

Are the Autistic People at the COVID-19 Risk Group? An Applied Plausibility to Dental Health

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Dear Editor,

Sars-CoV-2, the virus that causes COVID-19, the agent responsible for the 2020 pandemic, can develop severe clinical conditions, increasing the risk of death in the elderly and in people with comorbidities, such as: diabetes, immunosuppressive diseases, hypertension, and some others. This is justified by the low organic resistance to the inflammatory process developed by COVID-19, especially when it triggers a “cytokine storm”, which specially compromises the lungs, heart, kidneys and even increasing the risks of thrombosis and secondary infections by fungus and bacteria. However, the risk of autistic people will be justified under behavioral and biological aspects.¹⁻⁴

As well as in other viral infections, the higher the host's viral load is, the greater the risk of developing a more serious disease, considering that Sars-CoV-2 enters in cells carried by type 2 cytoplasmic receptors, the angiotensin converters (ACE- 2), abundantly found in the epithelial cells of the oral and nasal mucosa, and also considering that there is evidence that people within the autism spectrum have a greater number of these receptors,⁵ it is suggested that there is biological plausibility for autistic individuals, when contracting Sars-CoV-2, to be at a higher risk of developing the severe form of COVID-19.⁶

It is important to highlight that most people within the autism spectrum need help to develop their daily activities,⁷ which makes the practice of social isolation more difficult, especially some components of the affected family. During the quarantine period, a lot of people had their own routines changed, but for autistic people, in addition to that, there was also a discontinuity in their face-to-face therapies, making them even more vulnerable to behavioral changes, because of that, some may become less cooperative with the guidelines given to them.^{8,9}

Considering that all changes that occur abruptly, and without any prior and structured preparation, may reduce tolerance levels, as sensitivity and anxiety increase, with an

exacerbation of anxiety, there will be also an increment of stress and serum cortisol levels, providing conditions for an immunosuppression, which combined with behavioral factors (stress), provides a reduction in concentration (focus) and, consequently, making them less cooperative to the requests made by their caregivers, for example, not practicing a good virus threat etiquette, including: not accepting to use masks, sneezing without covering the nose and touching their eyes, mouth and nose with contaminated hands.¹⁰⁻¹²

Out of a routine, sometimes performed for years, some people on the autism spectrum may be uncomfortable, and seek to stimulate themselves, for example by performing stereotyped movements, self-mutilation and loss of good habits that had been acquired,^{13,14} such as brushing their own teeth alone or calmly allow others to do it, in addition to possible changes in their eating habits, increasing the frequency of consumption of sugary foods to occupy the most idlest time, providing for some, a pleasant tranquility that was lost along with their old routine.^{10,15-17}

It is worth mentioning that in this context, which combines a reduction in the oral hygiene quality, an increase in sugar consumption and the need for social isolation, during the COVID-19 pandemic period, or while Sars-CoV-2 is circulating, the risk of infection by this virus, during dental care,¹⁸ will be greatly increased, both for preventive actions and for therapeutic interventions, consequently with less access to dentists, the altered routine will provide an increase of stress, and as a possible consequence, there may be an increase in the demand for sweet food, unconsciously seeking to increase the endorphins levels, generating a reassuring pleasure, however, with the risk of caries incidence, which can even be aggravated if there is little awareness of family members about the importance of taking care of oral hygiene, because less collaborative behavior is already expected for some people on the autism spectrum.^{15,19}

Therefore, the effects of the pandemic on some people on the autism spectrum may compromise gains obtained in face-to-face therapies, given that many of them needed to be put at hold.^{12,15} Already-established life routines were suddenly modified, providing the emergence of other compensatory behaviors, exposing them to psychic risks, such as new stereotypes, and physical ones, such as caries, gingivitis, and even the possibility of developing a serious form of COVID-19 if exposed to Sars-CoV-2, for example during dental care,¹⁸ considering the possibility of having a greater amount of ACE-2 in autistic people (Figure 1).

However, although there was already a hypothesis raised about the risk of the autistic people developing COVID-19 from the behavioral aspect,²⁰ the biological aspect of this risk hasn't been explored, just as we have difficulty in finding data in the literature about autistic people with COVID-19. Thus, we hope to have warned the scientific community to seek evidence to confirm or refute the hypothesis that autism fits the profile of people at risk of developing the severe form of COVID-19, with the additional fact that they don't always know how to inform their symptoms, increasing the risk of severity of COVID-19.

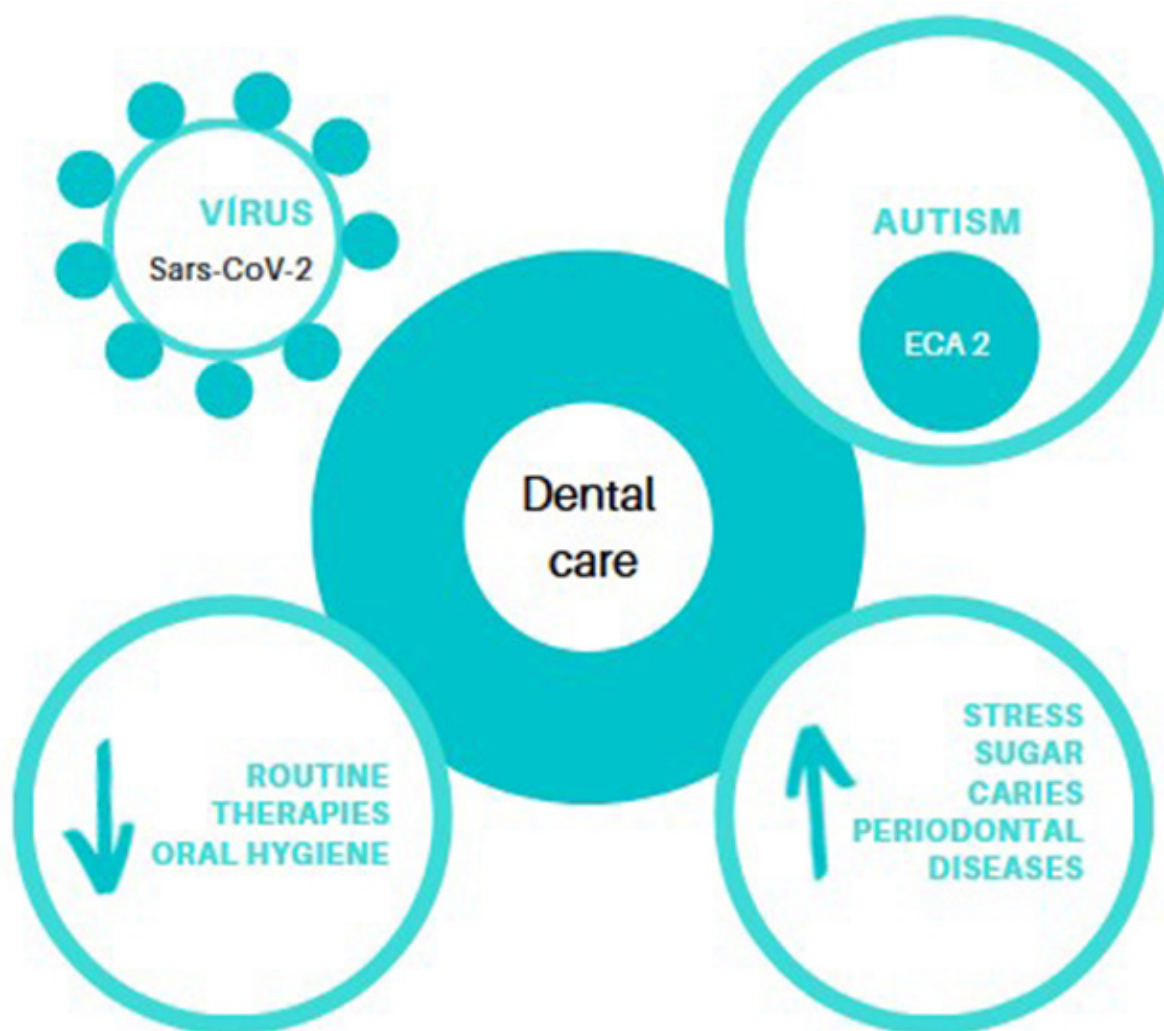


Figure 1. Risk factors for COVID-19 in autistic people. Abbreviations: ACE-2 (Angiotensin-converting enzyme 2)

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