

Original Article



Prevalence and Years of Life Lost due to Disability from Dental Caries among Children and Adolescents in Western China, 1990-2015

WANG Zhuo^{1,2,&}, DENG Ying^{2,&}, LIU Shi Wei³, HE Jun², JI Kui², ZENG Xin Ying³,
YANG Shu Juan¹, XU Xin Yin², LUO Yu⁴, ZHOU Mai Geng^{3,#}, and ZHANG Jian Xin^{1,#}

1. West China School of Public Health, Sichuan University, Chengdu 610041, Sichuan, China; 2. Sichuan Provincial Center for Disease Control and Prevention, Center for Chronic and Noncommunicable Disease Control and Prevention, Chengdu 610041, Sichuan, China; 3. National Center for Chronic and Noncommunicable Disease Control and Prevention, Chinese Center for Disease Control and Prevention, Beijing 100050, China; 4. Department of Obstetrics and Gynecology, West China Second University Hospital, Sichuan University, Chengdu 610000, Sichuan, China

Abstract

Objective To analyze the prevalence and years lived with disability (YLD) from dental caries among children and adolescents and the time trends over the past two decades in Sichuan province, the largest province in west China.

Methods Based on the Global Burden of Disease Study 2015 (GBD2015), which systematically assessed the epidemiological characteristics of major diseases and their transitions by country and region from 1990 to 2015, we extracted the estimated results for China. We then used the Bayesian meta-regression method to estimate the sex- and age-specific prevalences and YLDs from dental caries among children and adolescents under 15 years old in Sichuan province and compared them with global and national indicators for the same period.

Results In 2015, there were almost 6 million cases of dental caries in children and adolescents (aged < 15 years) in Sichuan province, accounting for 6% of the total cases in China. For children under 5 years, the prevalence of deciduous caries was 55.9%, and the YLDs value was 10.8 per 100,000, while it was 24.3% and 5.1 per 100,000 respectively among 5- to 14-year-olds; for those aged 5 to 14 years, the prevalence of permanent caries was 21.5%, and the YLDs value was 11.5 per 100,000. From 1990 to 2015, the prevalence of dental caries for children under 5 years increased substantially, by 16.2%, and the YLDs increased by 8.7%. Among those aged 5 to 14 years, the prevalence increased and the YLDs decreased.

Conclusion Dental caries remains a huge health burden in Western China. In contrast to the global and national data, the trend has increased rapidly over the past 25 years in this region. This work provides suggestions for the prevention and control for oral health in China with the policy of two-child.

Key words: Children and adolescents; Dental caries; YLD; Disease burden

Biomed Environ Sci, 2017; 30(10): 701-707

doi: 10.3967/bes2017.095

ISSN: 0895-3988

www.besjournal.com (full text)

CN: 11-2816/Q

Copyright ©2017 by China CDC

[&]WANG Zhuo and DENG Ying contributed equally to this work.

[#]Correspondence should be addressed to ZHANG Jian Xin, Tel: 86-28-85501548, E-mail: zhangjianxin955@163.com; ZHOU Mai Geng, Tel: 86-10-63041471, E-mail: maigengzhou@126.com

Biographical notes of the first authors: WANG Zhuo, female, born in 1983, PhD candidate, physician-in-charge, majoring in non-communicable diseases control and prevention; DENG Ying, female, born in 1966, Master's degree, chief physician, majoring in non-communicable diseases control and prevention.

INTRODUCTION

As one of the most prevalent diseases among children and adolescents, dental caries is characterized by lifelong progressive and cumulative outcomes and affects approximately 80% of the world's population^[1-3]. Dental caries is preventable and treatable; however, it has been ignored by the public or perceived as low priority in policy discussions^[4], especially in low-income communities. Although the prevalence of dental caries is decreasing in developed countries^[5], it continues to increase in most developing countries^[6]. It is important to understand the levels and trends of dental caries in children and adolescents, who are in the early stages of life, and to introduce effective measures to assess and reduce the burden of disease^[7].

China has experienced rapid socio-economic growth in the past decades; however, the dental caries situation in China remains similar to that in developing countries, with a high prevalence and low treatment rate^[8]. Sichuan has the largest population in west China, and children and adolescents account for 16% of the province's population^[9]. The prevalence of caries and health loss due to dental caries for children and adolescents in Sichuan is an important factor not only in governmental investment and planning for dental services but in public health practitioners' and dentists' delivery and practice of dental services.

The Global Burden of Disease Study 2015 (GBD 2015) is a comprehensive effort to assess summary measurements of population health worldwide. It provides systematic and comparable estimates of the burden from diseases and injuries and their disabling consequences at the national and sub-national levels from 1990-2015^[1].

In this study, we report the prevalence of and years of life lost due to disability (YLD) from both deciduous and permanent caries in children and adolescents under 15 years old in Sichuan from 1990 to 2015. Additionally, we compare those figures with the estimates for China as a whole and with global indicators during the same period.

MATERIALS AND METHODS

Overview

The detailed methods of the GBD 2015 study have been published previously^[1,3,10-11]. Briefly, the GBD 2015 study comprehensively assessed the

burden of all major diseases and injuries for 195 countries by age, sex, cause, year and geography from 1990 to 2015 using a wide range of updated and standardized analytical procedures. Based on the GBD 2015 study, the present work extracted the Chinese estimates by province and analyzed the prevalence of dental caries in Sichuan, in western China. Additionally, the present study determined the corresponding YLDs since dental caries mainly affects quality of life and rarely has fatal outcomes.

Data Sources

The data sources used in the GBD 2015 for the Chinese estimates mainly included the China World Health Survey 2002^[12], the second national survey of the oral health status of children and adults in China^[13], studies regarding the prevalence of dental caries and its factors among Chinese provinces^[14-18], studies of the effectiveness of certain caries prevention programs^[19-20], and other published scientific literature^[21]. The incidence, prevalence, risk rate, risk factors, covariates and other useful data regarding dental caries were extracted for further analyses. The data analysis was strictly controlled to ensure reliability and quality, which were examined with 3 independent systematic reviews^[22].

Disability Weights

The disability weights used in the GBD 2015 for all nations and sub-nations were based on the results of household and open internet surveys in 9 countries (Bangladesh, Indonesia, Peru, USA, Tanzania, Hungary, Italy, the Netherlands, and Sweden). All the participants were aged 18 years or older^[23].

Prevalence and YLD Estimate

Prevalence and YLD were estimated by age, sex, cause, and year. The Bayesian meta-regression method was applied to estimate the outcomes of oral disease, including prevalence estimates and uncertainty distribution, between 1990 and 2015. DisMod-MR, a Bayesian meta-regression tool developed for the GBD 2010, was used to analyze the prevalence. YLDs were calculated as the prevalence (frequency) times the disability weight of the associated sequelae (severity) times the duration of symptoms. National estimates should be calculated first, and provincial estimates should be based on the national estimates. This technological process has been described in detail elsewhere^[1].

Download English Version:

<https://daneshyari.com/en/article/8817513>

Download Persian Version:

<https://daneshyari.com/article/8817513>

[Daneshyari.com](https://daneshyari.com)