

# Salivary stress biomarkers to nose out the benefits of healthcare clowning to children with psychiatric disorders

Several studies have shown that healthcare clowning has a strong positive effect on pediatric patients in general, but there is limited research into its impact on those with psychological disorders. RED NOSES Clowndoctors Austria – an organization with decades of experience in healthcare clowning – is addressing this issue through a collaboration with the Department of Clinical and Health Psychology at the University of Vienna. A joint study is currently being conducted in several psychiatric in-patient wards across Austria, using salivary stress biomarkers to assess whether clown visits are really benefitting patients.



RED NOSES Clowndoctors is an Austrian organization – founded in 1994 – that specializes in healthcare clowning, bringing joy to those in need. The clowns are professional performance artists who undergo specialist training and visit in-patients in various healthcare settings – including pediatrics, palliative care and psychiatric wards, as well as care homes for the elderly. Simone Seebacher

from the Department of Research and Learning at RED NOSES, explained: “Initially, the RED NOSES were focusing on children’s wards but, over time, new target groups have been identified, including the elderly, people with disabilities, and refugees. Our visits are carefully planned, and we work closely with the healthcare staff to gather the necessary information regarding an individual patient’s condition. In the psychiatric wards, we visit the patients in their rooms but, in other hospitals, we also accompany the patients during

medical procedures. This requires a lot of understanding and acceptance of our work from the healthcare staff and a good partnership with the hospital in general.”

Dr Martina Zemp, Deputy Head at the Department of Clinical and Health Psychology at the University of Vienna, described the collaboration: “RED NOSES approached our department suggesting a study to evaluate the impact of clown visits on children and adolescents in a psychiatric setting, which is something that we found very interesting. There is a significant amount of evidence proving that healthcare clowning has a positive effect on stress, mood, anxiety and pain for non-psychiatric pediatric patients. However, there is not enough research that really quantifies its success in psychiatric care, and this information might be particularly relevant for the care of patients who experience symptoms associated with stress and mood disorders.”

Amos Friedrich, a PhD student at the Department of Clinical and Health Psychology, continued: “The study is being performed in different psychiatric facilities for child and



RED NOSES Clowndoctors has been bringing joy to hospital patients since 1994 (© NikoHavranek)

“Clown visits can help children feel in control of their situation; it empowers them since every child is smarter than a clown could ever be!”



adolescent in-patients in Austria, where clown visits have become a part of the clinical routine. We have implemented a non-controlled, repeated pre-post design, assessing the changes through self-reported data on stress and mood, as well as salivary cortisol values.<sup>1</sup> The data is being collected before and after the clown visits – which occur once a week – over the course of four consecutive weeks. The healthcare staff are also reporting on the effects of clown visits, for themselves as well as for their patients' wellbeing.”

Although the subjective observations from both patients and staff are, of course, of great value, the unique approach of this study is to couple these with clear biochemical values from salivary stress biomarkers analyzed by the University of Vienna's Biochemical Laboratory. Dr Urs Nater, Head of the Department of Clinical and Health Psychology and Co-director of the Biochemical Laboratory, added: “We are especially interested in alpha-amylase as an indirect marker of autonomic nervous system activity and cortisol as a marker of hypothalamic-pituitary-adrenal regulation, both of which are among the most often used salivary biomarkers. We are screening patients using Tecan's Cortisol Saliva ELISA, which we chose partly because we have used this assay in the past, and we will be able to

compare the results from this study with previous projects. A clear advantage of this assay is that it is calibrated using isotope dilution LC-MS as a reference method, which is considered to be the gold standard approach. The assay therefore yields reliable results, as demonstrated by low intra- and inter-assay CVs.”

Martina continued: “This study is important because, as far as we know, it is the first one to examine the stress-reducing and mood-improving effects of clown visits on in-patients in child and adolescent psychiatry. The results could be used to design even larger-scale trials and show whether healthcare clowning can help to reduce stress and improve mood in children and adolescents in psychiatric care.”

The study is currently in the final phase of the data collection, but there are already subjective indications that the healthcare clowning had a positive effect on the children and adolescents. Karoline Gans, a clown at RED NOSES, said: “When I go into the patient's room, I always look at the child's face, trying to assess the stress level and, as I leave, I turn around to see if there is any difference in the facial expression. I often see that the face has become more relaxed, there might be a smile, and sometimes I even get a ‘thank you

for bringing me joy’. I believe that clown visits can help the children feel in control of their situation; it empowers them since every child is smarter than a clown could ever be!”

- 1) Zemp, M *et al.* Effects of clown visits on stress and mood in children and adolescents in psychiatric care – Protocol for a pilot study. *PLoS One*, 2022, **17**(2), e0264012.

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