

# A Retrospective Longitudinal Study of Caries Development in an Australian Aboriginal Birth Cohort

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## Key Words

Aboriginal Australians · Birth cohort · Caries experience

## Abstract

There are a limited number of longitudinal investigations that examine the progression of dental disease in an indigenous population. Dental examinations of a cohort of indigenous Australians born in Darwin (Australia) between 1987 and 1990 were conducted at ages 6–8 and 11–13 years as part of the Child Dental Health Survey, and 18–20 years as part of the longstanding prospective Aboriginal Birth Cohort (ABC) study. Data was available at all ages for 145 participants. The percent DMFT >0 increased from 17.2 to 44.1 to 81.4%, representing a linear trajectory, whereas mean DMFT increased from 0.3 to 1.0 to 5.6, representing an exponential trajectory. Both trends were significant. At age 18–20 years, the percent DMFT >0 among ABC study participants was 1.2 times that of their counterparts at a national level. The differences were more marked when dental caries severity was considered, with mean DMFT among 18- to 20-year-old ABC study participants being 1.7 times that of similarly aged adults at a national level. Most of this disparity was constituted by the decayed component, with ABC study participants having eight times the mean DT of their national-level counterparts. The findings indicate that Aboriginal young adults in this birth cohort experience a disproportion-

ate amount of dental disease relative to their non-indigenous counterparts, and that this pattern is consistent across the life course.

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There are a number of approaches to examine factors that contribute to dental disease over time. The life course paradigm is one such approach. Developed by Barker in the early 1990s, this approach postulates that much of what happens in utero and in early life influences health outcomes at a later point, and indeed throughout the life course [Barker, 1992]. In a chronic disease context, the life course paradigm suggests that individuals' biological resources are influenced by their genetic endowment, their pre-natal and post-natal development, and their social and physical environment in early life [Kuh and Ben-Shlomo, 2004]. One of the principal underpinnings of the life course approach is that adversity in childhood becomes 'embodied' at an early age, with its full impact manifesting later in life [McCalman et al., 2008].

There are certain features of oral epidemiology that make its measurement and surveillance amenable to the life course approach. The two most common dental diseases, dental caries and periodontal disease, are highly prevalent, cumulative in nature, largely irreversible and chronic [Thomson et al., 2004]. Furthermore, the assess-