To Explore the Impact of Missing Teeth on Cognitive Function among Elderly People in Taiwan Based on National Health Interview Survey Data

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Abstract

Objective and Methods: This study investigated the association between tooth loss and memory difficulties among older adults in Taiwan. Data were drawn from the 2017 Taiwan National Health Interview Survey (n=2,613). Multinomial logistic regression models assessed the impact of tooth loss on self-reported memory difficulties, adjusting for demographics, lifestyle, comorbidities, and mental status. A predictive model for memory difficulty severity was developed using tooth loss count, with predictive performance evaluated via the area under the receiver operating characteristic curve (AUC). The optimal cutoff was determined by maximizing the Youden index.

Results and Conclusion: Among younger elderly (aged 65–74), edentulism was significantly associated with severe (adjusted OR = 9.077; $p = 0.014$) and moderate (aOR = 2.222; $p < 0.001$) memory difficulties. In older elderly (age ≥75), no significant association was found; however, denture use among those with tooth loss was linked to less severe memory difficulties ($p = 0.003$). The predictive model yielded an AUC of 0.632 for severe memory difficulty. A cutoff of 17.5 missing teeth resulted in a sensitivity of 0.621 and specificity of 0.622. These findings suggest oral health may serve as an early indicator of cognitive decline and support its integration in dementia prevention strategies.