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Effects of Oral Health Promotion Program for Adolescents from Multicultural Families

Jung-Hui Son[1] and Yong-Keum Choi[2*]

[1]Department of Dental Hygiene, Daewon University College, Jecheonsi, 27231, Korea; jadoreya@naver.com
[2]Department of Dental Hygiene, Sun Moon University, Asansi, 31460, Korea; jennychoi@sunmoon.ac.kr

Abstract

Objectives: This study aims to implement an oral health promotion program to improve oral hygiene performance of adolescents from multicultural families and assess changes in knowledge, awareness and behavior in oral health. **Methods/Statistical Analysis**: The oral health promotion program was explained to multicultural school teachers and students that were located in the C area at dormitory type technical schools for multicultural adolescents in Korea, and under their consent 44 students participated in the program. **Findings**: It was verified that the three consecutive dental health promotion programs with immigrated adolescent of multicultural families as the recipients had a positive effect on the dental health knowledge, awareness, and behavior of the students. This is being thought that the research that has operated a dental health promotion program and has evaluated the results of the education with adolescents of multicultural families will have meaning itself in the insufficient current status. It is being expected that this research may be used as base line data to the development of dental health promotion programs for adolescents of multicultural families. **Improvements/Applications**:There is a lack of research with the theme of dental health management programs, making it difficult to directly compare with this advanced research.

Keywords: Adolescent, Dental Hygiene, Multicultural Families, Oral Health, Oral Health Promotion

1. Introduction

Adolescents from multicultural families may have more difficulty with mentality, social adaptation, school adaptation, and health, especially because they come from a multicultural family[1]. The rate of being not satisfied with the treatment at a dentist office for multicultural migrated females is over 50%, periodontal disease rates are at 74.5%, and the ratio of them already have experienced a cavity is at 71.4%, showing results of research that the ratio of people contracting oral diseases is high[2], and even though the multicultural migrated females are of a young age group, most of them have problems with their oral health, and they show a low level of oral health management. Such oral health problems of migrated females do not remain solely as a personal issue, but can have influence on their children as well[3]. The element that affects the state of the oral health of children and the knowledge, attitude, and actions they express is said to be their parents, and when the multicultural mother is a migrated female, subjective detection rates about health are low, which is deeply involved with the way their children recognize health. In reality, as a result of comparing the oral health behavior of multicultural adolescents and general teenagers, the ratio of suffering dental diseases such as gum inflammations and tooth pain were higher in multicultural adolescents, and because the ratio of smoking and amount of intake of snacks and instant products with a lot sugar was higher than general teenagers, the risk of their dental health is higher[4]. It was also mentioned that

**Author for correspondence*

realistic education programs that can stir up the attention and management of oral health for the improving of the oral health managing by multicultural migrated females and that can provide the opportunity for them to participate directly[5]. Therefore, in this research, as immigrated adolescents of multicultural families as the recipients, their oral health knowledge, awareness, and behavior was studied, and to induce self-participation by adolescents of multicultural families through individual education, oral health promotion programs based on practice were operated and evaluated for their effects.

In order to promote the oral health of adolescents, it is very important to advisably change their behavior and habits related to oral health. Especially, as the health management and oral health status necessary in the development process of multicultural adolescents are so poor, reinforcement in the field of health and concentrated support for health is required[6]. At the moment most programs for multicultural adolescents remain as verbal development supporting programs, Korean culture camp experiences, class guidance, and sport events, showing us that programs for the dental management of multicultural adolescents related to the promotion of oral health must be operated[7]. As a result of piecing together the researches about the education of dental health the promotion of health, Brown proposed that for practice of effective teeth brushing, one on one education and education with participation is important[8]. In addition, the decayed, missing, and filled teeth index (dft index) of children from multicultural families was at a number of 4.17, higher than the general children's number of 2.69, and the dfs index of multicultural children was at 6.67, higher than that of general children, showing that the oral health status of children from multicultural families is much poorer compared to that of children from general families[9, 10]. Like this, it has also been suggested that for such poor oral management by adolescents from multicultural families, support for primary prevention methods such as correct eating habits, checkups, early treatment, and oral health education programs must come first[11, 12].

2. Proposed Work

The oral health promotion program was explained to multicultural school teachers and students that were located in the C area at dormitory type technical schools for multicultural adolescents in Korea, and under their consent 44 students participated in the program. The survey and dental hygiene managing skills evaluation about oral health knowledge, awareness, and behavior were aimed at the 32 students that participated in all three programs, and were analyzed accordingly. This research took place from March of 2012 to May of 2012. The questions and oral health promotion programs about oral health knowledge, awareness, and actions were managed by constantly updating the educational material developed by[13]. The survey consists of 23 questions. The inner reliability was Cronbach's alpha = 0.743. The survey was taken so that the students read and filled out the questions on their own, and for students who could not speak Korean perfectly; inspectors explained the meaning to those who did not understand. The survey was conducted both before the beginning of the first education and after the education.

The evaluation of oral hygiene management skills was carried out by a skilled dental hygienist and by having the student brush their teeth before every program by themselves, a PHP index was used to measure their management skills. With the PHP index, lower points mean that the person is managing their dental plaque better. The oral health promotion program took place with a Dental Hygiene student with previous education training as the host. The oral health promotion program took place three times, once a week and identical oral hygiene managing items (tooth brush, dental floss, and mouth wash) were provided to the students who participated in the program. The contents of the oral health promotion program with certain multicultural adolescents as the recipient are shown in Table 1.

Table 1. Organization of Oral Health Promotion program

Classification	Program Details	Required Time (min)
Session 1	1. Questionnaire completion before program 2. Tooth brushing before program 3. Oral health education: Theory 4. Dental plaque exam 5. Oral microbe observation with phase contrast microscope 6. One-on-one education and practice in tooth brushing 7. Expert on dental plaque management	100

Session 2	1. Tooth brushing before program 2. Dental plaque exam 3. Diet education: Measurement of sugar content per food type 4. Education on floss use 5. One-on-one education and practicing in tooth brushing and flossing 6. Expert on dental plaque management	100
Session 3	1. Tooth brushing before program 2. Dental plaque exam 3. Fluoride experiment: Acid resistance test with eggs 4. Education on chemical dental plaque management 5. One-on-one education and practicing in tooth brushing and flossing 6. Expert on dental plaque management 7. Questionnaire completion after program	100

The statistical analysis of the collected data used the PASW 18.0 for windows program (copyright(c) SPSS Inc., USA). In order to identify the degree of difference for the oral health knowledge, awareness, and behavior of before and after the oral health promotion program, a Kolmogorov-Smirnov test (a normality analysis) was performed, a normality variation was established ($p>0.05$), and either an independent T-test or a one-way ANOVA was carried out. A paired t-test was conducted, and the degree of change of the PHP index according to the number of oral health promotion programs was evaluated with the repeated measure analysis of variance using generalized linear modeling method.

2.1 Comparison of Oral Health Knowledge

The result of the comparative analysis of oral health knowledge before and after operating the oral health promotion program is as shown in Table 2. The present condition of the answers to each question about oral health knowledge showed a statistical appearance in questions 1, 3, 7, 8, 9, 10, and 11 ($p<0.05$). This is being thought to be the effect of education through programs where students can directly participate in the process of examining microorganisms and controlling their diet.

Table 2. Changes in knowledge of Oral Health before and after Oral Health Promotion Program implementation: Proportion of correct answers N (%)

Item	Program Implementation		p-value*
	Before	After	
1. What does dental plaque use to make acid?	7(21.9)	14(43.8)	0.006
2. Eating sweet and sticky snacks causes tooth decay.	23(71.9)	25(78.1)	0.161
3. Hard and high-fiber foods like apples and raw carrots prevent tooth decay by keeping teeth clean.	16(50.0)	20(62.5)	0.044
4. Toothbrushes with a small head are more effective in brushing teeth clean than those with a larger head.	16(50.0)	18(56.3)	0.161
5. Brushing teeth with fluoride toothpastes helps prevent tooth decay.	24(75.0)	27(84.4)	0.083
6. Bleeding gums are symptoms of a gum disease.	15(46.9)	20(62.5)	0.051
7. The number of teeth for adults is 32.	14(43.8)	19(59.4)	0.023
8. The oral disease related to tobacco is periodontal disease (periodontitis and gum disease).	18(56.3)	22(68.8)	0.044
9. When is the best time to brush teeth during the day?	17(53.1)	22(68.8)	0.023
10. What is the appropriate amount of toothpaste?	19(59.4)	24(75.0)	0.023
11. What is the least tooth-decaying method to eat snacks like candies or soda?	4(12.5)	15(46.9)	<0.001

*Results of paired sample t-tests.

2.2 Comparison of Oral Health Behavior

The results from the comparative analysis of the change in oral health behavior before and after operating the

Table 3. Changes in Oral Health behavior before and after Oral Health Promotion program implementation: Tooth brushing N (%)

Item		Before Program	After Program	p-value*
Status of brushing teeth on previous day	Yes	30(93.8)	32(100.0)	0.161
	No	2(6.3)	-	
Average number of brushing teeth	Once	3(10.0)	4(12.5)	0.161
	Twice	11(36.7)	12(37.5)	
	Three times	8(26.7)	8(25.0)	
	More than three times	7(23.3)	7(21.9)	
	Cannot remember	1(3.3)	1(3.1)	
Whether flossing education was helpful	Yes	8(25.0)	32(100.0)	<0.001
	No	24(75.0)	-	
Difficulty of flossing	Very easy	1(12.5)	2(6.3)	<0.001
	Easy	-	4(12.5)	
	Average	2(25.0)	11(34.4)	
	Difficult	13(37.5)	8(25.0)	
	Very difficult	2(25.0)	7(21.9)	
Reason for failing to brush teeth after lunch in school	Brushing teeth in most times	8(25.0)	10(31.3)	0.161
	Lack of facility for tooth brushing	3(9.4)	3(9.4)	
	Inconvenience of carrying toothbrush and toothpaste	8(25.0)	8(25.0)	
	Having no time to brush teeth	6(18.8)	6(18.8)	
	Feeling no need to brush teeth	4(12.5)	2(6.3)	
	Peers are not doing it	3(9.4)	3(9.4)	

*Results of paired sample t-tests.

oral health promotion program in connection to brushing teeth are as shown in Table 3. After operating the program, on whether the research recipients had brushed their teeth the day before or not, all of them said yes, and it was identified that the number of brushings increased a little, but not enough to show a statistical significance p>0.05.

2.3 Comparison of Oral Health Managing Skill Levels

The results from the comparative analysis of each PHP index from operating the oral health promotion program are as shown in Table 4. It was identified that as the program repeated itself until the third time, there was an improvement in the skills of managing dental hygiene p<0.001.

Table 4. Changes in patient hygiene performance index by number of attended sessions of Oral Health Promotion ProgramMean±SD

Classification	PHP index	Dental plaque removal rate (%)	p-value*
Base-line	3.18±0.50	33.02±10.07	<0.001
Session 1	2.69±0.66	46.15±13.17	
Session 2	2.44±0.61	51.15±12.11	

*Results of repeated measure analysis of variance using generalized linearmodeling method, p<0.05

3. Conclusion

It was verified that the three consecutive dental health promotion programs with immigrated adolescents of multicultural families as the recipients had a positive effect on the dental health knowledge, awareness, and behavior of the students. In the comparison research according to the number of dental health programs operated and others, similar results showing an increase in the amount of dental health knowledge, awareness, and behavior during the 4th and 2nd programs. In this research, multicultural students from a school in area C were put as the recipients. However, there was a certain limit to revealing whether the difference in the level of the dental health knowledge, awareness, and behavior of adolescents of multicultural families that have settle in Korea was due to a population-social nature or due to distinct nature of the immigrated multicultural children itself. In addition, there is a lack of research with the theme of dental health management programs, making it difficult to directly compare with this advanced research. However, even with such obstacles, it is being thought that the research that has operated a dental health promotion program and has evaluated the results of the education with adolescents of multicultural families will have meaning itself in the insufficient current status. It is being expected that this research may be used as base line data to the development of dental health promotion programs for adolescents of multicultural families.

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