Oral Health Status and special health care needs of Disabled Individuals Attending Special School, Vientiane Capital.

Abstract

The purpose of this study to descript the prevalence of dental caries and the oral hygiene status of disabled individuals attending Special School.

Methods:

Participants were a child who attending special school, the survey document included questionnaire and consent form was send to school principal, teachers and parent. The parent was asked to completed a questionnaire. Caries examinations was carried out in accordance with WHO criteria in the school field and oral cleanliness was evaluated by visually assessing the presence of plaque on teeth.

Results:

Total number of participant in this study was 127 children, mean age was 13.97±3.68. The prevalence of oral health status reported 74% of student has caries experiences, Pulpitis, Ulceration, Fistula, Abscess index (PUFA) reported 21%. The mean untreated caries (DT) were 2.09±2.09 for deafness, mean DT was 2.54±2.44 for mental, mean DT was 2.66±1.94 for blind respectively, there was not statistically significant different between type of disabilities. Severe dental caries was reported high number in Down's syndrome children reported Abscess was (1.50±2.12) then other type of children. There was a statistically significant between disable children (p=.001). 70% children report fair oral hygiene of mild plaque and severe plaque attached on the tooth surface. This study invested that half of disable children (54%) needed dental treatment and 24% of children need urgent treatment because of tooth pain and abscess.

Conclusions:

It is important for the dentist to concentrate on a preventive approach and provide proper dental education to parents of disabled individuals. Among the children with disabilities, more attention should be paid to the oral hygiene and provide dental treatment program for disability children.

Introduction

The American Health Association defines a child with disability as a child, who, for various reasons, cannot fully make use of all his or her physical, mental and social abilities [1]– in other words, a child who cannot play, learn, or do things that other children his or her age can. In general, disabilities in children may be present individually or as a set of multiple physical, developmental, cognitive and/or affective disabilities.

According to World Health Organization estimates, individuals with disabilities comprise 10% of the population in developed countries and 12% in developing countries [2]. In Turkey, there are an estimated 9 million children aged 0–18 years who have disabilities and have special needs. This amounts to one member with disability per 7–8 households [3]. Because of their special care needs, daily care of children with disabilities is different from that of children with normal abilities, who can usually manage their own oral health. In contrast, children with disabilities may be partially or wholly dependent on someone else to perform their daily care activities, and this situation may cause difficulties for the families of these children [4]. The oral health conditions of children with disabilities are reported to be worse, wither due to the existing disability or due to medical, economic or social reasons, and require for treatment needs than healthy children [5,6].

Dental care for special needs children are often neglected by both the dentists and the parents; since dentists may be reluctant to treat special needs children due to fear and lack of knowledge of various disorders that afflict special needs patients. On the other hand, the parents may prioritize other medical problems over oral healthcare, lack of awareness of the need for dental treatment or depression, and embarrassment. Financing and reimbursement issue can also affect the availability and accessibility to dental care for these patient [7]. Individuals with special needs may have considerable limitations in oral hygiene performance due to their potential motor, sensory, and intellectual disabilities [8]. Studied from Croatia, 2007 reported that The OHI-s index for disabled children ranges from 3.8 to 4.53 indicating poor oral hygiene in comparison with healthy children, whose OHI-S index ranges from 2.73 to 2.84. the average DMFT values in deciduous (1.41) and permanent (6.39) dentitions, there is an increase in the intensity of caries [9]. In Laos, children with a disability are often kept at home, large due to stigma and discrimination. Health, education, and social services are not commonly available to them, exacerbating isolation and limiting their opportunity to learn and develop like other

children in their community [10]. The aim of this study to determine the prevalence of dental caries and the oral hygiene status of children and young adults attending a special school for the disabled and to investigate current oral status and dental treatment needs.

Methodology:

A total of 127 individuals with disabilities between the ages of 6 to 24-year-old attending a special school. Informed consent was obtained from the participants' parents, who was provided with detailed information on the study protocol. Both the consent form and the research protocol was approved by the Institutional Human Subject Review Committee from University of Health Sciences (UHS).

Questionnaire survey

An investigator was send the survey document to deliver the questionnaire and consent form to discuss the protocol with the special school principal, teachers and parent. The parent who are volunteer to participant the survey was ask to sign the consent form and completed a questionnaire. The questionnaire consists of four parts and the following information was collects

1. The child's personal data sex, age, date of birth and type of disable including The children's socioeconomic background-parent education and family income;
2. Child's oral health care, Dental visited, describe the oral health of their child
3. Parent's dental knowledge, the child's oral health-relate behaviors and frequency of toothbrushing
4. Oral health status special care needs

To assess the parent's knowledge, there were 21 multiple choice questions in the questionnaire on the causes and prevention of dental diseases. One score was given to each correct answer; and no score was given to a wrong or "don't know" answer. Thus, the total dental knowledge score range from 0 to 21. The parents were then categorized into three groups according to their dental knowledge scores in 3 equal interval-low (score 0-7), middle (scored 8-14), and high (scored 15-21)

Clinical examination

Oral examination was take place at the school field, with participant seat on an ordinary chair and illumination provide by an ordinary fluorescent lamp. Participants was not having their teeth brushed or professionally cleaned prior to the examination. Dental caries examinations were carried out using a mirror and explorer in accordance with World Health Organization criteria and methods [11]. The total number of decays, missing and filled permanent teeth (DMFT) was recorded for each participant without radiographic examination. Oral cleanliness was evaluating by visually assessing the buccal and lingual surfaces of the upper and lower incisors and canines for the presence of plaque using the silness &Loe [12] index, as follows: (0) no visible plaque; (1) visible plaque; (2) an abundant amount of visible plaque.

Statistical analysis

Data analysis were perform using the software statistical package for social sciences version 17.0. Data were recorded in an Excel table using patient names and identification numbers. Statistical analysis was carried out using the SPSS software program. Chi-square test was used to determine significant differences in data ($P<.05$).

Results:

Total number of participant in this study was 127 children, 53% was female and 47% were male. The age was range 6-year-old to 24-year-old, mean age was 13.97±3.68. table 1 shows the distribution of student in relation to different degree of disability. 51% of children was deafness/loses hearing, 19% of student was blind following with 17% was mental problem. Only 2% of student was down's Syndrome and Autism.

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Table 1: Frequency and percentage (%) general information of disable student in special school Vientiane Capital.

General information	**N**	**%**
Sex		
Female	67	52.8
Male	60	47.2

Age		
Mean±SD	13.97±3.68	
Min-max	6 to 24	
Type of disable		
Deafness/loses hearing	65	51.2
Down's Syndrome	2	1.6
Mental	22	17.3
Autism	2	1.6
Blind	24	18.9
Multiple	12	9.4
Total	127	100

Table 2 shown the history of dental visited in disable children 56% of children never has experiences visited dentist and 22 persons (17.3%) reported that there were not remember or don't know when was visited. Only 27% reported that they have ever been to dentist in their life time. The most reason for the last visited of dentist was tooth pain 18%, tooth extraction 9% and check-up 2%. Otherwise the main reason that they have never visited dentist was child's fear (20%), parent has no time (13%) and other reason (18%).

Table 2 Frequency and percentage (%) historical of dental visited in disable student in special school Vientiane Capital.

History of dental visited	**N**	**%**
Have your child ever visited dentist		
Yes	34	26.8
No	71	55.9
Don't know/not remember	22	17.3
When was the last visited	Mean ± SD	
	6.3±3.5	
Reason of last dental visited		
Tooth pain/ abscess	23	18.1
Tooth extraction	11	8.7
Annual Check-up	2	1.6
Other	1	0.8
What was the reason no visited dentist		
Child's fear	25	19.7
Parent's fear	2	1.6
Child no need treatment	12	9.4
Parent has no time	17	13.4
Has no money to pay	11	8.7
Transportation	3	2.4
Other	23	18.1

forty-two (42%) of had poor knowledge with oral hygiene, 74 (58%) fair oral hygiene, and 11 (9%) good knowledge for oral hygiene, with no significant statistically significant different between sex (p=0.056).

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However, there was a statistically significant difference between oral hygiene between disable children (P=0.001) (figure 1).

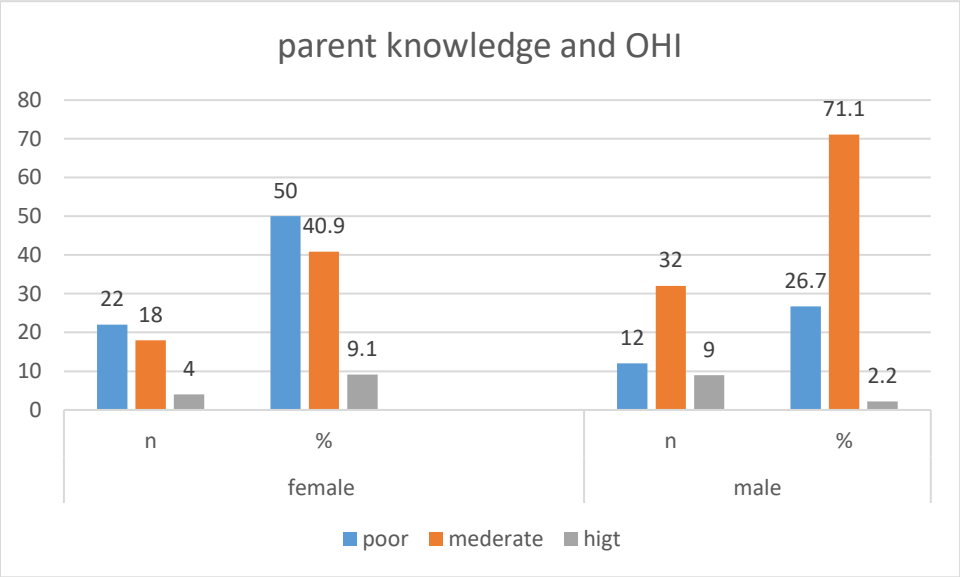

Figure 1. Oral hygiene status of the study population according to gender.

The prevalence of oral health status reported in table 3. 74% of student has caries experiences with mean DMFT was 2.51±2.33, 93 of participants has shown untreated caries (72%) with mean DT was 2.33±2.18. PUFA index (pulpitis, Ulceration, Fistula, Abscess) reported 21% of children was pain and abscess swallow 6 (5%), oral hygiene status shown 41% in children age 6 to 12-year-old and 59% with children 13 to 24 years old of mild plaque and severe plaque attached on the tooth surface. Overall the disease increase with older age group that because very rarely of caries treatment in children who attending special school, Vientiane Capital. There was non-statistically significant with oral health disease and oral hygiene status between two age group. The mean number of untreated dental caries (DT) were 2.19±1.97 with disable children's age 6-12-year-old and it was increase in age 13-24-year-old DT was 2.42 ±2.33 there was no statistically significant P= 0.555.

Table 3 Prevalence of untreated dental caries (DT>0) and caries experience (DMFT>0) among children in different age groups

Age group (years)	DT>0[1]		dmft-DMFT>0[2]		PUFA[3]		Oral Hygiene[4]	
	N	%	N	%	N	%	N	%
6-12	40	43	40	42	11	42	36	41

13-24	53	57	54	58	15	58	53	59
Total	93	72	94	74	26	21	89	70

* Untreated decay with age group chi-square 0.613, df=1, p=0.434[1]
* Caries experience with age group chi-square 0.387, df=1, p=0.534[2]
* PUFA index between two age group Chi-square 0.025, df 1, p=0.874[3]
* Oral hygiene index between age group chi-square 0.030, df=1, p=0.862 [4]

The overall mean DMFT were 2.51±2.32, mean untreated dental caries was high in Down's Syndrome 5.50±4.94 and children with mental health mean untreated dental caries was 2.54±2.44, mean of untreated dental caries in blind children was 2.66±1.94 and multiple disable was 2.2 ±1.17. Participants was reported about dental treatment very rare for filled teeth and missing teeth. It was no statistically significant between untreated caries and caries experience in this study. In the other hand severe of dental caries in Down's syndrome children reported Abscess was (1.50±2.12). There was a statistically significant between disable children (p=.001). Pulp infection were 0.66±0.98 children with multiple of and mean Pulp and Abscess (PA) index was 2.00±2.82 in children with Down's Syndrome. There was a statistically significant difference (p=0.045). This study reported that half of disable children (54%) needed dental treatment and 24% of children need urgent treatment because of tooth pain and abscess.

Table 4 Mean standard deviation of the components decayed, missing, filled teeth and healthy for the different degrees of disability children.

Disabilities	**Decay**	**Missing**	**Filled**	**DMFT**	**Pulpitis**	**Abscess**	**PA**
	Mean ± SD	**Mean ± SD**	**Mean ± SD**	**Mean ± SD**	**Mean ± SD**	**Mean ± SD**	**Mean ± SD**
Deafness	2.09±2.09	0.13±0.58	NA	2.23±2.28	0.33±0.85	0.06±0.29	0.40±0.91
Down's Syndrome	5.50±4.94	0.50±0.70	NA	6.00±5.65	0.50±0.70	1.50±2.12	2.00±2.82
Mental	2.54±2.44	0.22±0.86	NA	2.77±2.40	0.13±0.35	0.04±0.21	0.18±0.51
Autism	1.00±1.41	NA	NA	1.00±1.41	NA	NA	NA
Blind	2.66±1.94	0.25±0.60	NA	2.91±2.10	NA	NA	NA
Multiple	2.25±1.17	0.08±0.28	0.08±0.288	2.41±2.23	0.66±0.98	NA	0.66±0.98
Total	2.33±2.18	0.17±0.61	0.01±0.08	2.51±2.32	0.29±0.72	0.07±0.39	0.37±0.85

*Decay and type of disabled student df=5, F=1.315, P=0.262
* Filled and type of disabled student df=5, F= 1.992, P=0.085
*Missing teeth and type of disabled student df=5, F= 0.333, P=0.892
*DMFT and type of disabled student df=5, F= 1,482 P=0.200
*Pulp infection and type of disabled student df=5, F= 0.657 P=0.028
*Abscess and type of disabled student df=5, F= 6.710 P<0.0001
* PUFA and type of disabled student df=5, F= 2.350 P=0.045

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Discussion:

Children with disabilities are at greater risk of maltreatment, violence, abuse and exploitation than their non-disabled peers. Physical inaccessibility of facilities, distance and poverty are key barriers that limit their access to services in education, health and welfare. Children with severe disabilities are usually kept at home, and often 'hidden' to the outside world, due to stigma and discrimination. In 2007-2008 [13]. The result shows high caries prevalence 72% and dental caries was increase when children is get older, mean score of DT was 2.33±2.18 and mean DMFT was 2.51±2.33 in disable children compare to healthy child report the mean DT was 0.3±0.8 and mean PUFA was 0.0±0.1[14]. while the studied from Hong Kong showed mean of DMFT index was 1.23 for 14 year-olds was lower than our study and opposite of our results show mean DMFT 5.73 for the 25-35 age group which is higher [15]. Comparing the latest surveys of the Project SB Brazil 2003 and 2010, it was noticed a decrease in DMFT at 12 years, from 2.8 to 2.1 aged 15 to 19 fell from 6.1 to 4.2. The mean values were 3.93 for the 11-14 age group, 3.47 for the 15-19 age group, 4.74 for the 20-29 age group and 5.68 for the 30-38 age group, thus indicating that the DMFT index increased with age. In a study with Thai children aged 6 and 12 years, also concluded that the number of caries increased with age [16]. In this study showed high prevalence of dental caries in Down's Syndrome children with mean DT was 5.50±4.94, mean abscess was 1.50±2.12. studied from Mabel indicated that a higher prevalence of dental decay explain that this may be caused by immunological conditions, a deficit in motor coordination, and intellectual impairment that may lead to poor oral hygiene [17]. Oral hygiene is essential for the prevention of oral diseases. Although various studies and systematic reviews have observed poor oral hygiene, especially in children having intellectual disabilities, as compared to the general population [18]. In the present study 70% of children report fair oral hygiene of mild plaque and severe plaque attached on the tooth surface, 42% of had poor knowledge with oral hygiene, study from Deepika found a higher portion (43.6%) of special healthcare needs children showing good oral hygiene while 31.5% and 22.2% showing fair and poor oral hygiene respectively in their study [19]. Half of disable children need dental treatment and 24% of them need urgent treatment because of tooth pain and abscess, that because of children have hardly condition to access dental treatment also the treatment fee will be the reason to barrier. There was no any health and oral health education

include in the curriculum, with the aim of instructing students on how to take care of their oral health through practical and educational activities. 11 of children reported Abundant amount of visible plaque of children (9%) in every tooth. Their parents have more control over their oral hygiene, but as they grow older, most of them seek to be more independent, refusing the constant help from their caregivers. From our study shown that high prevalence of dental caries and poor oral hygiene status in disable children and young adult.

Prevention programs which include videos and manual training for children and young adult with special needs, dental plaque control, dietary control, fluoride varnish and sealant are efficient for the prevention of oral disease in this subjects. Especially in subject who was down's syndrome. The necessity to provide dental professional and education to school teacher and parent with qualification in oral health. The limitations of this study occur because the survey has small sample size with special school. Most of parent still hide the disabilities at home, hard to explained the objective to subject because they have specific language in different type of disabilities and encouraging dentist to set up a dental care system for this subject with disabilities is an urgent need.

Conclusion:

The observed of prevalence of dental caries were high, DMFT indexes were relatively low for individuals with different levels of disability but there were no different among them. Parent had poor knowledge of oral health care effect to children has poor oral hygiene. Subject with mental problem should met dentist regularly. It is important to have a focused, constant and multidisciplinary monitoring of young adult with disabilities who attending special school in Vientiane capital.

References

1. American Academy of pediatric Dentistry. Guideline on management of dental patients with special health care needs. Pediatr Dent 2012;34:160-5

2. Nelson Lp, Getzin A, Graham D, Zhou J, Wagle EM, McQuiston J, et al. unmet dental needs and barrier to care for children with significant special health care needs. Pediatr Dent 2011;33:29-36

3. C.W. LewisDental care and children with special health care needs: a population-based perspective Acad Pediatr, 9 (2009), pp. 420-426

4. L.M. Jamieson, P.I. KoopuChild use of dental services and receipt of dental care in New Zealand J Paediatr Child Health, 43 (2007), pp. 732-739

5. Weng RH, Kung PT, Tsai WC, Chiang HH, Chiu LT. the use of fluoride vanish and its determining factors among children with disability in Taiwan. Res Dev Disabil. 2011, 32(2): 583-592. 10.1016/j.ridd.2010.12.016

6. Gardens SJ, Krishna M, Vellappally S, Alzoman H, Halawany HS, Abraham NB, Jaco V: Oral health survey of 6-12-year-old children with disabilities attending special school in Chennai, India. Int J Paediatr Dent. 2013, doi:10.1111/ipd.12088.

7. Dean JA, Avery Dr, McDonald RE. Dentistry for child and Adolescent 9th. Ed. Maryland Heights: Mosby/Elsevier, 2010. Chapter 23; pp 460-484.

8. Nunn JH. The dental health of mentally and physically handicapped children: A review of the literature, Community Dent Health. 1987 Jun;4(2):157-68.

9. Natasa Ivancic Jokic, Martina Majstorovic, Danko Bakarcic, Andrej Katalinic and Lajos Szirovicza. Dental caries in disabled children. Coll. Antropo;. 31 (2007) 1: 321-324 Original scientific paper

10. Australian NGO Cooperation program (ANCP) strengthening protection and inclusion of children with disabilities in Laos). dfat.gov.au/development/strengthening-protection-and – inclusion-children-disabilities.

11. Lewis C, Robertson A.S. , Phelps S. Unmet dental care needs among children with special health care needs: implications for the medical home Pediatrics, 116 (2005), pp. e426-e431

12. Kenney M.K. , Kogan M.D. , Crall J.J. Parental perceptions of dental/oral health among children with and without special health care needs, Ambul Pediatr, 8 (2008), pp. 312-320

13. UNICEF / for every Lao https://www.unicef.org/laos/what-we-do/child-protection/disabilities

14. Jed Dimaisip-N, Denise D, Habib B, Roswitha HW, Amphayvan H, Bella M, Hak S, Nicole S, Sri S and Katrin K. A nutritional status, dental caries and tooth eruption in children: a longitudinal study in Cambodia, Indonesia and Lao PDR. BMC Pediatrics (2018) 18:300 https://doi.org/10.1186/s12887-018-1277-6).

15. Donnell DO, Sheiham A, Wai YK. Dental findings in 4-, 14-, and 25-to 35-year-old Hong Kong residents with mental and physical disabilities. Spec Care Dentist. 2002;22(6):231-4.

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16. Liu HY, Huang ST, Hsuao SY, Chen CC, Hu WC, Yen YY. Dental caries associated with dietary and toothbrushing habits of 6 to 12-year-old mentally retarded children in Taiwan. J Dent Sci. 2009;4:61-74. doi: 10.1016/S1991-7902(09)60010-6.
17. Mabel CP, Machado da Silva, Maria Carlla AL, Híttalo Carlos Rodrigues de Almeida, Arnoldo Vasconcelos de Alencar Filho , Mnica Vilela Heimer. Caries experience in children and adolescents with Down Syndrome: A systematic review and meta-analysis. Archives of Oral Biology, Volume 115, July 2020, 104715
18. Andres Al, Davis EL. Oral health of patients with intellectual disabilities: a systematic review. *Spec Care Dentist.* 2010;30(3):110–117. doi: 10.1111/j.1754-4505.2010.00136.x.
19. Deepika P, Suma SD, Chand Patidar. Oral Health Status of Children with Special Healthcare Need: A Retrospective Analysis, , Int J Clin Pediatr Dent. 2022 Jul-Aug; 15(4): 433–437.doi: 10.5005/jp-journals-10005-2419

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