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Original Article

Recommendations for the Development of the Standardized Tool for the Assessment of Bruxism (STAB)

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ABSTRACT

The Standardized Tool for the Assessment of Bruxism (STAB) is a newly developed instrument designed to evaluate bruxism. Axis A assesses the presence of bruxism and its potential consequences, whereas Axis B examines underlying causes, risk factors, and related health conditions. Practical feedback from clinical settings could support further refinement of the tool. This study sought to explore how general dentists, specialists in Orofacial Pain and Dysfunction (OPD), and Disability Care (DC) professionals perceive and assess both sleep and awake bruxism, and to determine how their experiences correspond with the constructs and domains defined in STAB. Eleven dentists participated in semi-structured interviews focusing on the evaluation and etiology of bruxism. Thematic analysis was applied to extract subthemes, which were then compared to the STAB axes and domains to assess alignment. Participants' perspectives largely aligned with the STAB framework, though some gaps were noted, particularly reflecting the lack of suitable assessment instruments in DC contexts. Incorporating tailored tools for bruxism assessment in disability care settings is recommended for future updates of the STAB.

Keywords: Qualitative research, Interview, Bruxism

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Introduction

Bruxism refers to masticatory muscles activity (MMA) and manifests in two circadian forms: sleep bruxism, which occurs during sleep and may be rhythmic (phasic) or non-rhythmic (tonic), and awake bruxism, which occurs during wakefulness and is characterized by repeated or sustained tooth contact, as well as bracing or thrusting of the jaw [1]. To standardize diagnosis, an international expert group proposed a grading system classifying bruxism as "possible," "probable," or "definite" for both sleep and awake forms [1]. This framework defines possible bruxism based on self-reports alone, probable bruxism through clinical examination (with or without self-report), and definite bruxism by positive instrumental assessment, potentially combined with self-reports and/or clinical findings [1, 2]. Despite the availability of this framework, most clinical assessments still rely on patient self-reports or clinical inspection [3, 4]. Standardized instruments, however, are recommended to improve consistency, with the recently developed Standardized Tool for the Assessment of Bruxism

(STAB) providing a structured approach for both research and clinical practice [5]. Examining which symptoms clinicians routinely observe can help ensure that assessment tools capture domains of practical relevance.

The underlying causes of bruxism are complex and remain debated. Emerging evidence points to central and autonomic nervous system regulation as primary contributors to both sleep and awake bruxism, challenging older theories that emphasized occlusal or anatomical factors [6]. Numerous additional variables have been identified as potential risk factors [7], but the precise etiology remains elusive. Comprehensive evaluation of these factors is encouraged to guide future research [5], and clinicians' day-to-day experiences can provide valuable insights into how etiological factors manifest in practice.

Bruxism is particularly relevant in special dental care populations. Although research is limited, high prevalence rates have been reported in individuals with developmental disabilities (DD), including 42% in children with Down syndrome [8] and 69.4% in children with cerebral palsy [9]. Assessing bruxism in these groups is challenging because self-report instruments are generally unvalidated, necessitating reliance on clinical observation or caregiver input [8-10]. Consequently, these populations are often overlooked in studies examining the design and refinement of bruxism assessment tools [11].

The STAB, a recently published instrument, is structured around two main axes: Axis A, which evaluates bruxism through subject-based, clinically-based, and instrumentally-based domains, and Axis B, which focuses on risk and etiological factors, including psychosocial influences, concurrent conditions, substance use, and other relevant variables [5]. In addition, the brief BruxScreen was introduced to facilitate screening in general dental practice and epidemiological studies, though its validation is ongoing [12]. This study aimed to support the ongoing development of the STAB by incorporating insights from routine clinical practice, investigating the experiences and attitudes of general dentists as well as specialists in Orofacial Pain and Dysfunction (OPD) and Disability Care (DC) regarding bruxism assessment and etiology, and examining how these align with the STAB axes and domains.

Material and Methods

Study design

A qualitative approach was employed for this study, using semi-structured interviews to explore the research objectives. Semi-structured interviews are particularly suited for gathering comprehensive information on personal experiences and perspectives in healthcare settings [13]. In this format, the interviewer guides the discussion with open-ended questions, allowing participants to elaborate freely while also introducing topics not anticipated by the research team [13]. This approach enables the collection of rich, nuanced insights into clinicians' knowledge, opinions, and attitudes.

Participant selection

Purposive sampling was used to recruit participants, selecting interviewees according to predefined criteria relevant to the study aims [14]. Since the study sought to inform the refinement of the STAB in both general and specialized dental practices [5], participants included general dental practitioners as well as specialists in areas where bruxism is commonly encountered, namely Orofacial Pain and Dysfunction (OPD) and Disability Care (DC). Inclusion criteria specified that general dentists must have at least two years of clinical experience, while specialized dentists were required to hold certificates recognized by the relevant Dutch professional associations—namely, the Dutch Association for Orofacial Pain and Prosthetic Dentistry (NVGPT) for OPD specialists, and the Association for the Promotion of Dental Healthcare for People with Disabilities (VMBZ) for DC specialists. The two-year experience threshold ensured that participants possessed sufficient practical knowledge in their respective fields. Personal or professional relationships between the authors and participants were not exclusionary, but interviews were conducted in a manner that avoided assigning interviewers to individuals with whom they had any prior affiliation.

Participants were recruited via multiple channels. An announcement was posted on the LinkedIn page of the Department of OPD at the Academic Centre for Dentistry Amsterdam (ACTA). General dentists were additionally contacted through the personal networks of OPD department staff, while specialized dentists were approached through the authors' networks and the professional associations (NVGPT and VMBZ) after obtaining written permission. Recruitment and interviews occurred between June and September 2020. Ethical approval for the study was granted by the ACTA Ethics Committee (approval No. 2020219).

Participant background information

Before each interview, participants completed an online questionnaire via Qualtrics (https://www.qualtrics.com), providing details on gender, total years of dental practice, years as a

specialist, and any postgraduate education in bruxism undertaken within the past five years.

Interview method and data analysis

The interviews were conducted by two authors: AF, who carried out 7 interviews, and MT, who conducted 4. MT is both a dentist and a researcher with expertise in orofacial pain, oral movement disorders, tooth wear, and dental sleep medicine, and also has prior experience in qualitative research. AF is a sixth-year dental student without previous experience in qualitative methods. Prior to the first interview, an interview topic guide was developed based on the study's objectives, relevant literature, the expertise of MT and FL, and insights gained from pilot interviews. This guide functioned as a memory aid during the interviews [14] and comprised four domains: assessment, etiology, consequences, and treatment of bruxism. The domains of consequences and treatment were included for purposes beyond the current study and will be addressed in separate publications.

Six pilot interviews were conducted to refine the process. The first two involved MT and AF together, serving as training for AF, while the remaining four were conducted between AF and practicing dentists from the authors' professional networks, both to further train AF and to optimize the topic guide. These six pilot participants were excluded from the final study sample. Interview settings were chosen by the participants and could take place in person or via Skype video call (Microsoft Corporation, Redmond, USA), with each session scheduled for up to 30 minutes. All interviews were audio-recorded and later transcribed verbatim by AF, with identifying information removed to ensure confidentiality. MT reviewed all transcripts. Transcripts were not returned to participants for verification, nor were any interviews repeated.

Data were analyzed using thematic analysis, carried out by AF and MT shortly after each interview. This process involved multiple steps aimed at identifying subthemes under the predefined main themes of assessment and etiology of bruxism [15]. Initially, transcripts were reviewed line by line to identify and code preliminary themes. Related initial themes were grouped into subthemes, and a thematic chart was created: main themes were placed in the top row, with subthemes in individual columns containing all relevant text excerpts. Each column was then summarized, first by subtheme and subsequently under the main theme [14].

ATLAS.ti (Scientific Software Development GmbH, Berlin, Germany) and Microsoft Excel (Microsoft Corporation) were used for data organization and synthesis. Both researchers independently coded and analyzed the data, resolving any discrepancies through discussion. Interviews continued until thematic saturation was achieved—meaning no new or supplementary information emerged—which was confirmed through two additional interviews [14]. Finally, the identified main themes and subthemes were compared to the corresponding STAB axes and domains to examine alignment.

Results

Interviewees

Out of 12 registered participants, 11 dentists completed the study; one participant was unable to join for unspecified reasons. Among the 11 participants, seven were specialized dentists and four were general practitioners. Detailed background information for all interviewees is provided in **Table 1**.

Table 1. Profile of Interview Participants

Characteristic	Details
Total Participants, N	11
General Dentists/Specialized Dentists, n*	4/7
Gender (Male/Female), n	0/11
Years Practicing Dentistry	Mean: 22 years (Range: 6–38 years)
Years as a Specialized Dentist	Mean: 10 years (Range: 7–13 years)
Attended a Bruxism Lecture in the Past 5 Years, n	7
Attended a Bruxism Congress in the Past 5 Years, n	4
Attended a Bruxism Course in the Past 5 Years, n	1
Read Professional Literature on Bruxism in the Past 5 Years, n	9

*Specializations: Orofacial Pain and Dysfunction (OPD) (n = 4), Disability Care (DC) (n = 3)

Thematic analysis

The analysis of interview data identified six distinct subthemes, with three relating to the overarching theme of bruxism assessment **(Table 2)** and three associated with bruxism etiology **(Table 3)**. The left-hand columns of the tables summarize each subtheme and its specific items. The tables also illustrate how the insights gathered from the interviews correspond to the relevant STAB items, while the right-hand columns display the associated STAB axes and domains for easier comparison.

Table 2. Thematic Analysis of Interview Data Compared with Axis A of the Standardized Tool for the Assessment of Bruxism (STAB) (Bruxism Status and Consequences Assessment) [5]

Interview Themes	Description	STAB Axis A Categories	STAB Axis A Domains
Anamnesis	Content of self-reports includes: - Complaints such as headaches, muscle cramps upon waking, orofacial pain, grinding noises, or awareness of tooth wear - Caregivers reporting grinding sounds in individuals with developmental disabilities - Bed partners noting grinding sounds	Subject-Based Assessment (SBA)	A1 (Sleep Bruxism Report) A2 (Awake Bruxism Report) A3 (Patient's Complaints)
	Challenges in self-reporting: - Not a one-time process; patients may gradually recognize bruxism - Limited reporting ability in individuals with communication impairments - Questionable reliability of self-reports		–
	Dental history: - Documented bruxism-related complaints in health records - Past use of dental splints		A1 (Sleep Bruxism Report) A2 (Awake Bruxism Report)
Clinical Evaluation	A. Extraoral findings: - Enlarged masseter muscle - Prominent jaw/jaw angles - Sounds in the temporomandibular joint	Clinically Based Assessment (CBA)	A4 (Joints and Muscles)
	B. Intraoral findings: - Tooth wear: wear facets, chipping, cervical lesions, tooth or restoration fractures - Bruxopositions: precise fitting of opposing teeth - Wear on splints or removable dentures - Soft tissue signs: linea alba in cheeks, scalloped tongue, red spots on palate - Unilateral endodontic treatment		A5 (Intraoral and Extraoral Tissues) A6 (Teeth and Restorations)
	C. Pain: - No pain reported - Dental pain - Orofacial/TMD pain unrelated to teeth - Challenges in pain reporting for patients with disabilities		A4 (Joints and Muscles)
	D. Other observations: - Clinician's intuitive assessment - Decision to pursue further diagnostics when no complaints or clinical findings are present, avoiding unnecessary treatment		–
Additional Diagnostic Tools	Imaging: - Panoramic radiograph to assess mandibular condyle changes	Instrumentally Based Assessment (IBA)	–
	–		A7 (Sleep Bruxism) A8 (Awake Bruxism) A9 (Additional Instruments)

Notes: TMD – temporomandibular disorders

Table 3. Thematic analysis of interviews for the etiology theme, and the comparison of interview results with Axis B of the STAB (Risk and Etiological Factors and Comorbid Conditions) [5]

Study interviews		STAB Axis B
subthemes	**description**	
Psychosocial and behavioral factors	Psychosocial factors: – psychological stress – significant life changes or events – worsening of spasticity in individuals with cerebral palsy – limited recognition or understanding of stress	B1 (Psychosocial Assessment)
	Processing or seeking stimuli in severe developmental disabilities: – Environmental overstimulation: In individuals who cannot communicate, bruxism may occur as a way to release tension caused by excessive external stimuli that cannot be otherwise expressed.	–

	– Environmental understimulation: Individuals may engage in oral behaviors to generate sensory input they can control, compensating for a lack of environmental stimulation.	
	Habits: – Awake bruxism represents a learned behavior, particularly common among individuals with developmental disabilities.	
	Concentration: – Bruxism that emerges during periods of focused attention, often without being immediately noticeable.	
Physical and dental factors	Age: – In children, bruxism may be associated with growth. – Age-related stress: bruxism is most common during the adult working years.	
	Neurological disorders: – Individuals with cerebral palsy and spasticity often exhibit pronounced bruxism. – The connection between neurological disorders and bruxism is still unclear.	B3 (Concurrent Non-Sleep Conditions Assessment)
	Medication: – Use of antidepressants – Use of antipsychotics – Multiple concurrent medications (polypharmacy) – It remains unclear if bruxism is directly linked to medication use	B4 (Prescribed Medications and Use of Substances Assessment)
	Substance use: – Consumption of caffeine – Tobacco use – Use of drugs, especially ecstasy, and a history of drug addictio	
	Syndromes: – Down syndrome – Sanfilippo syndrome – Rett syndrome – Other related syndromes	–
	Anatomical/occlusal factors: – Generally not a contributing factor – Less significant than psychosocial influences – Iatrogenic causes, such as dental restorations with excessively high occlusal contacts	
	–	B5 (Additional Factors Assessment)
Assessment of comorbidities	Differential diagnosis of other oral parafunctions: – biting on objects – tongue pressing	–
	Sleep bruxism comorbidities: – Gastroesophageal reflux – Snoring and obstructive sleep apnea – Daytime sleepiness	B2 (Concurrent Sleep-Related Conditions Assessment)

Assessment

The assessment theme was broken down into three distinct areas: anamnesis, clinical evaluation, and additional diagnostic procedures **(Table 2)**.

Anamnesis

In the anamnesis category, participants discussed issues related to self-reported information, difficulties during the anamnesis process, and previous dental history recorded in patient files **(Table 2)**. These topics largely corresponded to Axis A of the STAB (Subject-Based Assessment, SBA). However, several insights were not captured by the STAB. Some interviewees noted that recognizing one's own bruxism often develops gradually, particularly after a dentist highlights the behavior. For patients with communication difficulties, self-reporting might rely entirely on caregivers' observations. Others referred to historical patient data, such as prior oral appliance use.

Interestingly, interviewees did not mention questionnaires as a tool for reporting bruxism, although these are highlighted in the STAB.

Clinical evaluation

Topics from the clinical examination were grouped into extraoral signs, intraoral signs, pain, and miscellaneous observations, showing strong overlap with Axis A of the STAB (Clinically Based Assessment, CBA). Nonetheless, two additional aspects emerged: first, some clinicians reported partially depending on their intuition during bruxism evaluation, and second, opinions varied on whether further diagnostic procedures were necessary when patients presented no complaints in their history.

Additional diagnostics

This area focused on imaging techniques, particularly panoramic radiographs, to detect possible condylar changes that could suggest bruxism—an aspect not addressed by the STAB. Furthermore, the instrumental assessments recommended by the STAB for sleep bruxism, awake bruxism, and other devices were not mentioned by the study participants, highlighting a discrepancy between STAB guidelines and real-world practice.

Etiology

The etiology theme was divided into three categories: psychosocial and behavioral factors, physical and dental influences, and comorbidity assessment **(Table 3)**.

Psychosocial and behavioral factors

Interviewees widely acknowledged stress as a contributing factor for bruxism, aligning with Axis B of the STAB (Psychosocial Assessment). Additional factors emerged, such as over- or understimulation in the environment, which may provoke bruxism in individuals with severe developmental disabilities. Participants also observed that bruxism could develop as a learned habit or occur during periods of concentration. While the STAB allows for consideration of multiple psychological contributors, these examples illustrate how practical experiences provide additional nuance beyond the STAB framework.

Physical and dental factors

Interviewees' observations regarding physical influences largely corresponded with the STAB's Axis B, which addresses concurrent non-sleep conditions, prescribed medications, and substance use. Nevertheless, some differences were noted: certain syndromes, including Down syndrome and Rett syndrome, were specifically mentioned in the interviews but are not included in the STAB. Conversely, while neurological disorders are explicitly listed in the STAB, some participants expressed uncertainty about their relevance to bruxism. Endocrine disorders and several items under the STAB's Additional Factors Assessment were not raised at all by interviewees. Dental-related contributors, such as occlusal contacts that are iatrogenically elevated, were highlighted in the interviews but are absent from the STAB framework **(Table 3)**.

Comorbidity assessment

Interviewees emphasized the need to differentiate bruxism from other parafunctional oral activities that may produce similar effects on the masticatory system, including behaviors like biting objects or pressing the tongue—topics not specifically addressed in the STAB. At the same time, sleep bruxism comorbidities discussed in the interviews aligned closely with Axis B of the STAB (Concurrent Sleep-Related Conditions Assessment) **(Table 3)**.

Discussion

This qualitative investigation aimed to provide practical insights for refining the STAB, based on the real-world experiences of general dentists and specialists in orofacial pain disorders (OPD) and dental care (DC). The study explored how these clinicians approach the assessment and understand the etiology of both sleep and awake bruxism, while examining the degree of overlap with STAB's axes. Overall, the interview findings showed considerable alignment with the STAB, though additional nuances emerged from daily practice. The following section outlines recommendations for each axis.

Axis A: Evaluating bruxism and its consequences

Anamnesis

Participants reported that patients often gain awareness of their bruxism progressively, frequently after their dentist discusses the behavior. Although empirical evidence for this is limited, Kaplan and Ohrbach found that self-reports of oral parafunctional behaviors, collected via the Oral Behaviors Checklist (OBC), were highly consistent over a seven-day period using Ecological Momentary Assessment (EMA), with participants prompted eight times daily [16]. However, sleep bruxism self-reports may be affected by bias, particularly among patients experiencing painful

temporomandibular disorders (TMD) [17] or non-painful jaw-muscle symptoms [18]. Long-term data tracking changes in self-reported bruxism over repeated assessments are scarce. Based on these findings, it is recommended that the STAB incorporate repeated, periodic assessments of awake and sleep bruxism, for instance during routine dental visits, using neutral questioning to reduce reporting bias [17, 18]. Assessment tools such as the BRUX scale [19] and the OBC [20] may be particularly useful for this purpose.

The present study emphasized the need for proxy reports for individuals unable to self-report their bruxism due to certain disabilities. Participants noted that caregivers can report both audible and visible sleep and awake bruxism, and that dentists may occasionally observe these behaviors during appointments. However, no standardized instrument currently exists to assess bruxism through direct observation or proxy reporting. Future research should aim to develop such a tool, potentially following models from other fields, such as behavioral pain assessment [21, 22]. In the meantime, the developers of the STAB [5] and BruxScreen [12] are encouraged to include a proxy-report component. Observing bruxism in a clinical setting also has implications for diagnostic grading, as a definite awake bruxism diagnosis could potentially be established based on direct observation alone, independent of instrumental assessments [23].

Concerning the anamnestic assessment of bruxism, this study found that questionnaires were rarely used in clinical practice. Although some dentists may employ them, they appear to provide only a minor source of information. Diagnostic questionnaires are more commonly used in some tertiary care settings [24], but their benefit in general dental practice is uncertain. Based on these findings, future STAB versions should include clear instructions on implementing interviews and/or questionnaires in clinical practice. The OBC [20], recommended by the DC/TMD [25] for assessing sleep and awake bruxism, is freely accessible via the INfORM website [26] and fully incorporated in the STAB. The recently developed BruxScreen [12] uses the BRUX scale from the Oral Parafunctions Scale [19] to assess self-perceived clenching and grinding during wakefulness and sleep, with two additional modified questions evaluating light tooth contact and firm mandible bracing while awake. Pilot testing among dentists and patients in Helsinki, Finland, and Sienna, Italy, demonstrated its comprehensiveness, feasibility, and validity [12]. Therefore, the BruxScreen is a promising tool for routine dental care and large-scale epidemiological studies, provided further validation is completed, and developers recommend performing these validation studies across populations with varying abilities to ensure inclusivity.

Clinical examination

The Results indicated notable overlap between topics raised by interviewees and those captured under Axis A of the STAB (CBA). Assessing bruxism through intraoral and extraoral clinical indicators has also been described in other practice-based research [3, 4]. Recently, the BruxScreen introduced a short, standardized tool to evaluate extra- and intraoral signs potentially linked to bruxism [12]. Building on this and the present findings, the study suggests directions for creating a more comprehensive instrument capable of capturing the full range of clinical signs associated with both sleep and awake bruxism in future versions of the STAB.

Additional diagnostics

The interviews revealed some inconsistencies between the additional diagnostic methods reported by participants and those outlined in Axis A of the STAB (IBA). Specifically, radiographic evaluation of the condylar bone was mentioned by participants but is currently not incorporated in the STAB. Evidence supporting condylar bone features as reliable indicators of bruxism is extremely limited [27, 28, 29]. Other radiographic markers have only been minimally explored; for example, Tassoker reported no connection between sleep bruxism and pulpal calcifications in young women [30], while Türp *et al.* observed increased mandibular angle bone apposition in adult bruxers compared to adolescent controls [31]. Therefore, radiographic findings cannot yet be recommended for inclusion in the STAB, highlighting the need for further research.

None of the participants reported using instrumental approaches such as ecological momentary assessment (EMA), electromyography (EMG), or polysomnography (PSG). EMA, also referred to as experience sampling method (ESM), has been applied in research contexts [32], and recent smartphone applications allow wider, low-intensity implementation [33], though awareness of these tools may be limited in general dental practice. EMG has been employed to monitor awake bruxism [34], and a variety of ambulatory EMG devices exist for sleep bruxism [35], yet these remain largely inaccessible or impractical for routine care in the Netherlands, where this study took place. Additionally, there is a lack of consensus on optimal methods for measuring masseter muscle activity (MMA) using EMA or ambulatory EMG [5, 35]. Future research should address these gaps while considering the availability and

accessibility of these technologies for individuals with disabilities.

Axis B: Risk, etiology, and comorbidities

Psychosocial and behavioral factors

Participants highlighted psychological stress as a factor linked to bruxism but also noted that behaviors such as stimulus processing, habit formation, and sustained concentration could contribute. The STAB aims to cover the broad spectrum of psychological and social factors potentially influencing bruxism [5]. Determining which of these factors have a direct association with bruxism falls outside the scope of the present study; instead, the findings suggest ways to incorporate the perspectives of clinicians into future iterations of the STAB.

During the interviews, clinicians reported that patients often linked their bruxism to stress, particularly stress arising from everyday life and life events. The interviewers did not further explore or define "stress," which represents a limitation of this study. In the scientific literature, psychological stress is described as a condition that occurs when environmental demands challenge or exceed an individual's perceived ability to cope [36]. Stress can manifest through a range of negative emotional states, including anxiety, depression, distress, and reduced well-being [36]. Translating this knowledge into clinical practice requires the use of standardized tools and questionnaires to assess these emotional states. Examples include the Generalized Anxiety Disorder-7 (GAD-7) [37] for anxiety and the Patient Health Questionnaire-9 (PHQ-9) [38] for depression; both are already used within the DC/TMD framework. Incorporating these tools into the STAB—PHQ-9 is already included in the STAB Toolkit—could enhance consistency in measurements across patients assessed for TMD and bruxism. However, the use of the shorter PHQ-4 for anxiety and depression, currently part of the STAB, may reduce this measurement consistency. For patients unable to complete questionnaires due to certain disabilities [39], it is important to include suitable alternatives in the STAB, such as the Disability Distress Assessment Tool (DisDAT) [40].

Additionally, clinical observations suggest bruxism may be related to concentration and, in individuals with developmental disabilities (DD), to overstimulation or the active seeking of stimuli, though these associations require further study. Evidence linking concentration and bruxism is very limited; for example, Major *et al.* reported that sleep bruxers did not demonstrate higher mental or physical alertness compared to controls [41]. Conversely, other masticatory activities, such as chewing, have been shown to support attention [42]. Based on current findings, no specific recommendation can be made regarding the inclusion of concentration as a factor in the STAB.

Regarding sensory processing, there is no direct evidence linking it to bruxism, though research exists on its relationship with oral function. Little *et al.* identified distinct patterns of sensory processing—such as avoidance or seeking of environmental stimuli—in children with autism spectrum disorder (ASD) and attention deficit hyperactivity disorder (ADHD) compared to typically developing children (TD) [43]. This study also examined processing differences across sensory modalities, including auditory, visual, and tactile, finding notable differences in oral sensory processing in children with ASD and ADHD [43], which may be related to feeding difficulties [43, 44], though any connection to sleep or awake bruxism is unknown. Kirby *et al.* studied sensory interests, repetitions, and seeking (SIRS) behaviors, observing that children with ASD engaged more in SIRS behaviors than children with other DD or TD [45]. However, no significant differences were found between groups regarding oral SIRS behaviors, such as mouthing or biting objects [45].

Based on these results and existing literature, no concrete recommendation can be made about incorporating sensory processing into the STAB. Nonetheless, further research is encouraged to explore whether bruxism may occur as a response to environmental stimuli, considering individual differences in sensory processing. Insights from such studies could help clarify the etiology of bruxism and inform future revisions of the STAB.

Physical and dental factors

The findings revealed considerable alignment between the physical factors noted by participants and those captured under Axis B of the STAB, including the assessments of concurrent non-sleep conditions and prescribed medications/substance use. Certain syndromes, such as Down syndrome and Rett syndrome, were mentioned by interviewees but are not currently addressed in the STAB. Although bruxism appears to be highly prevalent in these populations [8, 46, 47], little is known about its underlying causes, consequences, or management. To support clinical practice and research in individuals with developmental or neurodevelopmental conditions, incorporating these syndromes into the STAB is recommended.

With regard to dental influences, the study identified iatrogenic high occlusal contacts as a potential factor

contributing to bruxism. Nonetheless, current evidence does not support a causal link between occlusal characteristics and bruxism [6], and their inclusion in the STAB is therefore not advised.

Comorbidities assessment

Interviewees emphasized the importance of distinguishing bruxism from other oral parafunctional behaviors. A previous practice-based investigation found that fewer than half of clinicians (39.1%) considered other oral parafunctions when evaluating patients with suspected bruxism [3]. The STAB addresses the assessment of concurrent non-sleep conditions that may increase masseter muscle activity [5]. Since oral parafunctions can exert stress on the masticatory system similar to bruxism and potentially lead to outcomes such as temporomandibular disorder (TMD) pain [24], including them in differential diagnoses is recommended. The STAB currently incorporates the OBC to support this assessment [20]. Participants also reported comorbid conditions associated with sleep bruxism—including reflux, snoring, obstructive sleep apnea, and daytime sleepiness—which are reflected in Axis B of the STAB (Concurrent Sleep-Related Conditions Assessment) [5] and are consistent with prior findings from clinical practice [3].

Conclusions

Overall, the study demonstrated substantial agreement between general dentists and specialists in orofacial pain and dental care regarding both the diagnosis and etiology of sleep and awake bruxism and the structure of the STAB axes. This suggests that the STAB effectively captures factors considered relevant by practicing clinicians. However, gaps remain, particularly the lack of tools suitable for routine dental care settings. Based on insights from the interviews with 11 dentists, the following recommendations are proposed to enhance the STAB:

1. Integrate assessment tools suitable for patients across the full spectrum of abilities.
2. Allow repeated evaluation of self-reported awake and sleep bruxism using concise and neutral questions at set intervals.
3. Standardize assessment methods for bruxism observed directly or reported via proxies.
4. Provide clear instructions for conducting self-report interviews and questionnaires in clinical practice.
5. Develop a comprehensive tool to assess clinical signs of bruxism.
6. Offer guidance for using instrumental approaches in bruxism evaluation, particularly regarding masseter muscle activity scoring.
7. Include developmental and neurodevelopmental conditions in the assessment of concurrent non-sleep factors.

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