The current evidence of dental care and oral health for achieving healthy longevity in an aging society



Appendix Summaries of selected research

Japan Dental Association

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Introduction

The main publication, entitled "The current evidence of dental care and oral health for achieving healthy longevity in an aging society," is based on reviews of a total of 1,011 research studies. In this appendix, 63 of those studies have been selected for their significant contribution to this body of research and summarized in a uniform manner.

Each of the structured abstracts in this appendix consists of 16 items: (1) Cited reference number, (2) Publication type, (3) Source publication name, (4) Summary, (5) Study Question and Answer, (6) Study design, (7) Evidence level, (8) Participants, (9) Sample size, (10) Setting, (11) Follow-up rate, (12) Outcome(s), (13) Main findings and conclusions, (14) Effect size and statistical analysis, (15) Main figures and tables, and (16) Relevance and application to clinical settings, community health, and health policy. The cited literature number of each abstract matches the reference number for that article in the issue-specific reviews of the evidence in the main publication.

These summaries are intended to make the relevant evidence available in a clear and readily accessible format, such that it can be explained or provided to health professionals, policymakers, and even the general public in an efficient, comprehensible way. As our society seeks to prolong healthy longevity in a super-aging society, these stakeholders must use the existing evidence to guide clinical practice and health policy decisions. Specifically, the evidence can be used by health professionals to establish new programs and develop clinical guidelines. They can also be used by policymakers for lobbying purposes, advocating for the weakest members of society, and proposing new health policies. Then, those practices and policies can be evaluated and used to generate new research and the further accumulation of evidence, as the cycle continues.

The collection of reviews in the main publication aims to provide the target audience (i.e., policymakers, healthcare professionals, and researchers) with a more comprehensive review of the issues and the existing evidence. I conducted a literature review for each topic based on a hypothesized relationship between dental care/oral health and healthy life expectancy (see Figure 10 in Section II-1 of the main publication), and I analyzed the evidence for each topic. The topics covered include the relationship of dental and oral health with (1) age-related changes and aging, (2) life expectancy, (3) NCDs as the main causes of death and the risk factors thereof, (4) diseases that cause conditions requiring long-term care, (5) health promotion activities such as exercise, nutrition, and rest, (6) socioeconomic factors, and (7) the effects of dental care. In addition, the particularly important literature is summarized, in some cases in table form, within the review of each topic. As the contents of this appendix and the main publication are same, users of the appendix are advised to read the main publication for further details and an in-depth analysis and discussion.

As we face the rapid aging of our population, which is proceeding at a rate never before experienced by humankind, many efforts to deal with this problem have been initiated in various fields of academic research as well as in medical, health, welfare, and community settings. As shown in this collection of reviews, specific measures to realize healthy longevity in society include: (1) the extension of life expectancy and prevention of death in early life (prevention of diseases that are main causes of death), (2) prevention of conditions that necessitate long-term care, (3) prevention of a decline in daily living activities, and (4) lifelong health promotion from the viewpoint of a life course approach. The development and implementation of specific practical models, the enactment of health policy to the extent possible, and the accumulation of evidence that demonstrates causal relationships and medical economic effects are required.

I hope this appendix will contribute to achieving a global society characterized by healthy longevity.

Kakuhiro Fukai, D.D.S, Ph.D. The current evidence of dental care and oral health for achieving healthy longevity in an aging society, Editor-in-chief Director, Japan Dental Association March 2015

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Functional tooth number and 15-year mortality in a cohort of community-residing older people

Author's name: Fukai K¹, Takiguchi T, Ando Y, Aoyama H, Miyakawa Y, Ito G, Inoue M, Sasaki H.

Author affiliation: 1: Fukai Institute of Health Science, Japan

[Cited reference number]

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[Publication type]

Journal

[Source publication name]

Geriatr Gerontol Int 2007; 7: 341-347.

[Summary]

The purpose of this 15-year cohort study was to investigate whether and how dental status predicts overall mortality risk. The participants were 5,730 community residents over 40 years old in the Miyako Islands, Okinawa Prefecture, Japan. The overall mortality of participants with functional tooth numbers of <10 and \geq 10 were compared among the age groups 40–49, 50–59, 60–69, 70–79, and 80 years or more in both genders. In the 80 years and over group, participants with fewer than 10 teeth had a significantly higher rate of overall mortality than those with 10 or more. Among males in all age groups combined, those with 10 or more teeth had a significantly longer survival rate than those with fewer than 10 teeth.

[Study Question and Answer]

Q: Is functional tooth number associated with longevity?

A: Functional tooth number was associated with longevity in males in Japan.

[Study design]

CO (cohort)

[Evidence level]

Level IVa: Analytical epidemiology: cohort study

[Participants]

Community residents over 40 years old in the Miyako Islands, Okinawa Prefecture, Japan

[Sample size]

5,730

[Setting]

Community [Follow-up rate]

-

[Outcome(s)]

All-cause mortality

[Main results and conclusions]

Participants in the 80 years and over group who had a

funtional tooth number of fewer than 10 had a significantly higher rate of overall mortality than those with 10 or more, and there was no significant difference in the other age groups by the Kaplan-Meier method. Males with 10 or more functional teeth had a significantly longer survival rate than those with fewer than 10 functional teeth (p = 0.01), but there was no significant difference in females by the Cox regression model. This study suggests that systematic attention to dental status should be recommended in older males.

[Effect size and statistical analysis]

HR: 1.33, 95%CI: 1.11–1.59 (males) Statistical analysis: Cox regression model

[Main figures and tables]

Figure 1 Survival curves among males and females in relation to number of functional teeth.

[Relevance and application to clinical settings, community health, and health policy]

This study suggests that systematic attention to dental status should be recommended in older males.





Group A indicates subjects with 0-9 functional teeth, Group B indicates subjects with 10-32 functional teeth. Test for overall difference of survival among the two groups on log-rank test by the Kaplan-Meier method. Mark(+) indicates censored cases.

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