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ORIGINAL ARTICLE

# Dental service use among patients with specific disabilities: A nationwide population-based study



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## KEYWORDS

dental service;  
disability;  
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Database

**Background/purpose:** The Taiwan National Health Insurance program has allocated a specific fund for dental services to patients with specific disabilities (PSDs); however, the trends and the quality are unknown. In this study, we conducted quantity analyses and quality assessments of dental service use among PSDs using a nationwide population-based database.

**Methods:** PSDs were identified according to the codes of diagnosis fee. Quantity analyses included the number of patients receiving dental services, the number of visits, and the percentages of categories of dental service use. Quality assessments included refilling rates for operative dental treatments and unfinished rates for endodontic therapies.

**Results:** For quantity analyses, dental services were accessible to 3–4% of patients with disabilities and were mostly provided to younger PSDs. The general population received more operative and endodontic therapies, and PSDs received more periodontal therapies. For quality assessments, the teeth of PSDs had a 9.74–15.07% refilling rate, which was higher than that of the general population (1.39–6.37%). Furthermore, the teeth of PSDs had a 32.03% unfinished endodontic rate, which was higher than that of the general population (21.42%).

**Conclusion:** During 2010–2012, only 3–4% of patients with disabilities had access to dental services, mostly provided to younger PSDs. Teeth of PSDs had higher refilling rates and

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unfinished endodontic sessions than the general population. We suggest that a more comprehensive dental care system is necessary to improve the quantity and quality of dental services, especially in middle-aged and older PSDs.

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## Introduction

Taiwan implemented the Physically and Mentally Disabled Citizens Protection Act in 1997. Improvement of the welfare of people with physical or mental disabilities has led to rapid increases in the number of registered citizens with physical or mental disabilities. By the end of 2012, the number of citizens with disabilities in Taiwan exceeded 1.1 million, demonstrating an increase of 350,000 in the last decade; these citizens account for 4.79% of the total Taiwanese population.<sup>1</sup>

People with disabilities are more likely to be restricted by difficulties in communication and mobility, and therefore, they are more susceptible to poorer oral health than the general population.<sup>2</sup> In 2005, Huang and his colleagues<sup>3</sup> examined the oral health status of adults with disabilities, and the results showed that the caries prevalence in permanent dentition among people with disabilities was 91.96%, which was substantially higher than that of 86.61% among the general population; 32.37% of teeth were filled, which was substantially lower than the rate of 40.22% among the general population. Recent studies have also reported a mean decayed, missing, and filled permanent teeth (DMFT) index of 13.8 among children with disabilities receiving dental treatments under general anesthesia and a mean DMFT index of 17.68 among adult inpatients with schizophrenia, indicating that a comprehensive dental care system is needed to improve dental service utilization by patients with disabilities.<sup>4,5</sup>

Therefore, the government launched the “Dental Services Network for Disabled Patients” in 2006 to establish a system for the provision of dental services by hospitals and dental clinics to more patients with disabilities. As of 2013, more than 700 dental clinics provide dental services to patients with disabilities. Moreover, the Taiwan National Health Insurance program has allocated a specific fund for the provision of dental services to patients with disabilities since 2002. The target population of the program initially

included patients with cleft lip and palate but expanded in 2010 to include patients with other types of disability, including limb disorders, autism, chromosomal defects, mental retardation, multiple disabilities, intractable epilepsy, chronic psychosis, chronic unconsciousness, and senile dementia [patients with specific disabilities (PSDs)]. The budget of the program has also increased, with more than US\$13 million dollars (with the exchange rate being US\$1 = NT\$29.3 in December 2012) being allocated each year since 2011. Although this program should benefit more patients with disabilities, it is also crucial to monitor the quality of dental treatment. The purpose of this study was to conduct quantity analyses and quality assessments of dental services utilized by PSDs using a nationwide population-based database.

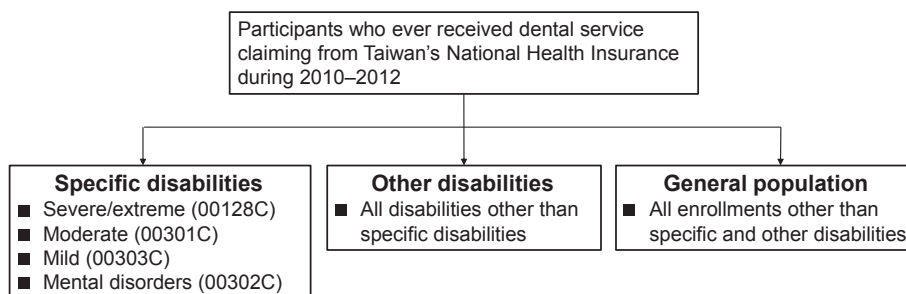
## Methods

### Study database

The Taiwan National Health Insurance program, established in 1995, is a compulsory health insurance program that provides health care coverage to almost 99% of the 23.5 million residents of Taiwan. Our study database included the records of the registration and dental claims from all beneficiaries from 2010 to 2012. This study was approved by the Institutional Review Board of National Taiwan University Hospital (Approval Number 201306077RINC).

### Study population

The current retrospective cohort study included all patients who received dental services from 2010 to 2012. Patients with abnormal registry data, such as missing sex and inconsistent birth data, were excluded from this study. The study population was then divided into the following three groups according to the diagnostic codes and registry data (Figure 1):



**Figure 1** Operative definitions of patients with specific disabilities, other disabilities, and the general population used in this study on the basis of data obtained from the Taiwan National Health Insurance Research Database for the 2010–2012 period.

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