



Research Article

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Does the Pediatric Dentistry Know About Sensory Processing Disorder? An Integrative Review

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Abstract

Background: Sensory processing disorder (SPD) is a limitation or difficulty in the interpretation of sensory information with reflection in the daily activities of an individual. Its clinical manifestations are represented by decreased social interaction, crying, sleep and changes in eating habits. Dental settings and clinical interventions, particularly in children, may contribute to triggering or exacerbating SPD.

Methods and Results: An integrative review (IR) was performed to evaluate the knowledge of pediatric dentistry about SPD.

Conclusion: It was possible to infer that pediatric dentistry has little knowledge on the subject and that studies and literature reviews with strong scientific evidence should be conducted to encourage the use of SPD in pediatric dentistry.

Keywords: Pediatric dentistry; Autistic disorder; Sensation disorders; Review

Introduction

Sensory processing is a function that organizes and modulates the information captured by the senses, giving the individual the ability to perform executive functions. In this context, sensory sensitivity regulates and manages its own responses to different types of sensory stimuli, such as visual, auditory, tactile, olfactory and proprioceptive stimuli [1].

Sensory processing disorder (SPD) refers to a limitation or difficulty in the interpretation and/or use of sensory information to regulate physiological, motor, affective and attention responses, with a negative impact on the individual's daily activities [2].

The clinical manifestations of SPD are predominantly represented by crying and changes in eating and sleeping habits. Particularly in children, there is a remarkable decrease in social interaction, low self-esteem and low self-confidence, which may persist into adulthood [3].

Associating sensory sensitivity, SPD and its clinical manifestations with pediatric dentistry practice, it is reasonable to assume that the office environment may trigger SPD child, given that the presence of equipment unfamiliar to the child, excessive light, unusual odors, medications and the physical contact of the professional [4].

In addition, dentists have little knowledge of the sensory changes in children and how these changes produce resistance to pediatric dental procedures, resulting in unresponsive or disruptive behavior [5]. Although there is evidence of sensory processing changes caused during dental procedures and understanding this topic is essential for appropriate clinical management, relatively few studies have been conducted.

Thus, the primary objective of the present study was to evaluate, discuss and summarize the level of knowledge of pediatric dentists about SPD and its impact on clinical interventions.

Methods

This integrative literature review was based on the following guiding question: "Is pediatric dentistry aware of sensory processing disorder?"

To answer the question, the following phases were observed: definition of the guiding question, search for relevant and related studies, selection of articles based on the inclusion criteria, preparation and analysis of data. The IR presentation was designed with respect to the required parameters and quality indicators [6].

The databases used were the US National Library of Medicine (PubMed), Scientific Electronic Library Online (SciELO), Latin American and Caribbean Health Sciences Literature (LILACS),

Medical Literature Analysis and Retrieval System Online (MEDLINE) and the Portal of Periodicals of the Coordination for the Improvement of Higher Education Personnel (CAPES).

The descriptors "pediatric dentistry", "autistic spectrum", and "sensoriality" were used, associating them with the Boolean operators OR and AND, with the aim of involving as many publications as possible. We included full articles in English and Portuguese that directly addressed the guiding question. Articles that did not correspond to the guiding question and those whose methodological designs were opinion articles, letters, editorials, theses, dissertations and guidelines were excluded. The time frame for publication was begun in 2013, which was the likely period of the first articles that addressed sensory processing disorder and its consequences for the individual. Data extraction and analysis were performed by the principal investigator. Any questions were resolved by consensus among the study coauthors.

Results

The search of the databases identified 11 potentially eligible articles. The reading of titles included 9 articles, and two were excluded. Based on the reading of abstracts, two other articles were excluded. Two of the remaining 7 were excluded because they did not address the guiding question. Thus, 5 articles were selected for analysis (Figure 1) (Table 1).

Table 1: Articles identified for final composition, according to Roriz CFF/2023.

Author/year	Purpose	Study type	Conclusion	Periodical	Country
Nelson TM, et al. (2015).	To analyze the knowledge and clinical practices of dentists targeting children diagnosed with ASD/SPD	Narrative review	Contemporary educational and behavioral approaches facilitate dental interventions in patients with ASD/SPD	Special Care in Dentistry	USA
Bartolomé-Villar B, et al. (2016).	To compare the oral conditions of children with ASD and sensory deficits compared to healthy children	Systematic review	Children with ASD and sensory deficits are more susceptible to traumatic dental injuries and worse rates of oral hygiene compared to healthy populations.	Journal of Clinical and Experimental Dentistry	Spain
Khrautiao T, et al. (2020).	To evaluate the degree of cooperation in oral hygiene, at home and in dental offices, among children with ASD/SPD and children with ASD and without SPD	Cross-sectional study	Children with ASD/SPD showed a lower degree of cooperation in oral hygiene, both at home and in dental offices	International Journal of Pediatric Dentistry	Thailand
Santosh A, et al. (2021).	To evaluate the oral health status of institutionalized children with ASD/SPD	Cross-sectional study	Children with ASD/SPD have a high rate of caries, and given the nature of the neurological deficit, preventive care is recommended for these children and guidance for their caregivers	International Journal of Clinical Pediatric Dentistry	India
Meharwade P, et al. (2021).	To evaluate the use of the image exchange communication system (PECS) as a tool in the oral hygiene practice of children with ASD/SPD	Scoop review	The PECS system facilitates the communication of children with ASD, reducing sensory hypersensitivity and lack of attention deficit. It emphasizes the use of the PECS system in dentistry with a view to improving oral hygiene practices.	Journal of Oral Biology and Craniofacial Research	India

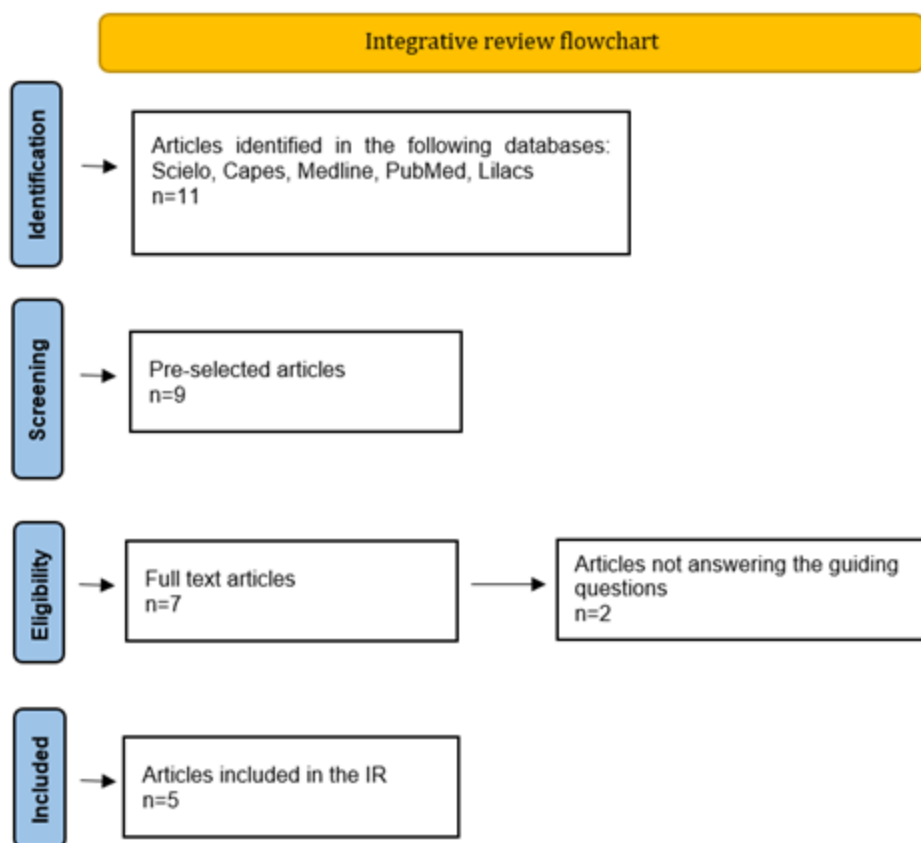


Figure 1: Flowchart of the identification and selection of articles.

Discussion

The present IR clearly shows that to date, only five articles directly link PSD and clinical practices to pediatric dentistry [1, 7-10]. Nevertheless, all articles specifically discuss autism spectrum disorder (ASD), although some studies associate SPD with other diagnoses, such as attention deficit hyperactivity disorder (ADHD), Down syndrome and anxiety [11-15].

Thus, an objective and clear answer to the guiding question of the research is not possible. In any case, a careful reading of the selected articles [1, 7-10] allows for an inference that SPD is not a subject of extensive knowledge or research in the field of pediatric dentistry.

Nevertheless, from the perspective of SPD related to pediatric dentistry, there is a lack of multiple and independent studies with methodological designs inserted in the criteria of levels of scientific evidence, revealing a relevant limitation of the present study.

Nevertheless, in the analysis of the mapped and selected studies, there is a concern about the challenges faced by pediatric dentists in relation to SPD, as well as strategies that can minimize its adverse effects [1, 7-10].

It is unquestionable that SPD exacerbates the degree of stress and the level of anxiety of children diagnosed with ASD; the sensory particularities of these children limit their adaptability to hospital and dental environments [16, 17]. Thus, SPD acts as a limiting factor for health professionals and especially for those unaware of these concepts [4].

The development of strategies to create a sensorially adapted dental environment with the help of occupational therapy is essential to overcome these difficulties [18, 19].

In the arsenal of possible strategies, the use of the image exchange communication system (PECS) has been a possibility and strongly recommended in sociocommunicative training for children with ASD [20]. Additionally, a closer relationship between parents/caregivers and the dental team would enable the family to become promoters of the health of their children [20].

It is important to recognize that dentists require training and prior knowledge to implement adaptations and strategies in their daily practice to address the treatment needs of this group of children [1, 9]. The articles selected in this review did not present a standardized methodology or SPD evaluation tools, which limited an impartial answer to the guiding question. However, this study is

relevant due to its probable originality. This is a pioneer study in associating DPT with the knowledge of health professionals in the field of dentistry.

Future studies should be encouraged to help reduce the limitations of the pediatric dentistry approach to children with SPD.

Conclusion

The present study allows us to infer that pediatric dentists have little knowledge about SPT. Therefore, it is urgent to deepen the research and literature on this subject, especially studies conducted with strong levels of evidence that can support the effectiveness of pediatric dentistry actions against the demands of this population.

The permanent search for this knowledge will certainly contribute to clinical decision-making and intervention strategies, from the public and private perspectives, strengthening and creating health promotion skills for these children.

Acknowledgment

None.

Conflicts of Interest

The authors declare no conflicts of interest.

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