Introduction

The role of human host microbiomes in neuropsychiatric diseases such as has been studied extensively in the literature, e.g. for reviews see [Goswami et al., 2021], [Hashimoto, 2023], and [Bonnechre et al., 2022]. Furthermore they have been implicated in a number of neuropsychiatric disorders, such as ADHD, in [Bull-Larsen and Mohajeri, 2019], in increasing severity of autism spectrum disorders, ASD, in children in [Tomova et al., 2015], in Alzheimer's Disease in the elderly, in [Yk and C, 2018] and [Escobar et al., 2022]

Of the different microbiomes in the human body, (e.g. gut, oral, skin, vaginal), the gut microbiome is the most extensively studied in relation to neuropsychiatric disorders, see [Sorboni et al., 2022]. It is not only the most studied but also the microbiome where modern machine learning techniques have been most frequently and fruitfully applied.

This leaves a research gap for other microbiomes of the human body. For instance [Goswami et al., 2021].

We propose therefore to take some of the tools, especially machine learning tools, used in gut microbiome analysis and apply them for the analysis of the oral microbiome. We propose this for three reasons:

1. The oral microbiome is yet under-studied with the tools applied to other micribiomes

2. An emerging argument exists for an oral microbiome-brain axis, OMBA, similar to the gut-brain axis, [Bowland and Weyrich, 2022]. The consensus seems to be that this field still needs to be studied.

3. A robust and mature dataset exists for the microbiomes, such as the Human Oral Microbiome Dataset

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