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Oral Health Care Ability of Nursery School Teachers at Daegu Region in Korea

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Objective: This study was performed to identify the current status of oral care services provided in nursery school, knowledge and behaviors of nursery school teachers.

Methods: One hundred and ninety-three nursery school teachers from 42 nursery schools at Daegu area were participated for the questionnaire method. The knowledge and the behavior level of the oral health for teachers and the system for supplying from the school guide line for oral health education and oral health care were checked by questionnaire method.

Results: The average score of the subjects for the knowledge on the oral health was 12.29 points out of 20 points, and the average score for oral health behavior was 40.51 points out of 60 points. Among the oral care service items provided to children, 95.9% of them answered that they let children to toothbrush after lunch and only 32.1% of them answered that they let children to toothbrush after snack food intake.

Conclusion: It will be necessary for nursery school teachers to be educated for oral health in order to enhance the oral health level for the children.

Keywords: oral health, preschool children, behavior

Introduction

It is well known that the primary teeth have been more easily influenced by dental caries than on permanent dentition and the deciduous teeth caries is one of the main oral diseases for infants and preschool children. Primary teeth dental caries can be caused the disturbance of the growth and development for them and more susceptibility to cause the permanent teeth caries in the future [1,2]. In case of the untreated caries, can cause the negative influence for the physical growth for children and the early and proper treatment or prevention of dental caries should be important for children's promoting oral health [3].

In Korea, dental caries experience rate for primary teeth in 5 years old was shown as 82.8% in 2000, 77.3% in 2003, 67.6% in 2006 and 61.5% in 2010, as decreasing tendency year by year, but remained as high prevalence, compared with the developed and advanced countries [4].

It should be important that the parents roles for oral health cares for infants and young children, and more influence by the knowledge and behaviors of the mother than fathers [5]. But, in recent years, it can be hard to expected the mother's role for woman as before, because of the increase the workforce population of woman and the nuclear family, and relatively neglect

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for their children's health care. Moreover, the policy for the extension of free education for preschool children by government from the year of 2012, more hours the children stayed at the kindergarten in a day and has increased the responsibility for health care by nursery school teacher.

It has been a report that the less number of the caries primary teeth existence in case of enough knowledge for the oral health for the nursery school teacher has [6]. It has been reported that the more recognition and behavior of nursery school teachers had, the better oral health education for children have been served [7].

The oral health knowledge and behavior of nursery teacher can be composed not only from the individual information of teacher, but also from the service items for kindergarten teacher by authority's policy. Unfortunately it has not so much reports about them. So, this study suggest the information about the nursery teacher's oral health knowledge, oral health care habit and behavior, oral health education policy and items by kindergarten authority, in order to serve information to establish the oral health care direction for preschool children.

Materials and Methods

1. Subjects

Two hundreds of nursery teachers from 42 kindergartens were participated voluntary for joining the questionnaire with self-description method and analyzed 193 of questionnaire sheets except 7 papers with insufficient written.

2. Method for analysis

Questionnaire was composed as 7 questions for general characteristics of nursery school teachers, 20 questions for oral health knowledge, 15 questions for oral health care behaviors for teachers, 3 questions for regulation about the oral health care 7 questions for oral health behavior for children, and 6 questions for the experience about the oral health care education.

One way ANOVA test and t-test were applied on the general characteristics and the experience for the education with the knowledge level about the oral health care after collecting the data by use of IBM SPSS ver. 19.0 program (IBM Co., Armonk, NY, USA), the frequency analysis was performed for the oral health care and the cross analysis process was done for the supply of the oral health care for children according to the direction

Table 1. The oral health knowledge and behavior level of the subjects according to the general characteristics

Item	Number of subjects	Knowledge score[a]	p-value	Behavior score[b]	p-value
Age (yr)					
20-24	84 (43.5)	11.65±2.81	0.066	39.79±8.19	0.024
25-29	34 (17.6)	12.47±3.37		38.41±7.05	
30-39	35 (18.2)	12.60±3.62		41.31±5.61	
≥40	40 (20.7)	13.20±3.09		43.13±8.34	
Education level					
High school	13 (6.7)	14.00±2.00	0.101	40.54±5.56	0.279
College	111 (57.5)	12.04±3.45		39.78±7.25	
University	69 (35.8)	12.38±3.16		41.68±8.72	
Career (yr)					
≤2	83 (43.0)	11.64±2.90	0.044	41.36±7.87	0.012
3-4	52 (26.9)	12.85±3.21		37.83±7.28	
≥5	58 (30.1)	12.72±3.36		41.71±7.47	
Marriage					
Single	130 (67.4)	11.77±3.05	0.001	39.62±7.58	0.001
Married	63 (32.6)	13.37±3.14		42.37±7.77	
Number of children					
Under 1	16 (25.4)	12.00±3.46	0.071	41.56±8.58	0.660
More than 2	47 (74.6)	13.83±2.91		42.64±7.55	
Position					
Director	14 (7.3)	12.29±2.34	0.994	42.21±8.56	0.449
Teacher	179 (92.7)	12.29±3.22		40.38±7.67	
Total	193 (100.0)	12.29±3.16		40.51±7.73	

Values are presented as number (%) or mean±standard deviation. [a]Correct for 1 point, incorrect or unknown for 0 point. As 20 points as full score. [b]Always yes for 4 points, sometimes yes for 3 points, often yes for 2 points and never yes for 1 points as 60 degrees for full score.

for the oral health care.

Results

The age range of subjects were divided into 2 groups, one from 20 to 24 years (43.5%), and one over 40 years (20.7%).

The average knowledge score of the subjects were 12.29±3.16 out of 20. The knowledge score by the general characteristics of the subjects had a significant difference, 12.85±3.21, 3 to 4 career, 12.72±3.36, over 5 years of career ($p<0.05$), Unmarried subjects scored 11.77±3.05, and married scored 13.37±3.14 ($p<0.01$).

The average oral health behavior score according to the general characteristics was 40.51±7.73 out of 20, the score was shown highest in over 40 years old subjects which was 43.13±8.34 ($p<0.05$), and there was a significant difference in subjects who had career less than 2 years 41.36±7.87, more than 5 years 41.71±7.47 ($p<0.05$), unmarried 39.62±7.58 and married 42.37±7.77 ($p<0.05$) (Table 1).

102 (52.9%) of the teachers had oral health education experience, there was a significant difference in the behavior score between who had experience, 42.66±8.12 and who didn't, 38.11±6.51 ($p<0.05$) (Table 2).

The implement of practices in young children oral health care at the daycare center were 'tooth brushing after meals' 185 (95.9%), 'tooth brushing after snack food' 62 (32.1%), 'check tooth brush state' 174 (90.2%), 'compensation for sweet diet' 44 (22.8%), 'tooth brushing instruction' 154 (79.8%).

There was a significant difference in the behavior score of the young children oral health care at the nursery school, 43.19±8.42 for 'brushing teeth after snack', 41.04±7.71 for 'check tooth brush state', and 41.78±7.65 for 'tooth brushing instruction'. And also for 'not compensation for sweet diet', 41.15±7.51 had a significant difference ($p<0.05$) (Table 3).

Subjects that practices oral health education, 140 (98.6%) of them 'made young children tooth brushing after meal', 44 (31.0%) 'made young children tooth brushing after snack', 140 (98.6%) of them 'brush state check', 24 (16.9%) of them

Table 2. The oral health knowledge and behavior level of the subjects according to the experience for the oral health education

Item	Number of subjects	Knowledge score[a]	p-value	Behavior score[b]	p-value
Education experience					
Yes	102 (52.9)	12.53±2.74	0.274	42.66±8.12	<0.001
No	91 (47.3)	12.02±3.56		38.11±6.51	
Total	193 (100.0)	12.29±3.16		40.51±7.73	

Values are presented as number (%) or mean±standard deviation. [a]Correct for 1 point, incorrect or unknown for 0 point. As 20 points as full score. [b]Always yes for 4 points, sometimes yes for 3 points, often yes for 2 points and never yes for 1 points as 60 degrees for full score.

Table 3. The oral health knowledge and behavior level of the subjects according to the oral health care supply for young children

Item	Number of subjects	Knowledge score[a]	p-value	Behavior score[b]	p-value
Tooth-brushing after meals					
Yes	185 (95.9)	12.42±3.07	0.051	40.63±7.77	0.256
No	8 (4.1)	9.25±3.80		37.75±6.45	
Tooth-brushing after snack food					
Yes	62 (32.1)	11.34±3.18	0.005	43.19±8.42	0.002
No	131 (67.9)	12.74±3.06		39.24±7.06	
Check tooth-brush state					
Yes	174 (90.2)	12.65±2.96	0.000	41.04±7.71	0.002
No	19 (9.8)	8.95±3.04		35.68±6.19	
Compensation for sweet diet					
Yes	44 (22.8)	11.75±3.21	0.206	38.36±8.13	0.047
No	149 (77.2)	12.45±3.13		41.15±7.51	
Tooth-brushing Instruction					
Yes	154 (79.8)	12.65±2.82	0.011	41.78±7.65	0.000
No	39 (20.2)	10.87±3.96		35.51±5.84	
Total	193 (100.0)	12.29±3.16		40.51±7.73	

Values are presented as number (%) or mean±standard deviation. [a]Correct for 1 point, incorrect or unknown for 0 point. As 20 points as full score. [b]Always yes for 4 points, sometimes yes for 3 points, often yes for 2 points and never yes for 1 points as 60 degrees for full score.

Table 4. The number of nursery school standardization for the oral health care and the supply of the oral health care

Item	Number of subjects	Oral health education		Oral examination		Manual for oral health care	
		Yes	No	Yes	No	Yes	No
Tooth-brushing after meals							
Yes	185 (95.9)	140 (98.6)	45 (88.2)	104 (98.1)	81 (93.1)	92 (96.8)	93 (94.9)
No	8 (4.1)	2 (1.4)	6 (11.8)	2 (1.9)	6 (6.9)	3 (3.2)	5 (5.1)
Tooth-brushing after snack							
Yes	62 (32.1)	44 (31.0)	18 (35.3)	39 (36.8)	23 (26.4)	32 (33.7)	30 (30.6)
No	131 (67.9)	98 (69.0)	33 (64.7)	67 (63.2)	64 (73.6)	63 (66.3)	68 (69.4)
Tooth-brush state check							
Yes	174 (90.2)	140 (98.6)	34 (66.7)	103 (97.2)	71 (81.6)	92 (96.8)	82 (83.7)
No	19 (9.8)	2 (1.4)	17 (33.3)	3 (2.8)	16 (18.4)	3 (3.2)	16 (16.3)
Compensation for sweet diet							
Yes	44 (22.8)	24 (16.9)	20 (39.2)	14 (13.2)	30 (34.5)	16 (16.8)	28 (28.6)
No	149 (77.2)	118 (83.1)	31 (60.8)	92 (86.8)	57 (65.5)	79 (83.2)	70 (71.4)
Tooth-brushing Instruction							
Yes	154 (79.8)	132 (93.0)	22 (43.1)	102 (96.2)	52 (59.8)	85 (89.5)	69 (70.4)
No	39 (20.2)	10 (7.0)	29 (56.9)	4 (3.8)	35 (40.2)	10 (10.5)	29 (29.6)
Total	193 (100)	142 (73.6)	51 (26.4)	106 (54.9)	87 (45.1)	95 (49.2)	98 (50.8)

Values are presented as number (%).

'compensation for sweet diet', 132 (93.0%) of them 'tooth brushing instruction'. Subjects that didn't practice oral health education, 45 (88.2%) of them 'made young children tooth brushing after meal'. 18 (35.3%) of them 'made young children tooth brushing after snack', 34 (66.7%) of them 'brush state check', 20 (39.2%) of them 'compensation for sweet diet', 22 (43.1%) of them 'tooth brushing instruction'.

Subject group with an young children manual for oral health care answered 92 (96.8%) of them 'made young children tooth brushing after meal', 32 (33.7%) of them 'made young children tooth brushing after snack', 92 (96.8%) of them 'brush state check', 16 (16.8%) of them 'compensation for sweet diet', 85 (89.5%) of them 'tooth brushing instruction'. Subject group without an young children manual for oral health care answered 93 (94.9%) of them 'made young children tooth brushing after meal', 30 (30.6%) of them 'made young children tooth brushing after snack', 82 (83.7%) of them 'brush state check', 28 (28.6%) of them 'compensation for sweet diet', 69 (70.4%) of them 'tooth brushing instruction' (Table 4).

The group that had experienced oral healthcare education answered 101 (99.0%) of them 'made young children tooth brushing after meal', 36 (35.3%) of them 'made young children tooth brushing after snack', 97 (95.1%) of them 'brush state check', 22 (22.5%) of them 'compensation for sweet diet', 89 (87.3%) of them 'tooth brushing instruction', Subject group without an young children manual for oral health care answered 84 (92.3%) of them 'made young children tooth brushing after meal', 26 (28.6%) of them 'made young children tooth brushing after snack', 77 (84.6%) of them 'brush state check', 21 (23.1%) of them 'compensation for sweet diet', 65 (71.4%) of them 'tooth brushing instruction' (Table 5).

Table 5. The number of the subjects who have experienced for the oral health education and the supply of the oral health care

Item	Number of subjects	Education experience	
		Yes	No
Tooth-brushing after meal			
Yes	185 (95.9)	101 (99.0)	84 (92.3)
No	8 (4.1)	1 (1.0)	7 (7.7)
Tooth-brushing after snack			
Yes	62 (32.1)	36 (35.3)	26 (28.6)
No	131 (67.9)	66 (64.7)	65 (71.4)
Tooth-brush state check			
Yes	174 (90.2)	97 (95.1)	77 (84.6)
No	19 (9.8)	5 (4.9)	14 (15.4)
Compensation for sweet diet			
Yes	44 (22.8)	22 (22.5)	21 (23.1)
No	149 (77.2)	79 (77.5)	70 (76.9)
Tooth-brushing instruction			
Yes	154 (79.8)	89 (87.3)	65 (71.4)
No	39 (20.2)	13 (12.7)	26 (28.6)
Total	193 (100.0)	102 (52.9)	91 (47.3)

Values are presented as number (%).

Discussion

It has been well known that both the parents and the nursery

school teacher should be important persons to promote the oral health for infants and preschool aged young children, through the supply of the proper oral health knowledge and behavior to children to enhance the oral health level for one's life, and the nursery teacher should get the responsibility to level up the oral health level through the proper oral health education and oral health care [8-11].

The level of the oral health knowledge for the nursery teachers was average 12.29±3.16 points in 20 points as full score and the behavior level was average 40.51±7.73 points in 60 points as full score, as not so much high level.

The more aged, the higher behavior score, as high score in over 5 years careered group, but it revealed also high score in under 2 years group because it were estimated as many experienced teachers were newly get the job, in the subjects. The knowledge and behavior level were more high in the group of married and more children group than in unmarried or got less children group. This was imagined that they got some oral health care experiences through the growing up the children.

It was estimated that the experience for the oral health education could influence the enhance the oral health knowledge and behavior level for nursery teachers, because the group with positive answers for all items except tooth-brushing after snack food taking, got the more high level for the knowledge and the behavior points, and more over it could be related with the oral health care for children by contributing the proper oral health care ability.

It was appraised that 95.9% of nursery teachers have performed the tooth-brushing instruction after meals and 90.2% of them have checked the tooth-brush individually. Otherwise 4.1% of them have no opportunity to serve that for them. Especially only 32.1% of them have tried for letting the children tooth-brushing after snack food intake, and it might be caused by the lack of the time for them. 87.0% of the nursery teachers has answered they had not so much time to do the tooth-brushing instruction for children after taking the snack food.

It was shown that 73.6% of them have answered to perform the oral health education and 54.9% of them have done for oral examination at the nursery school. Otherwise, 49.2% of them have answered that they got the guide line for the oral health care at the nursery school, and it revealed better level of oral health care supply in case of the nursery school which has got the oral health care guide line. So it was recommended to establish the proper oral health care guide line for all nursery schools in Korea.

So it was needed to develop the simulation system for proper tooth-brushing individually, rather than the traditional oral health education method.

22.8% of the teachers have answered that they sometimes compensate for appraisal with the sweet food but no time to tooth-brushing after compensation.

So, it was recommended to change the method for the compensation for the appraisal with other things instead of the sweet food.

There was some limitations about this study as several subjects from a nursery school and targeted for the individual nursery teacher with the questionnaire method without the results for the oral examination for the children.

It was considered that the continuous oral health education program should be developed and supplied to the nursery school in order to enhance the oral health level through the adequate oral health education with the standard guide line for them.

Conclusion

The authors have performed the survey with the questionnaire method to 193 of the nursery school teachers in order to know the knowledge and the behaviors for them and the oral health related system to supply from the school authorities.

193 nursery teachers from 42 schools which located in Daegu city in Korea were participated and joined the questionnaire answered by them voluntary.

The results were collected and analyzed. The obtained results were as followings.

1. It revealed that 12.29 points were got for the knowledge level among 20 points as full score and 40.51 points per 60 points as full score in behavior score for nursery teacher's oral health level, as not so enough level.
2. It was answered that 95.9% of the nursery teachers have let children tooth-brushing after meals and 90.2% of them have checked the tooth-brush state but only 32.1% of them have let tooth-brushing after snack food intake.
3. 22.8% of the nursery teachers have sometimes gave the sweet diet for the compensation of the appraisal.
4. 73.6% of the nursery teachers have answered that they performed the oral health education and 54.9% of them replied doing the oral examination.
5. 49.2% of the nursery teachers has answered that the nursery schools have got the guide line for the oral health care for young children and 52.9% of them have experienced to be educated for the oral health cares.

It was recommended to enhance the knowledge and behavior level for the nursery school teachers, through the continuous oral health education for them, in order to level up for the oral health care for preschool aged young children.

References

1. Jin BH, Lee BJ, Paik DI. Prevalence of incipient lesions in surveyed preschool children, Kuro-gu, Seoul: a pilot study. J Korean Acad Oral Health 2004;28:548-58.
2. Ra SJ, Shin HJ, Shin JH, Kim DH, Bae KH, Lee SM, et al. Correlation between caries prevalence in primary and permanent dentition. J Korean Acad Oral Health 2004;28:212-27.
3. Kim SH, Choi HJ, Choi BJ, Kim SO, Lee JH. The effect of early childhood caries on height and body weight of children. J Korean Acad Pediatr Dent 2010;37:193-201.
4. Ministry of Health & Welfare. In-depth analysis of 2010 national health-related survey data. Sejong: Ministry of Health & Welfare; 2010.
5. Choi YH, Suh I, Kwon HK, Ji SH. Children's dental health status in relation to their mother's oral health knowledge and practices. J Korean Acad Oral Health 1999;23:45-62.
6. Kim EH, Choi HS, Oh HS. The influence of the cognizance of childcare teachers about dental careon oral health of infants. J Korean Acad Dent Hyg 2006;8:17-28.
7. Kwon KA. A study on factors affecting the oral health care behaviors of nursery school teachers for young children [thesis]. [Gangnung]: Gangnung University; 2007.
8. Jun SH, Jung MH. Regional daycare center teachers' dental health perception and dental control status in Daegu metropolitan city. J Korean Soc Sch Health Educ 2009;10:85-94.
9. Kim SJ, Lee JE, Yang SO, Kang KA, Chang EY, Oh KS, et al. Perception of child day care center teachers on issues and needs in child health management. J Korean Acad Child Health Nurs 2011;17:10-21.
10. Yoo SY, Chon JA, Seo JH, Moon HR, Jwa SK. Oral health education effect on primary school children. Int J Clin Prev Dent 2012;8:225-9.
11. Budiharto, Adyatmaka I. The effects of dental health educational method to the changing of dental health behavior on mothers and preschool children. Int J Clin Prev Dent 2009;5:141-6.