

# **Post-traumatic brain injury olfactory dysfunction: factors influencing quality of life**

## **ABSTRACT**

### Purpose

To evaluate if and how post-traumatic brain injury (TBI) olfactory dysfunction affects the quality of life (QoL).

### Methods

In this case–control observational study, 32 adults with post-TBI olfactory dysfunction (cases) were matched with 32 TBI patients with intact olfactory function (controls). All subjects self-rated their olfactory function using the Visual Analogue Scale (VAS). Cases also underwent objective olfactory function assessment with the Sniffin' Sticks test, which generated a Threshold, Discrimination, and Identification (TDI) score. QoL was assessed with the Questionnaire for Olfactory Disorders (QOD). Factors evaluated included age, gender, smoking, TBI severity and duration, lesion localisation, and Disability Rating Scale (DRS) score.

### Results

Cases had a higher mean QOD score than controls at  $26.31 \pm 14.37$  and  $9.44 \pm 8.30$ , respectively ( $F = 16.426$ ,  $p < 0.001$ ,  $\eta^2 = 0.224$ ). The effect size was large ( $d = 1.07$ ) with an odds ratio of 7.02. The features of QoL most affected were perception of smell changes, adapting to smell changes, and fear of hazardous substance exposure. DRS score and severity of olfactory dysfunction significantly affected QoL ( $p < 0.05$ ).

### Conclusion

Post-TBI olfactory dysfunction significantly lowered QoL and increased the likelihood of having a low QoL relative to TBI alone.