2.4 Data collection

Data collection was conducted using questionnaires hosted on Google Forms (Google Inc., Menlo Park, CA, USA) and distributed via WhatsApp©. Parents/caregivers completed the questionnaires, which took approximately 10 to 15 minutes. Once submitted, responses could not be reviewed or edited.

2.5 Questionnaires

A questionnaire gathered information about children's health and medication use, monthly family income (measured in Brazilian monthly minimum wages [BMMW], approximately $212 at the time), parents'/caregivers' schooling, and family composition (whether parents live together or apart). Family income and parents'/caregivers' schooling were dichotomized based on median values: ≤ or > three times the BMMW and ≤ or > 12 years of schooling.

The short Brazilian version of the Parenting Styles and Dimensions Questionnaire (PSDQ) consists of 32 questions designed to assess authoritative, authoritarian, and permissive parenting styles, along with their respective dimensions.[13,19] Participants rated each item on a scale from 1 (never) to 5 (always). The authoritative style, evaluated by 15 items, assessed support, regulation, and autonomy (score range: 15−75). The authoritarian style, consisting of 12 items, examined physical coercion, verbal hostility, and punishment (score range: 12−60). The permissive style, measured by five items, evaluated indulgence (score range: 5−25). The arithmetic mean of the total score for each domain was calculated, with scores ranging from 1 to 5. The predominant parenting style was identified by the highest score among the three domains.[19] Since parenting styles are not mutually exclusive, they were incorporated into the analysis as continuous variables using mean scores for the three domains.[20]

The Brazilian version of the Eysenck Personality Questionnaire-Junior (EPQ-J) for preschoolers was used to assess children's personality traits.[7] EPQ-J evaluates psychoticism (five items), extraversion (four items), and neuroticism (ten items) using a three-point scale: no (1), more or less (2), and yes (3).[7] Scores for each scale were summed, and a two-step cluster analysis with the log-likelihood distance measure was performed to categorize participants into three groups based on high or low levels of psychoticism, extraversion, and neuroticism. High levels of psychoticism are associated with impulsiveness, creativity, and obstinacy. High levels of extraversion

are linked to sociability, while high levels of neuroticism are related to anxiety, depression, and shyness.[7] The Chi-square test revealed significant differences between groups for each item of the EPQ-J.

A questionnaire based on Paesani et al. and the International Consensus of Bruxism assessed children's bruxism activities, including PSB (grinding and bracing activities) and PAB (grinding and clenching activities) over the past two weeks.[21] The questionnaire also covered the following sleep-related behaviors: sleep duration, snoring, drooling on the pillow, and sleep quality. Sleep duration was calculated based on the parents'/caregivers' report of the children's bedtime and waking times. The number of hours slept by children was categorized as either insufficient or sufficient, according to the Consensus Statement of the American Academy of Sleep Medicine.[22] For children aged 4–5 years old, 10 to 13 hours of sleep was considered sufficient, while for children aged 6–7 years old, 9 to 12 hours of sleep was considered sufficient.[22] Responses for snoring and drooling were "No" and "Yes. Sleep quality was evaluated as poor, reasonable, good, and very good, and was categorized into poor/reasonable and good/very good. The questions for diagnosis of PSB and PAB were as follows:[1,21]

1. PSB Grinding Activity – In the past two weeks, have you noticed your child grinding their teeth during sleep?
2. PSB Bracing Activity – In the past two weeks, has your child woken up with their jaw in a rigid position, making it difficult to open their mouth?
3. PAB Grinding Activity – In the past two weeks, have you noticed your child grinding their teeth while awake?
4. PAB Clenching Activity – In the past two weeks, have you noticed your child clenching their teeth while awake?

Parents/caregivers responded to these questions with three options: "No, not at all," "Yes, sometimes (at least once a week)," and "Yes, often (more than twice a week)." PSB and PAB were categorized as follows: "absent" if not reported, "mild" if it occurred at least once a week, and "moderate/severe" if it occurred more than twice a week. Both PSB and PAB activities were combined into a single variable based on the most severe behavior reported. For instance, if a parent/caregiver reported mild grinding PSB and moderate/severe bracing PSB, PSB was classified as

moderate/severe PSB. Similarly, if a parent/caregiver reported mild grinding PAB and moderate/severe clenching PAB, PAB was classified as moderate/severe.

2.6 Pilot study

The pilot study conducted online with ten parents or caregivers of children aged 4 to 7 from Divinópolis aimed to assess the clarity of the questionnaire and test the proposed method. A research team, including a psychologist for EPQ-J-related queries, provided support during the administration. The results confirmed that the participants understood all questions, and no changes to the method were needed.

2.7 Statistical analysis

Descriptive analysis was conducted using SPSS software (version 21.0, IBM, Armonk, NY, USA), which provided frequencies for categorical variables and computed means and standard deviations for continuous variables. To explore the relationships among socioeconomic factors, parenting styles, personality traits, sleep-related behaviors, PAB, and PSB, path analysis was conducted using Stata 18 (Stata Corp. LLC, 2023). The hypothetical analytical model was developed based on existing literature.[4,14,16,18] The total effects comprised both direct effects (direct associations/paths between variables) and indirect effects (associations/paths mediated through other variables). Non-significant paths with *P*-values greater than 0.40 were gradually removed, and modification indices (MI) were used to enhance the statistical fit of the final model. Standardized coefficients (β values) and overall indices were computed to evaluate the model fit. Adequate model fit was indicated by a Root Mean Square Error of Approximation (RMSEA) < 0.07, a Standardized Root Mean Square Residual (SRMR) < 0.08, a Comparative Fit Index (CFI) > 0.95, and a Tucker-Lewis Index (TLI) > 0.95.[23]

3 RESULTS

Of the 318 parents/caregivers who completed the data collection tools, 301 were included in the final sample. Exclusions were made for those whose children had neurological disorders or were older than 7 years. The majority of the children were female (50.5%), with a mean age of 5.24 years (±1.17). The prevalence of PSB and PAB were 31.3% and 16.3%, respectively. Descriptive statistics for sociodemographic factors, parenting styles, and sleep-related behaviors are presented in Table 1.

Table 2 presents the initial and final structural model with data adjustments. The final model demonstrated a good overall fit, with the following fit parameters: CFI: 0.97; TLI: 0.96; and RMSEA: 0.02. Figure 1 illustrates the final structural model and paths. Less authoritative parenting practices indirectly contribute to PSB and PAB, mediated by high neuroticism levels (β=−0.217; *P*<0.01) and poor sleep quality (β=−0.189; *P*=0.01). PSB and PAB are related (β=0.517; *P*=0.04). Male sex (β=0.183; *P*<0.01), high psychoticism levels (β= 0.323; *P*=0.02), and insufficient sleep (β=0.069; *P*=0.01) had a direct effect on PSB. The child's age had a direct effect on both PSB (β=0.287; *P*<0.01) and PAB (β=−0.189; *P*=0.01).

3 DISCUSSION

This study advances the understanding of bruxism etiology by identifying pathways influencing this behavior in children aged 4 to 7 years. Our main finding is that less authoritative parenting practices contribute indirectly to PSB and PAB, mediated by high neuroticism levels and poor sleep quality. Given the role of parents/caregivers in shaping children's personality and emotional regulation,[8,11,12] less authoritative parenting practices − characterized by reduced expressions of affection and a lack of emotional support −can adversely affect children's personality and, consequently, their likelihood of PSB and PAB. Additionally, existing literature indicates that parenting practices also influence other oral health outcomes, such as dental caries and reports of dental pain.[12,24] This underscores the value of the common risk factor approach, which can enhance the design of effective health promotion programs for children.[12,25]

In our sample, less authoritative practices indirectly influenced PSB and PAB through neuroticism and sleep quality. Neuroticism is a stronger predictor of poor sleep quality in adolescents and adults, as it is linked to the internalization of negative emotions, which increases physiological arousal, contributing to insomnia and daytime sleepiness.[26-28] In this sense, children with high neuroticism may experience increased daytime sleepiness,[26-28] which can lead to more frequent awake bruxism episodes as they unconsciously try to boost alertness and focus on daily activities. Moreover, PAB and PSB seem to mutually influence each other, as evidenced in previous studies involving children and adolescents aged 8 to 19 years.[14,15] Duarte et al. (2019) reported that the prevalence of PSB was nearly three times higher in children with PAB than in those without it.[14] This finding suggests that, although PSB and PAB are distinct

entities, they may share common underlying factors,[15] particularly psychological ones, with awake bruxism also serving as a stress-coping behavior.[2]

Based on the results, boys tend to exhibit more severe PSB. Guo et al. (2017) identified being male as a risk factor for childhood bruxism.[4] However, a recent systematic review with meta-analysis found no significant sex-based variation in the prevalence of sleep bruxism.[30] This discrepancy may stem from differences in eligibility criteria between studies, suggesting that sex might be a confounding variable.[30]

From our data, insufficient sleep directly impacted PSB. Sleep-related behaviors are frequently associated with sleep bruxism in children, with sleep duration and quality being children's most commonly reported factors.[4] One possible explanation is the role of adequate sleep in cognitive, emotional, and behavioral health and well-being.[27,28] In our study, we found no significant association between snoring, drooling on the pillow, and PSB severity. This might be because other sleep-related factors associated with sleep bruxism, such as restless sleep, insomnia, sleeping position, noise in the bedroom, and sleeping with lights on,[4] were not accounted for, and could mediate the association. Future studies should explore the pathways between sleep-related behaviors and SB in young children, with particular attention to the influence of chronotype profiles.[15]

Regarding the influence of age on PSB and PAB, a previous cross-sectional study found that sleep bruxism is more prevalent among Brazilian children with mixed dentition than those with primary dentition.[31] As children grow older, they are typically assigned more household chores and exposed to a wider range of social experiences, such as increased school responsibilities.[3,5,16] These added responsibilities can lead to heightened stress and anxiety, particularly if they are under significant family pressure, potentially increasing their susceptibility to bruxism.[3,5,16] Additionally, although our study did not find a direct link between a child's age and personality, recent research with a large sample demonstrated that neuroticism traits tend to increase as children grow older.[9]

Some limitations must be addressed. The use of snowball sampling limits the generalizability of the findings. The reliance on retrospective reporting for assessing psychological factors, sleep bruxism, and awake bruxism can also introduce memory bias, as participants had to recall past events. Moreover, although the questionnaires were anonymous, self-reported data might be influenced by socially desirable response biases.[10,20] Despite these limitations, this study significantly contributes by

using path analysis to clarify the determinants and mediators of PSB and PAB. Measurement errors were accounted for in the estimates, improving result accuracy. However, maximum likelihood estimation might have slightly underestimated coefficients due to categorical variables in the model. This, however, does not impact the validity of the findings, given the study's focus on the relationships between conditions.

This study provides insights into the etiology of bruxism in young children, a group for which the evidence is scarce. The findings suggest that pediatric dentists should adopt a biopsychosocial approach to managing PSB and PAB, taking into account both child and parent/caregiver characteristics. While it may not be feasible to use extensive epidemiological questionnaires − such as those assessing personality traits and parenting styles − in clinical settings, clinicians can benefit from collaborating with parenting specialists or allied health professionals with expertise in psychological interventions. Such collaborations can offer targeted support and guidance for effectively managing bruxism in childhood. Longitudinal and interventional studies are recommended, as personality is “plastic” and expected to stabilize over time.[8,9] Moreover, monitoring children's growth and development is essential for the clinical management of bruxism, as it requires an age-specific approach.[32]

5 CONCLUSION

This study demonstrated that the pathways triggering PSB were influenced by less authoritative parenting practices, high levels of neuroticism and psychoticism, sex, age, and insufficient sleep, while PAB was influenced by age and sleep quality.

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TABLE 1. Descriptive frequency of variables used in structural modal. Divinópolis, Brazil

Continuous variables	**Mean (SD)**
Child's age (years)	5.24 (±1.17)
Parent's/caregiver's age (years)	35.0 (±6.09)
Authoritative parenting style domain†	4.28 (±0.43)
Authoritarian parenting style domain†	1.92 (±0.55)
Permissive parenting style domain†	2.35 (±0.58)
Categorical variables	**n (%)**
Child's sex	
Male	149 (49.5)
Female	152 (50.5)
Monthly family income††	
≤ 3 BMMW	154 (51.2)
> 3 BMMW	140 (46.5)
Parent's/caregiver's schooling	
≤ 12 years	132 (43.9)
> 12 years	169 (56.1)
Only child	
Yes	115 (38.2)
No	186 (61.8)
Family composition	
Parents/ caregivers live apart	54 (17.9)
Parents/ caregivers live together	247 (82.1)
Predominant parenting style	
Authoritarian	02 (0.7)
Permissive	01 (0.3)
Authoritative	298 (99.0)
Neuroticism personality trait	
High	135 (44.9)
Low	166 (55.1)
Psychoticism personality trait	
High	39 (13.0)
Low	262 (87.0)
Extraversion personality trait	
Low	227 (75.4)
High	74 (24.6)
Possible sleep bruxism	
Moderate/Severe	39 (13.0)
Mild	55 (18.3)
Absent	207 (68.8)
Possible awake bruxism	
Moderate/Severe	22 (07.3)
Mild	27 (9.0)
Absent	252 (83.7)
Drooling on the pillow	
Yes	185 (61.5)
No	116 (38.5)
Snoring	
Yes	185 (61.5)
No	116 (38.5)
Sleep duration	
Sufficient	83 (27.6)

Insufficient	218 (72.4)
Sleep quality	
Poor/reasonable	50 (16.6)
Good/very good	251 (83.4)

Abbreviations: SD, Standard deviation; BMMW, Brazilian monthly minimum wage.
† The values are the arithmetic mean of the total score for each domain. †† 06 parents/caregivers did not answer.

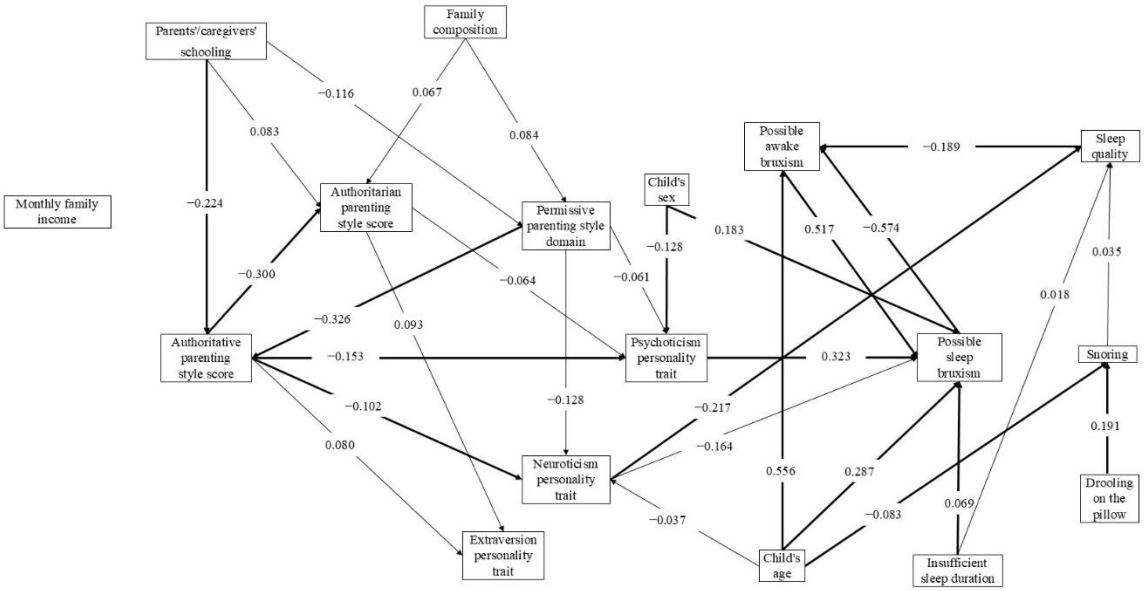
TABLE 2. Standardized estimated effects of results in structural models. Divinópolis, Brazil

Pathways	Standardized coefficients Initial model *(P-value)*	 Final model *(P-value)*
Authoritative parenting style score		
Family monthly income	0.038 (*P* = 0.54)	-
Parents/caregivers schooling	−0.268 (*P* < 0.01)	−0.224 (*P* < 0.01)
Family composition	−0.050 (*P* = 0.54)	-
Permissive parenting style score	-	−0.326 (*P* < 0.01)
Authoritarian parenting style score		
Family monthly income	0.040 (*P* = 0.42)	-
Parents/caregivers schooling	0.182 (*P* < 0.01)	0.083 (*P* = 0.08)
Family composition	0.097 (*P* = 0.14)	0.067 (*P* = 0.25)
Authoritarian parenting style score	-	−0.300 (*P* < 0.01)
Permissive parenting style score		
Family monthly income	0.023 (*P* = 0.73)	-
Parents/caregivers schooling	−0.113 (*P* = 0.10)	−0.116 (*P* = 0.08)
Family composition	0.076 (*P* = 0.39)	0.084 (*P* = 0.33)
Extraversion personality trait		
Authoritarian parenting style score	0.074 (*P* = 0.15)	0.080 (*P* = 0.09)
Authoritative parenting style score	0.096 (*P* = 0.12)	0.093 (*P* = 0.13)
Permissive parenting style score	0.006 (*P* = 0.40)	-
Child's age	0.017 (*P* = 0.09)	-
Neuroticism personality trait		
Authoritarian parenting style score	−0.097 (*P* = 0.10)	−0.102 (*P* = 0.05)
Authoritative parenting style score	−0.013 (*P* = 0.84)	-
Permissive parenting style score	−0.125 (*P* = 0.06)	−0.128 (*P* = 0.06)
Child's age	−0.035 (*P* = 0.13)	−0.037 (*P* = 0.11)
Psychoticism personality trait		
Authoritative parenting style score	−0.157 (*P* < 0.01)	−0.153 (*P* < 0.01)
Authoritarian parenting style score	−0.074 (*P* = 0.11)	−0.064 (*P* = 0.15)
Permissive parenting style score	−0.069 (*P* = 0.04)	−0.061 (*P* = 0.06)
Child's age	−0.005 (*P* = 0.74)	-
Child's sex	-	−0.128 (*P* < 0.01)
Possible sleep bruxism		
Extraversion personality trait	−0.028 (*P* = 0.64)	-
Neuroticism personality trait	−0.097 (*P* = 0.08)	−0.164 (*P* = 0.11)
Psychoticism personality trait	0.021 (*P* = 0.01)	0.323 (*P* = 0.02)
Insufficient sleep	0.048 (*P* = 0.03)	0.069 (*P* = 0.01)
Sleep quality	−0.066 (*P* = 0.36)	-
Snoring	0.018 (*P* = 0.74)	-
Possible awake bruxism	−0.130 (*P* = 0.02)	0.517 (*P* = 0.04)
Child's age	0.047 (*P* < 0.01)	0.287 (*P* < 0.01)
Child's sex	0.155 (*P* = 0.01)	0.183 (*P* < 0.01)
Drooling on the pillow	−0.054 (*P* = 0.31)	-
Insufficient sleep		
Child's age	−0.013 (*P* = 0.82)	-
Sleep quality		

Neuroticism personality trait	-	−0.217 (*P* < 0.01)
Insufficient sleep	0.017 (*P* = 0.34)	-
Snoring	0.071 (*P* = 0.10)	0.035 (*P* = 0.39)
Snoring		
Drooling on the pillow	0.191 (*P* = 0.01)	0.191 (*P* = 0.01)
Child's age	-	−0.083 (*P* < 0.01)
Possible awake bruxism		
Possible sleep bruxism	-	−0.574 (*P* < 0.01)
Sleep quality	−0.183 (*P* < 0.01)	−0.189 (*P* = 0.01)
Child's age	-	0.556 (*P* < 0.01)
Overall fit indices		
CFI	0.521	0.974
TLI	0.301	0.964
RMSEA	0.111	0.027
SRMR	0.101	0.044

Note: Outcome on the predictor.
Abbreviations: CFI, comparative fit index; RMSEA, root mean square error of approximation; SRMR, standardized root mean square residual; TLI, Tucker-Lewis Index

FIGURE 1. The model pathway between possible sleep bruxism and variables studied among parents/caregivers and their children.



Note: Thicker arrows indicate $P < 0.05$

5 CONSIDERAÇÕES FINAIS

A infância é um período marcante na vida de um indivíduo, influenciado por intensas transformações físicas, cognitivas e emocionais. É nessa fase que se estabelecem as bases para a saúde e o bem-estar ao longo da vida. Torna-se, portanto, essencial uma abordagem integral à saúde infantil para assegurar um desenvolvimento pleno e equilibrado. Nesse contexto, a condução de estudos envolvendo a população infantil, especialmente sobre condições como o bruxismo, ganha relevância.

Historicamente, o bruxismo foi considerado predominantemente um fenômeno fisiológico em crianças. Contudo, a compreensão desse comportamento evoluiu significamente. Hoje, o bruxismo é reconhecido não apenas por seu impacto clínico no sistema estomatognático, mas também como um comportamento associado a diversas condições médicas e fatores emocionais.

O consenso internacional de bruxismo trouxe avanços significativos ao propor definições e conceitos relacionados ao bruxismo. No entanto, ainda há questões que requerem investigação adicional, pois as reflexões apresentadas pelo consenso não abordam adequadamente as diferentes fases da vida, o que pode limitar a compreensão desse comportamento na infância. Avaliar o comportamento bruxômano em crianças, adultos e idosos utilizando os mesmos parâmetros pode resultar em falhas diagnósticas.

Assim, esta tese destaca-se por sua interdisciplinaridade e contribuição original à Odontopediatria ao investigar fatores associados e os caminhos de associação do bruxismo do sono e em vigília em crianças de quatro a sete anos. Este trabalho inova ao explorar as interações entre características psicológicas de pais/cuidadores e de crianças, incluindo, estilos parentais e traços de personalidade, respectivamente.

Na Odontopediatria, é essencial entender como as características dos pais/cuidadores influenciam os desfechos de saúde, uma vez que o ambiente familiar desempenha um papel central na formação e na modulação dos comportamentos infantis e, consequentemente, na personalidade das crianças. Além disso, é fundamental considerar como a criança responde emocionalmente às situações, através da sua personalidade, pois o bruxismo está fortemente associado a emoções negativas, como o estresse e ansiedade.

Atualmente, não há uma terapêutica padrão e específica para o bruxismo. Assim, os resultados deste estudo podem direcionar a anamnese do paciente infantil e fundamentar estratégias de prevenção e de controle do comportamento, minimizando a gravidade de suas consequências clínicas tanto na infância quanto na fase adulta. Além disso, esta pesquisa tem o potencial de estimular novos estudos com menor viés de memória. Estudos longitudinais e qualitativos também devem ser incentivados, pois o monitoramento do crescimento e do desenvolvimento das crianças é essencial para o manejo do bruxismo, que requer uma abordagem adaptada a cada faixa etária.

Por fim, é importante mencionar que o projeto de pesquisa deste estudo foi desenhado para coletar variáveis não clínicas e clínicas e teve início em fevereiro de 2020. A coleta de dados foi interrompida pela pandemia de COVID-19, o que resultou em ajustes na metodologia inicialmente proposta. No entanto, acredita-se que a robustez e a originalidade do estudo foram preservadas apesar dessas mudanças.

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APÊNDICE A – Termo de consentimento

Prezado pai, mãe ou cuidador, somos Jéssica Aparecida da Silva e Letícia Fernanda Moreira dos Santos, alunas de doutorado na Faculdade de Odontologia da Universidade Federal de Minas Gerais. Estamos desenvolvendo uma pesquisa intitulada "O estilo parental está associado à presença de alterações bucais em crianças?".

O estilo parental diz respeito às práticas educativas mais utilizadas pelos pais. Queremos entender a influência delas na saúde bucal das crianças. Para participar é necessário que você assine este termo de consentimento (autorização para participação) e preencha o questionário on-line que se segue. O tempo estimado para respondê-lo é de 10 a 15 minutos. Você não receberá nenhum tipo de remuneração ou terá gastos decorrentes da sua participação.

Você poderá se sentir constrangido ao responder algumas perguntas do questionário. No entanto, saiba que ninguém saberá que você e seu(sua) filho(a) estão participando da pesquisa. Não falaremos a outras pessoas, nem daremos a estranhos as informações que você nos der. Ao colaborar com este estudo foi contribuirá com o entendimento, a prevenção e o controle de problemas bucais que afetam muitas crianças, como a cárie dentária e o bruxismo do sono.

Você poderá tirar suas dúvidas agora ou a qualquer momento. Você aceita participar da pesquisa?

( ) Sim. Aceito participar.

( ) Não aceito participar.

APÊNDICE B – Questionário sociodemográfico

Senhor(a) mãe, pai ou cuidador, você está sendo convidado(a) a preencher este questionário que nos fornecerá informações importantes sobre seu(sua) filho(a). Não existem respostas certas ou erradas. O importante para nós é conhecer a sua família. Todas as informações são confidenciais.

1. Nome do respondente:
2. Data de nascimento da mãe, pai ou cuidador:
3. Grau de parentesco com a criança: ( ) Mãe ( ) Pai ( ) Outro, qual?
4. Nome da criança:
5. Data de nascimento da criança:
6. Telefone:
7. Endereço:
8. Seu(sua) filho(a) apresenta algum tipo de doença? ( ) Sim ( ) Não
Se sim, qual/quais?
9. Seu(sua) filho(a) está tomando algum medicamento atualmente? ( ) Sim ( )Não
Se sim, qual/quais?
10. Qual a posição do seu(sua) filho(a) na família?
( ) Filho único ( ) Filho mais novo ( ) Filho do meio ( ) Filho mais velho
11. Escolaridade da mãe/cuidador:
( ) Analfabeto
( ) Ensino fundamental incompleto
( ) Ensino fundamental completo
( ) Ensino médio incompleto
( ) Ensino médio completo
( ) Ensino superior incompleto
( ) Ensino superior completo
12. Com quem seu(sua) filho(a) mora?
( ) Somente com mãe ( ) Somente com o pai ( ) Mãe e pai juntos ( ) Outro
13. Quantos salários mínimos recebe toda a sua família em um mês (contando o salário de todos os moradores da casa)?
( ) Nenhuma renda
( ) 1 a 2 salários (R$1.100,00 a R$2.200,00)
( ) 3 salários 3 salários (R$3.300,00)
( ) 4 a 5 salários (R$4.400,00 a R$5.500,00)
( ) Mais de 5 salários (mais de R$5.500,00)

ANEXO A – Questionário dimensões e estilos parentais

Senhor(a) mãe, pai ou cuidador, você está sendo convidado(a) a responder ao questionário abaixo de acordo com a frequência que você atua com seu(sua) filho(a).

1. Eu respondo aos sentimentos ou necessidades do(a) meu (minha) filho(a).
( ) **Nunca** ( ) **Poucas vezes** ( ) **Algumas Vezes** ( ) **Muitas Vezes** ( ) **Sempre**
2. Eu uso castigos físicos como forma de disciplinar meu (minha) filho(a).
( ) **Nunca** ( ) **Poucas vezes** ( ) **Algumas Vezes** ( ) **Muitas Vezes** ( ) **Sempre**
3. Eu levo em conta a vontade do(a) meu (minha) filho(a) antes de lhe pedir para fazer alguma coisa
( ) **Nunca** ( ) **Poucas vezes** ( ) **Algumas Vezes** ( ) **Muitas Vezes** ( ) **Sempre**
4. Quando meu (minha) filho(a) pergunta por que tem que obedecer, eu digo: "Porque eu disse que sim'' ou ‘‘Porque eu sou seu/sua pai/mãe e eu quero assim''.
( ) **Nunca** ( ) **Poucas vezes** ( ) **Algumas Vezes** ( ) **Muitas Vezes** ( ) **Sempre**
5. Eu explico ao(à) meu (minha) filho(a) como me sinto em relação ao seu bom e ao seu mau comportamento.
( ) **Nunca** ( ) **Poucas vezes** ( ) **Algumas Vezes** ( ) **Muitas Vezes** ( ) **Sempre**
6. Quando meu (minha) filho(a) é desobediente, eu dou uma palmada nele(a).
( ) **Nunca** ( ) **Poucas vezes** ( ) **Algumas Vezes** ( ) **Muitas Vezes** ( ) **Sempre**
7. Eu encorajo meu (minha) filho(a) a conversar sobre seus problemas.
( ) **Nunca** ( ) **Poucas vezes** ( ) **Algumas Vezes** ( ) **Muitas Vezes** ( ) **Sempre**
8. Eu acho difícil disciplinar meu (minha) filho(a).
( ) **Nunca** ( ) **Poucas vezes** ( ) **Algumas Vezes** ( ) **Muitas Vezes** ( ) **Sempre**
9. Eu encorajo meu (minha) filho(a) a se expressar abertamente, mesmo quando eu não concordo com ele(a).
( ) **Nunca** ( ) **Poucas vezes** ( ) **Algumas Vezes** ( ) **Muitas Vezes** ( ) **Sempre**
10. Eu castigo meu (minha) filho(a) lhe tirando privilégios com pouca ou nenhuma explicação.
( ) **Nunca** ( ) **Poucas vezes** ( ) **Algumas Vezes** ( ) **Muitas Vezes** ( ) **Sempre**
11. Eu explico os motivos para as regras.
( ) **Nunca** ( ) **Poucas vezes** ( ) **Algumas Vezes** ( ) **Muitas Vezes** ( ) **Sempre)**
12. Eu dou conforto e compreensão ao(à) meu (minha) filho(a) quando ele(a) está chateado(a).
( ) **Nunca** ( ) **Poucas vezes** ( ) **Algumas Vezes** ( ) **Muitas Vezes** ( ) **Sempre**
13. Eu grito ou berro quando meu (minha) filho(a) se comporta mal.
( ) **Nunca** ( ) **Poucas vezes** ( ) **Algumas Vezes** ( ) **Muitas Vezes** ( ) **Sempre**
14. Eu parabenizo meu (minha) filho(a) quando ele(a) se comporta bem.
( ) **Nunca** ( ) **Poucas vezes** ( ) **Algumas Vezes** ( ) **Muitas Vezes** ( ) **Sempre**
15. Eu acabo cedendo quando meu (minha) filho(a) faz birra por alguma coisa.
( ) **Nunca** ( ) **Poucas vezes** ( ) **Algumas Vezes** ( ) **Muitas Vezes** ( ) **Sempre**
16. Eu tenho explosões de raiva com meu (minha) filho(a).
( ) **Nunca** ( ) **Poucas vezes** ( ) **Algumas Vezes** ( ) **Muitas Vezes** ( ) **Sempre**
17. Eu ameaço castigar meu (minha) filho(a) mais vezes do que realmente o(a) castigo.
( ) **Nunca** ( ) **Poucas vezes** ( ) **Algumas Vezes** ( ) **Muitas Vezes** ( ) **Sempre**
18. Eu levo em consideração as preferências do(a) meu (minha) filho(a) ao fazer planos para a família.
( ) **Nunca** ( ) **Poucas vezes** ( ) **Algumas Vezes** ( ) **Muitas Vezes** ( ) **Sempre**
19. Eu seguro com força meu (minha) filho(a) quando ele(a) é desobediente.
( ) **Nunca** ( ) **Poucas vezes** ( ) **Algumas Vezes** ( ) **Muitas Vezes** ( ) **Sempre**

20. Eu determino castigos para meu (minha) filho(a), mas não os cumpro realmente.
( ) **Nunca** ( ) **Poucas vezes** ( ) **Algumas Vezes** ( ) **Muitas Vezes** ( ) **Sempre**
21. Eu mostro respeito pelas opiniões do(a) meu (minha) filho(a) lhe encorajando a expressá-las.
( ) **Nunca** ( ) **Poucas vezes** ( ) **Algumas Vezes** ( ) **Muitas Vezes** ( ) **Sempre**
22. Eu permito que meu (minha) filho(a) dê opiniões nas regras da família.
( ) **Nunca** ( ) **Poucas vezes** ( ) **Algumas Vezes** ( ) **Muitas Vezes** ( ) **Sempre**
23. Eu repreendo e critico duramente meu (minha) filho(a) para fazê-lo(a) melhorar.
( ) **Nunca** ( ) **Poucas vezes** ( ) **Algumas Vezes** ( ) **Muitas Vezes** ( ) **Sempre**
24. Eu mimo meu (minha) filho(a).
( ) **Nunca** ( ) **Poucas vezes** ( ) **Algumas Vezes** ( ) **Muitas Vezes** ( ) **Sempre**
25. Eu explico ao(à) meu (minha) filho(a) as razões pelas quais as regras devem ser obedecidas.
( ) **Nunca** ( ) **Poucas vezes** ( ) **Algumas Vezes** ( ) **Muitas Vezes** ( ) **Sempre**
26. Eu uso ameaças como forma de castigo com pouca ou nenhuma justificativa.
( ) **Nunca** ( ) **Poucas vezes** ( ) **Algumas Vezes** ( ) **Muitas Vezes** ( ) **Sempre**
27. Eu tenho momentos calorosos e especiais com o(a) meu (minha) filho(a).
( ) **Nunca** ( ) **Poucas vezes** ( ) **Algumas Vezes** ( ) **Muitas Vezes** ( ) **Sempre**
28. Como uma forma de castigo, eu coloco meu (minha) filho(a) em algum lugar sozinho(a), mas sem dar muita explicação.
( ) **Nunca** ( ) **Poucas vezes** ( ) **Algumas Vezes** ( ) **Muitas Vezes** ( ) **Sempre**
29. Eu ajudo meu (minha) filho(a) a entender o impacto do seu comportamento lhe encorajando a falar sobre as consequências de suas ações.
( ) **Nunca** ( ) **Poucas vezes** ( ) **Algumas Vezes** ( ) **Muitas Vezes** ( ) **Sempre**
30. Eu repreendo e critico duramente meu (minha) filho(a) quando seu comportamento não atinge minhas expectativas.
( ) **Nunca** ( ) **Poucas vezes** ( ) **Algumas Vezes** ( ) **Muitas Vezes** ( ) **Sempre**
31. Eu explico ao(à) meu (minha) filho(a) as consequências do seu comportamento.
( ) **Nunca** ( ) **Poucas vezes** ( ) **Algumas Vezes** ( ) **Muitas Vezes** ( ) **Sempre**
32. Eu dou uma palmada no(a) meu (minha) filho(a) quando ele(a) se comporta mal.
( ) **Nunca** ( ) **Poucas vezes** ( ) **Algumas Vezes** ( ) **Muitas Vezes** ( ) **Sempre**

ANEXO B – Questionário Personalidade de Eysenck-Júnior (versão heterorrelato)

Senhor(a) mãe, pai ou cuidador, você está sendo convidado(a) a responder este questionário de acordo com a **frequência** com que seu(sua) filho(a) tem cada comportamento diante de cada situação.

1. Ele(a) costuma ter medos (como medo de bruxas, monstros etc.) ou pesadelos que lhe tiram o sono quando vai dormir?
( ) **Não** ( ) **Mais ou menos** ( ) **Sim**
2. Ele é irritadiço(a), isto é, reclama ou se sente irritado(a) com muitas coisas)?
( ) **Não** ( ) **Mais ou menos** ( ) **Sim**
3. Quando alguém o(a) corrige na frente dos coleguinhas, ele(a) se sente envergonhado?
( ) **Não** ( ) **Mais ou menos** ( ) **Sim**
4. Ele(a) fica muito aborrecido(a) quando alguém diz que ele errou ao fazer alguma coisa?
( ) **Não** ( ) **Mais ou menos** ( ) **Sim**
5. Ele(a) se assusta ou fica impressionado(a) quando vê alguém machucado?
( ) **Não** ( ) **Mais ou menos** ( ) **Sim**
6. Ele(a) se sente frequentemente cansado(a) sem motivo?
( ) **Não** ( ) **Mais ou menos** ( ) **Sim**
7. Ele(a) se magoa ou fica triste com muita facilidade?
( ) **Não** ( ) **Mais ou menos** ( ) **Sim**
8. Ele(a) pensa que o castigo imposto pelo professor ou pelos pais é para que tenhamos medo deles?
( ) **Não** ( ) **Mais ou menos** ( ) **Sim**
9. Normalmente ele muda de humor com muita facilidade? Por exemplo, ele passa do riso ao choro (ou vice-versa) rapidamente.
( ) **Não** ( ) **Mais ou menos** ( ) **Sim**
10. Quando fica sozinho, mesmo que por pouco tempo, ele(a) costuma queixar-se?
( ) **Não** ( ) **Mais ou menos** ( ) **Sim**
11. Ele(a) acha engraçado quando um coleguinha cai e se machuca?
( ) **Não** ( ) **Mais ou menos** ( ) **Sim**
12. Ele(a) gosta de provocar e irritar os animais?
( ) **Não** ( ) **Mais ou menos** ( ) **Sim**
13. Em geral, ele(a) acha divertido incomodar as pessoas?
( ) **Não** ( ) **Mais ou menos** ( ) **Sim**
14. Ele(a) gosta de debochar ou pregar peças nos colegas?
( ) **Não** ( ) **Mais ou menos** ( ) **Sim**
15. Ele(a) gosta quando vê outras pessoas brigando?
( ) **Não** ( ) **Mais ou menos** ( ) **Sim**
16. Quando vai ao parque de diversões ele(a) manifesta desejo de ir à montanha-russa?
( ) **Não** ( ) **Mais ou menos** ( ) **Sim**
17. Ele(a) gosta de fazer graça para os outros rirem?
( ) **Não** ( ) **Mais ou menos** ( ) **Sim**
18. Ele(a) gosta de se jogar ou pular na água assim que vê uma piscina ou vai ao mar?
( ) **Não** ( ) **Mais ou menos** ( ) **Sim**
19. Ele(a) costuma chamar crianças que ele(a) não conhece para brincar?
( ) **Não** ( ) **Mais ou menos** ( ) **Sim**

ANEXO C – Questionário bruxismo do sono, bruxismo em vigília e características do sono

1. Que horas normalmente seu(sua) filho(a) vai dormir nos dias de semana?

2. Que horas normalmente seu(sua) filho(a) acorda nos dias de semana?

3. Como você classificaria o sono do seu filho(a)?
( ) Ruim ( ) Razoável ( ) Boa ( ) Muito boa

4. Nas últimas duas semanas, você observou que seu(sua) filho(a) babou no travesseiro?
( ) Sim ( ) Não

5. Nas últimas duas semanas, seu(sua) filho(a) roncou enquanto dormia?
( ) Sim ( ) Não

6. Nas últimas duas semanas, seu (sua) filho(a) rangeu os dentes durante o sono?
( ) Sim, muitas vezes ( ) Sim, às vezes; pelo menos uma vez por semana ( ) Não, nenhuma vez; mais de duas vezes por semana

7. Nas últimas duas semanas, ao acordar de manhã ou à noite, seu(sua) filho(a) estava com os dentes travados e/ou apresentou dificuldade para abrir a boca porque a mandíbula dele(a) estava travada em uma mesma posição?
( ) Sim, muitas vezes ( ) Sim, às vezes; pelo menos uma vez por semana ( ) Não, nenhuma vez; mais de duas vezes por semana

8. Nas últimas duas semanas, você notou que seu filho está rangendo os dentes enquanto está acordado?
( ) Sim, muitas vezes ( ) Sim, às vezes; pelo menos uma vez por semana ( ) Não, nenhuma vez; mais de duas vezes por semana

9. Nas últimas duas semanas, você notou que seu filho está apertando os dentes enquanto está acordado?
( ) Sim, muitas vezes ( ) Sim, às vezes; pelo menos uma vez por semana ( ) Não, nenhuma vez; mais de duas vezes por semana

ANEXO D – Aprovação do comitê de ética

UNIVERSIDADE FEDERAL DE MINAS GERAIS

PARECER CONSUBSTANCIADO DO CEP

DADOS DO PROJETO DE PESQUISA

Título da Pesquisa: Associação entre Estilo Parental e presença de alterações bucais em crianças
Pesquisador: Isabela Almeida Pordeus
Área Temática:
Versão: 2
CAAE: 19808519.6.0000.5149
Instituição Proponente: UNIVERSIDADE FEDERAL DE MINAS GERAIS
Patrocinador Principal: Financiamento Próprio

DADOS DO PARECER

Número do Parecer: 3.613.348

Este parecer foi elaborado baseado nos documentos abaixo relacionados:

Tipo Documento	Arquivo	Postagem	Autor	Situação
Informações Básicas do Projeto	PB_INFORMAÇÕES_BÁSICAS_DO_PROJETO_1407823.pdf	23/09/2019 17:20:44		Aceito
TCLE / Termos de Assentimento / Justificativa de Ausência	TCLE_adequado.docx	23/09/2019 17:19:00	Isabela Almeida Pordeus	Aceito
Outros	Anuencia.pdf	23/09/2019 16:59:56	Isabela Almeida Pordeus	Aceito
Outros	Carta_Resposta.doc	23/09/2019 16:55:48	Isabela Almeida Pordeus	Aceito
Projeto Detalhado / Brochura Investigador	PROJETOCEP_adequado.docx	23/09/2019 16:55:23	Isabela Almeida Pordeus	Aceito
Orçamento	Orcamento_.docx	23/09/2019 16:54:56	Isabela Almeida Pordeus	Aceito
Cronograma	Cronograma_.docx	23/09/2019 16:54:03	Isabela Almeida Pordeus	Aceito
Outros	ParecerCons.pdf	26/08/2019 19:53:42	Isabela Almeida Pordeus	Aceito
Folha de Rosto	FolhaRosto.pdf	07/08/2019 13:32:24	Isabela Almeida Pordeus	Aceito

Situação do Parecer:
Aprovado

Necessita Apreciação da CONEP:
Não

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Bairro: Unidade Administrativa II **CEP:** 31.270-901
UF: MG **Município:** BELO HORIZONTE
Telefone: (31)3409-4592 **E-mail:** coep@prpq.ufmg.br

ANEXO E – Instruções aos autores do periódico *The Journal of Craniomandibular & Sleep Practice (CRANIO®)*

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CRANIO accepts the following types of article: Guest Editorial, Concepts, Sleep, TMJ, Physical Therapy, Original Articles, Craniofacial Pain, Occlusion, Gnathology, Book Reviews.

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4. Do not include keywords. Read making your article more discoverable, including information on choosing a title and search engine optimization.
5. Funding details. Please supply all details required by your funding and grant-awarding bodies as follows:
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   For multiple agency grants
   This work was supported by the [Funding Agency #1] under Grant [number xxxx]; [Funding Agency #2] under Grant [number xxxx]; and [Funding Agency #3] under Grant [number xxxx].
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7. Data availability statement. If there is a data set associated with the paper, please provide information about where the data supporting the results or analyses presented in the paper can be found. Where applicable, this should include the hyperlink, DOI or other persistent identifier associated with the data set(s). Templates are also available to support authors.
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ANEXO F − Instruções aos autores do periódico *Community Dentistry & Oral Epidemiology*

1. GENERAL

The aim of *Community Dentistry and Oral Epidemiology* is to serve as a forum for scientifically based information in community dentistry, with the intention of continually expanding the knowledge base in the field. The scope is therefore broad, ranging from original studies in epidemiology, behavioural sciences related to dentistry, and health services research, through to methodological reports in program planning, implementation and evaluation. Reports dealing with people of any age group are welcome.

The journal encourages manuscripts which present methodologically detailed scientific research findings from original data collection or analysis of existing databases. Preference is given to new findings. Confirmation of previous findings can be of value, but the journal seeks to avoid needless repetition. It also encourages thoughtful, provocative commentaries on subjects ranging from research methods to public policies. Purely descriptive reports are not encouraged, and neither are behavioural science reports with only marginal application to dentistry.

Knowledge in any field advances only when research findings and policies are held up to critical scrutiny. To be consistent with that view, the journal encourages scientific debate on a wide range of topics. Responses to research findings and views expressed in the journal are always welcome, whether in the form of a manuscript or a commentary. Prompt publication will be sought for these submissions. Book reviews and short reports from international conferences are also welcome, and publication of conference proceedings can be arranged with the publisher.

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