

# Implikasi Periodontitis terhadap Hendaya Kognitif Melalui Status Periodontal dan Komposisi Mikrobiota Subgingiva (Model Prediksi Status Kognitif) = The Implications of Periodontitis on Cognitive Impairment Through Periodontal Status and Subgingival Microbiota Composition (Cognitive Status Prediction Model)

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## Abstrak

Indonesia termasuk negara dengan struktur penduduk menuju tua. Prevalensi periodontitis dan hendaya kognitif meningkat seiring dengan meningkatnya populasi lanjut usia. Penelitian ini bertujuan untuk mendapatkan implikasi periodontitis terhadap hendaya kognitif melalui status periodontal dan komposisi mikrobiota subgingiva. Desain penelitian adalah kasus kontrol. Status kognitif diperiksa menggunakan instrumen Hopkins Verbal Learning Test dan Mini-Mental State Examination yang telah divalidasi. Pemeriksaan faktor risiko hendaya kognitif meliputi status periodontal (indeks plak, indeks kebersihan mulut, indeks perdarahan papila, jumlah gigi, unit gigi fungsional, dan tingkat keparahan periodontitis), faktor sosiodemografi, serta sistemik dan lingkungan. Komposisi mikrobiota subgingiva diperiksa dari cairan krevikular gingiva. Hasil penelitian menunjukkan bahwa indeks plak, indeks perdarahan papila, jumlah gigi, usia, lama pendidikan, dan status hipertensi merupakan faktor-faktor yang paling berperan terhadap status kognitif. Terdapat hubungan bermakna ( $p < 0,05$ ) antara semua variabel status periodontal dengan status kognitif. Terdapat keragaman mikrobiota subgingiva antara subjek periodontitis lansia yang hendaya kognitif dengan kognitif normal. Abundance *Porphyromonas gingivalis* dan *Treponema denticola* lebih tinggi pada subjek lansia hendaya kognitif. Berdasarkan hal ini, dapat disimpulkan bahwa periodontitis merupakan faktor risiko hendaya kognitif.

.....Indonesia is a country with an aging population. The prevalence of periodontitis and cognitive impairment increases along with the increase in the elderly population. This study aims to obtain the implications of periodontitis on cognitive impairment through periodontal status and subgingival microbiota composition. The design of this study was case-control. Cognitive status was assessed using the Hopkins Verbal Learning Test and Mini-Mental State Examination instruments. Examination of risk factors for cognitive impairment includes periodontal status (plaque index, oral hygiene index, papilla bleeding index, number of teeth, functional tooth units, and severity of periodontitis), sociodemographic factors, also systemic and environmental. The composition of the subgingival microbiota was examined from the gingival crevicular fluid. The results showed that plaque index, papilla bleeding index, number of teeth, age, length of education, and hypertension status were the factors that most contributed to cognitive status. There was a significant correlation ( $p < 0.05$ ) between all variables of periodontal status and cognitive status. There was a diversity of subgingival microbiota between cognitively impaired with cognitively normal in elderly subjects. The abundance of *Porphyromonas gingivalis* and *Treponema denticola* was higher in cognitively impaired elderly subjects. It can be concluded that periodontitis is a risk factor for cognitive impairment.