Contribution of Teeth to Healthy Longevity and Compression of Morbidity: A Cohort Study from the JAGES Project

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Background: It was examined whether number of teeth contributes to the compression of morbidity, namely shortening of the life expectancy with disability (LED) and extending of healthy life expectancy (HALE) and life expectancy (LE).

Methods: A self-reported baseline survey was conducted to 126,438 community-dwelling older people aged ≥65 years in Japan in 2010, and 85,161 (67.4%) responded. Their functional disability onset and all-cause mortality were followed-up for 3 years (follow-up rate = 96.3%). Illness-death model was applied to estimate the adjusted hazard ratios (aHRs) for three health transitions (healthy to dead, healthy to disabled, and disabled to dead). Absolute differences in LE, HALE, and LED according to the number of teeth were estimated. Age, denture use, socioeconomic status, health status, and health behavior were adjusted.

Results: Compared with the edentulous participants, participants with ≥20 teeth had lower hazards of healthy to dead [aHR (95% CI): men: 0.58 (0.50, 0.68); women: 0.70 (0.57, 0.85)] and healthy to disabled transitions [men: 0.52 (0.44, 0.61); women: 0.58 (0.49, 0.68)], and higher hazards of disabled to dead transition [men: 1.26 (0.99, 1.60); women: 2.42 (1.72, 3.38)]. Among the participants aged ≥85 years, those with ≥20 teeth had longer LE (men: +57 days; women: +15 days) and HALE (men: +92 days; women: +70 days) and shorter LED (men: −35 days; women: −55 days) compared with the edentulous participants. Similar associations were observed among the younger participants and those with 1–9 or 10–19 teeth.

Conclusions: The presence of remaining teeth contributed to the compression of morbidity.