

BDJ Team CPD

CPD questions May 2023

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Article: Embracing neurodiversity-informed dentistry. Part two: Oral health considerations

1. Neurodiversity:

- A. refers to the fact that brains have one of two ways in which information is processed
- B. is short for neurological disability
- C. provides a protective factor against dental caries
- D. refers to the biological fact that brains are unique and have many different ways in how they process information and interact with environments

2. Executive functioning:

- A. relates to reduced dexterity
- B. is the management system of the brain
- C. is no different in neurominorities vs the general population (neurotypical)
- D. does not relate to the tasks of our daily lives

3. Sensory processing:

- A. differences may not be that apparent
- B. differences relate only to autism
- C. does not impact toothbrushing
- D. differences relate to those only in the neurominority population

4. Oral health literacy:

- A. is the same as functional literacy

FEATURE

Embracing neurodiversity-informed dentistry. Part two: Oral health considerations

By **Jasmine Murphy**¹, **Fiona Andrews**² and **Maria Morgan**³

Key points

- Neurodiversity refers to the infinite variation of brain functioning within the population.
- This is the second article aimed at all members of the dental team to consider oral health implications and neurodiversity.
- Embedding a neuro-inclusive culture within dentistry could support reductions in oral health inequalities.

Introduction

This series on neurodiversity-informed dentistry is intended for all members of the dental team, aiming to promote a more accessible and inclusive culture where neurodivergence is understood, accepted, and designated for the benefit of neurodiversity patients and staff. This second article introduces important considerations that may impact on the oral health status of neurodiversity patients. If you are joining this series for the first time, please visit article one for a general introduction to neurodiversity (<https://go.nature.com/3jgnd1d>).

Further articles in the series will cover reasonable adjustments which can be made for patients, the increased vulnerability to trauma, interoceptivity as well as considering the impact of the workplace and educational settings on neurodiversity staff and students. These articles also take direction from Braggman¹ to move away from person-first language (eg 'people with ADHD') and instead use identity-first language, such as 'ADHD people' as it has been reported there is a wider preference for this, it shows allegiance and pride in disability or neurodivergence culture.

Brief recap

Neurodiversity is short for neurological diversity. It refers to the biological fact that brains are unique and have many different ways in how they process information and interact with environments. The totality of oral health research suggests that there are higher levels of oral dental needs across multiple forms of neurodiversity.²

Although some neurominorities can find toothbrushing and flossing challenging due to reduced dexterity³ this article discusses how executive functioning, sensory processing, and oral health literacy may impact on oral health outcomes for neurominorities.

Executive functioning

"Difficulties in executive functions can increase the odds of developing dental caries in neurominorities, independent of socio-economic status."⁴

Executive functioning (EF) is a term used to describe the part of the brain that manages the skills we need to complete tasks in our daily lives.^{5,6} In short, EF is the management system of the brain. It involves three major types of brain functions (flexible thinking, working memory and self-control) which are responsible for a set of skills that are necessary for independence and self-sufficiency.^{7,8,9,10,11}

Executive Function

See Figure 1.

Most neurominorities tend to have distinct differences in EF compared to the neurotypical (general) population. Studies have demonstrated that when EF is affected, health-enhancing intentions can fail.^{12,13,14} It can also be more difficult to override impulses that engage with health-damaging behaviours.¹⁵

In the context of oral health, EF differences can therefore impact on making healthy lifestyle choices (this would include choices relating to tobacco, alcohol, substance use, diet), undertaking self-care (including oral hygiene) and managing dental appointments. A better performance of EF (symbolic of neurotypical functioning) has been reported as a protective factor against dental caries.¹⁶ It is therefore important to understand and recognise when an individual is struggling with EF (Fig. 1).

Sensory processing

"Some neurominorities can find toothbrushing difficult due to sensory processing difficulties."¹⁷

Sensory processing (SP) is a subconscious and automatic neurological process in receiving and responding to sensations. For the majority of people, most sensory input is filtered by the brain in order for selected information to reach their conscious awareness. For those with SP differences, the brain can find it challenging to filter input to the extent that it can be distracting and potentially confusing. Certain noises, lights, tastes, movements, positions, touch and/or smells can be experienced as painful or even be regarded as a threat. This, in turn can cause a person to become easily overwhelmed. In a dental setting, such patients could be handsily labelled as being non-compliant, uncooperative, or even challenging.

Individuals with SP differences fall into two main categories: hypersensitivity and hyposensitivity (Fig. 3).

Current estimates indicate that 5% to 16.5% of the general population have some issues associated with SP challenges.^{18,19} These estimates are disproportionately higher for neurominorities, particularly autistic²⁰ and ADHD people.²¹ In the context of oral health, such like EF, SP issues can also affect lifestyle choices, undertaking self-care (including oral hygiene), attending dental treatment or instructions. It is therefore important to understand and recognise when an individual is affected by SP differences.

SP differences for those who are hypersensitive may not be as apparent. For those with hyposensitivity, oral hygiene measures could lead to dental abrasion (by needing to use harder pressure when toothbrushing), or dietary preferences could cause dental erosion and/or dental caries (by the need for intense flavours which are highly acidic or sweet). These are examples and do not present an exhaustive list. Issues with SP hypersensitivity may be encountered in the home environment, where it could have a direct impact on how oral hygiene measures are undertaken. It is reportedly quite common for those with SP hypersensitivity to go for diet, weeks or even years without appropriate oral hygiene²² as they may struggle with the sensation of toothbrushing and/or flossing, the taste, smell and/or texture of toothpaste as well as sounds/noises that toothbrushing makes. Dietary choices may also be affected to some may have very limited dietary preferences due to olfactory (relating to smell) and gustatory (relating to taste and texture) differences. The dental environment can also cause sensory overload. This increases stress and anxiety and serves to create barriers for communication and engagement with the dental team. As a result, some neurominorities can become isolated and choose not to access dental care because they find the dental environment too challenging.^{23,24,25} Some examples are below.

Visual sensations that could be challenging at a dental practice:

1. Bold reception and waiting room
2. Sudden movements of people or hand gestures

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FEATURE

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The authors have nothing to disclose.

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Additional information

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