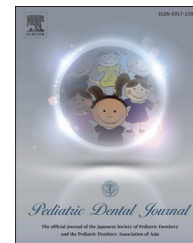


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## Research Paper

# Dental caries prevalence and treatment level of neglected children at two child guidance centers

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## ABSTRACT

**Objective:** Detailed evidence of a relationship between maltreated children and dental caries is limited. The purpose of this study was to investigate the prevalence of dmft and DMFT, and the characteristics of dental treatment level of children at two child guidance centers (CGC).

**Subject and methods:** A total of 166 children (mean age: 11.6 y ± 2.8) staying at two CGCs were examine, and their results were compared with those of the Survey of Dental Disease (SDD) carried out by the Japanese Society for Oral Health.

**Results:** Mean numbers of dental caries were 5.70 at the CGCs and 2.25 in the SDD. “Completely treated” children were 21.7% of total participants in the SDD, but only 3.6% at the CGCs. In addition, 7.0% of participants were “untreated” in the SDD, but 41.0% at the CGCs. The percentage of children without dental caries was 18.7% at the CGCs and 45.7% in the SDD. These differences between the CGCs and in the SDD were statistically significant. **Conclusions:** Our results indicate that, due to a lack of daily oral care, dental caries are significantly more prevalent in children at CGCs. CGCs may be good places to improve neglected children’s dental caries and oral health care.

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## 1. Introduction

Child maltreatment, including neglect and abuse, was first reported by Kempe et al. as the “Battered Child Syndrome” in 1962 [1]. According to the media center of the WHO, approximately 20% of women and 5%–10% of men report being sexually abused as children, while 23% of people report being physically abused as children [2].

In Japan, there has been past massive denial of neglect and abuse; a belief that such conditions have never existed in the child-rearing culture has long prevailed and has inhibited people from addressing this issue. It is true that the percentage of maltreated children in Japan has been relatively low compared with other nations; however, the number of reported child abuse cases had been consistently raising since the late 1990s, when the issue was first recognized as a serious social problem. According to a report from Ministry of Health, Labor and Welfare of Japan (MHLW), the number of individual children seen at child guidance centers (CGC), was 1101 cases in 1990, but was 66,807 cases (0.33% of all children) in 2012 [3]. Each CGC is an office operating under a prefecture (in this study Niigata Prefecture) or an ordinance-designated city (in this study Niigata City) dedicated to improving the wellbeing of individual children who for various reasons could be regarded as suffering from one or more attribute of negligence, including abuse, delinquency, truancy and so on. Accordingly, not all children staying temporarily at a CGC are always judged neglected or abused, however, by simply being away from their parents or guardian they are somewhat neglected.

Dental neglect, as defined by the American Academy of Pediatric Dentistry, is the “willful failure of a parent or guardian to seek and follow through with treatment necessary to ensure a level of oral health essential for adequate function and freedom from pain and infection [4,5].” Caries disease is probably the most prevalent of all childhood diseases, and, if left untreated, may cause many problems such as pain, suffering, productivity loss (e.g. at school) and development of severe functional and social limitations in the afflicted individuals [6,7]. The main characteristics of dental neglect are a failure or delay in seeking dental care, with adverse consequences.

There are some reports about the comparisons of the mean number of DMFT, but we could not find the study about the treatment level of dental caries in neglected children. Despite they have a lot of dental caries, they don't have the chance of dental treatment. Therefore, we considered that the treatment level was helpful in the early detection of neglected children. However, due to a lack of research, and additionally a deficiency in the data on precise clinical features, it has not been possible to make a distinction between dental caries and dental neglect [8].

Accordingly, the purpose of this study was to determine the prevalence of dental caries (dmft and DMFT) and its treatment level in children receiving temporary protection at a CGC. In addition, we compared their results with results reported in the SDD (Survey of Dental Disease) by MHLW. This report was published by Japanese Society for Dental Health (JSOH) [9].

## 2. Materials and methods

### 2.1. Study population

This was a study of children admitted for care to two CGCs in Niigata City. One was operated by Niigata Prefecture and the other was managed by Niigata City, because this city is an ordinance-designated city. A total of 166 oral health status records from September 2012 to November 2014 of all children (including 95 boys and 71 girls) between the ages of 6–17 (mean age:  $11.6 \text{ y} \pm 2.8$  were examined (Table 1). The study protocol was reviewed and approved by the Research Ethics Review Committee of the Niigata University Faculty of Dentistry (20-R27-08-09).

Results from the two CGCs were compared with those of SDD carried out by the MHLW, which are open to the public on the homepage of the MHLW [10], and are recognized as the official data for Japan. The numbers of participants in the SDD with the same ages as in this study are also listed on Table 1. The SDD was started in 1957 and repeated every six years. We used the latest results, which were the tenth survey carried out on 2011.

### 2.2. Clinical examination

Three of authors (Y.I., K.A. and H.H.), who belonged to the Clinic of Pediatric Dentistry and Special Needs Dentistry at Niigata University Medical and Dental Hospital, visited each CGC twice a month to check up on the oral health status of new internees. These three examiners underwent a training and calibration exercise before examining the children. Children at the CGC were clinically examined while seated on a chair, and their dental clinical examination was performed under the examiner's LED headlight. Each primary and permanent tooth with one or more dental caries was recorded.

### 2.3. Statistical analysis

The collected data were processed by means of the Statistical Package for the Social Sciences (SPSS) version 17.0. A two-sample test for equality of proportions was used for comparison with the SDD data, because the JSOH did not include

**Table 1 – Numbers of subjects.**

Age	CGC			SDD		
	Boys	Girls	N	Boys	Girls	N
6	4	4	8	22	16	38
7	1	5	6	17	28	45
8	9	6	15	25	27	52
9	6	9	15	21	24	45
10	9	3	12	29	19	48
11	11	9	20	13	25	38
12	12	5	17	20	17	37
13	13	11	24	13	15	28
14	15	8	23	12	7	19
15	10	6	16	14	10	24
16	2	4	6	14	16	30
17	3	1	4	13	11	24
Total	95	71	166	213	215	428

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