

Original Article

Effect of Educational Intervention on Oral Health Behaviour based on Health Belief Model in Female Secondary School Students of Paveh in 2011

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Abstract

Introduction: Education is a powerful tool in reducing dental diseases. It is known as an essential part of oral health services. This study evaluated the impact of education on oral health behavior of students based on health belief model.

Methods: This educational intervention study was carried out on secondary school girls of Paveh, Iran in 2011. A standard questionnaire was used to collect the data, including demographic characteristics, dimensions of health belief model and performance of students before and after intervention. The educational intervention was conducted over three sessions. To examine differences between groups in terms of demographic factors, dimensions of health belief model and performance status before and after the intervention, Chi-square test and logistic regression were used. $P < 0.05$ was considered significant.

Results: Sixty students were randomly assigned to intervention and control groups. Among the demographic variables, only maternal education was significantly different between the two groups ($P = 0.02$). Educational intervention significantly improved the perceived susceptibility ($P = 0.006$), perceived severity ($P = 0.007$), perceived barriers ($P = 0.01$), and use of dental floss ($P = 0.009$) in the intervention group. However, the impact on perceived barriers, cues to action, and brushing performance were not found significant ($P > 0.05$).

Conclusion: The importance of education caused promoting dental health behaviors of students. It also emphasized adopting more appropriate methods for oral health training.

Keywords: Oral health, Health belief model, Students, Educational intervention

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Introduction

Based on the World Health Organization (WHO) reports, oral diseases are considered one of the main health problems in all societies (1). Studies conducted around the world indicate an increasing trend for the incidence of dental caries in many developing countries, which is due to low knowledge of these societies about oral health, unhealthy diet, low fluoride consumption and lack of access to health services. Unfortunately, 60-90% of school-age children in developing nations suffer from dental diseases, which is remarkably increasing (2). Concerns in this regard are more intense when oral health is highly associated with the chance to suffer from other diseases like diabetes in childhood and cardiovascular diseases in adulthood (3, 4). In Iran, the incidence of dental caries is rising, which is resulting from lack or low information of the society about the importance of oral health, so that 3-year-old children have two decayed teeth and 6-year-old children have five decayed teeth (5). Thus, oral diseases in children, not only cause health and nutritional problems, but also exert destructive effects on health during elderly period, as well.

Educational intervention plays a pivotal role in promoting oral health (6, 7) and is considered a major component of oral health services (8). Healthcare education is a powerful tool that has remarkably decreased dental traumas in children and teens (9). Training this group of society promotes their health belief and tremendously affects their health behavior (10). Therefore, to achieve the objectives of prevention programs, it is necessary to enhance the knowledge and attitude of people about prevention of oral diseases (11).

Health belief model has been an important perceptual framework since early 1950 and has been highly accepted in the studies conducted on the relationship between education and health behaviors. The health-behavior model has tremendously developed in the recent decades and contains concepts that make it appropriate for educational interventions to change the health behaviors (12). This model comprises of such components as perceived sensitivity, perceived intensity, perceived benefit, perceived barriers and cues to action. Various studies are available that indicate the remarkable effect of education on the principles of health belief model to promote the knowledge, attitude and performance of children, teenagers and adults on the principles of oral health (10, 12, 13). These studies emphasize the significance of education in decreasing oral diseases and promoting health behaviors (14, 15).

Based on the health belief model, appropriate health behavior is influenced by several factors like demographic information (age, gender and ethnicity), socio-psychological factors (personal characteristics, social class) and structural factors such as knowledge of people about disease (16). Thus, it is highly important to evaluate this model in different study samples. Since no study has been carried out in Paveh and its similar demographic groups, the present study was aimed to analyze the effect of health education on oral health behaviors based on health belief model in the students of Paveh in order to identify the factors affecting oral health behaviors and to promote the quality of oral health of the students in this deprived region of the country.

Methods

This study was quasi-experimental that was conducted to analyze the effect of educational intervention on the female secondary school students (first grade) in Paveh in 2011. There were four female secondary schools in Paveh. Two schools were randomly selected for educational intervention and the other two schools were chosen for selecting the samples in control group. The samples were selected from the four schools in proportion to their population. First, the list of first graders was extracted from each school and the names were alphabetically arranged and coded individually. Then, using the random numbers' table and in proportion to the population of each school, the samples of the experimental and control groups were chosen via simple random sampling method. To determine the study sample, the effect of educational intervention on students' personal perceptions and performance about oral health was analyzed with 95% confidence and 80% power (10). It was sufficient to investigate 60 students in each group to achieve the objectives of the study. Using a questionnaire, the validity and reliability of which ($r=81\%$) had been confirmed in previous study (10), the personal perceptions based on health belief model, including perceived sensitivity, perceived intensity, perceived barriers, perceived benefits and cues to action were investigated. The questionnaire comprised of 7 questions about demographic variables, 14 questions on perceived sensitivity, 10 items on perceived intensity, 8 items on perceived benefits, 20 items on perceived barriers, 1 question to analyze cues to action and 2 items on brushing and flossing.

The performance of each student in terms of appropriate brushing and flossing was analyzed by a checklist. Having made the necessary arrangements with department of education, the researcher visited the schools in the due

time, provided the required explanations, performed the pre-test taking the ethical principles into account, presented three educational lectures using brush, dental floss and scale model and provided the students with educational pamphlets. The educational materials included concepts about oral structure, milk teeth, permanent teeth, the role of teeth in body, significance of oral health, dental caries, factors influencing dental caries, caries status in Iran and world, dentistry, oral diseases, the counter-effects of oral and systemic diseases, treatment costs, prevention, use of brush, use of dental floss and the role of fluoride in oral health. After 45 days, using the same questionnaire in the first phase of the study, the students in both experimental and control groups were investigated again to measure the retention of education. Also, the performance of the samples was analyzed in terms of correct brushing and flossing. To this end, an observer (familiar with observational principles), who was blind to the study groups, evaluated the performance of the students. The students were required to brush and floss their teeth and the observer entered with a checklist. Further, students were asked about their daily brushing (how often) and flossing (when and how often).

Data were collected, coded by SPSS (16.0) software and analyzed by STATA statistical test. Then, using chi-square and fisher exact tests the experimental and control groups were analyzed in terms of demographic factors like, age, birth order, total number of children in family,

and parents' education and occupation. Next, the factors indicating a significant difference were included in the final model, and analyses were adjusted for them. Logistic regression test adjusted for intervention factors was applied to analyze the difference between the factors under study, including personal perceptions (sensitivity, intensity, obstacles, and benefits), cues to action and brushing and flossing performance in both groups before and after intervention. According to the median of the study sample, which is a standard method to classify groups, the personal perceptions were classified into two groups of "good" and "average and weak" (17, 18). Brushing and flossing were divided into three groups of correct, partly correct and incorrect. $P < 0.05$ was considered significant.

Results

A total of 120 female students (60 in experimental group and 60 in control group) studying in secondary school (first grade) participated in this study. The means and standard deviations of the students' age for experimental and control groups were 11.78 ± 0.8 and 11.8 ± 0.8 , respectively, that indicated no statistically significant difference ($P = 0.46$). Thirty one (51.7%) students in experimental group and 22 (36.7%) in control group were the first child of the family. There was no significant difference between experimental and control groups in terms of birth order ($P = 0.23$) (Table 1).

Table 1. Demographic characteristics of female students in experimental and control groups

Demographic variables		Experimental group	Control group	P-value
		Number (%)	Number (%)	
Age	10-11	22 (36.7)	26(43.3)	0.46
	12-13	38(63.3)	34(66.6)	
Birth order	First child	31(51.7)	22(36.7)	0.23
	Second child	12(20)	18(30)	
	Third child and over	17(28.3)	20(33.3)	
Total children	1-3 children	46(76.7)	39(66.1)	0.37*
	4-6 children	12(20)	18(30.5)	
	6 and over 6 children	2(3.3)	2(3.4)	
Maternal education	illiterate and primary	15(25)	29(48.4)	0.02
	secondary	32(53.3)	26(43.3)	
	university	13(21.7)	5(8.3)	
Paternal education	illiterate and primary	9(15)	17(28.3)	0.07
	secondary	24(40)	27(45)	
	university	27(45)	16(26.7)	
Maternal job	Employed	15(25)	8(13.3)	0.1
	Housewife	45(75)	52(86.7)	
Paternal job	Employee and retired	31(51.7)	24(40)	0.2
	Self employed	29(48.3)	36(60)	

*based on fisher exact test

Maternal education showed a significant difference between experimental and control groups ($P = 0.02$). The frequencies of the illiterate mothers or mothers with

elementary education were 15 (25%) and 29 (48.4%) in experimental and control groups, respectively (Table 1). Unlike maternal education, paternal education indicated

no significant difference between groups ($P=0.07$). Also, most of the mothers (75% in experimental and 86.7% in control group) were housewives ($P=0.1$). Paternal occupation showed no significant difference between groups as well; 31 (51.7%) of fathers in experimental group and 24 (45.8%) of them in control group were employee or retired, and the rest were self-employed ($P=0.2$). It can be noted that experimental and control

groups, despite they were randomly assigned to groups, were highly similar and were only different in terms of maternal education ($P=0.02$); thus, all analyses after intervention were adjusted for this factor. It should be noted that in the analyses after intervention, if the given variable was significantly different at the beginning of the study, the analyses along with maternal education needed to be adjusted in order for this variable to be effective.

Table 2. Comparison of female students' status in experimental and control groups based on health belief model before intervention

Dimension	Status	Experimental group	Control group	P-value
		Number (%)	Number (%)	
Perceived sensitivity	good	18(30)	35(58.3)	0.002
	average and week	42(70)	25(41.7)	
Perceived intensity	good	40(66.7)	48(80)	0.09
	average and week	20(33.3)	12(20)	
Perceived barriers	good	19(32.2)	16(26.7)	0.5
	average and week	40(67.8)	44(73.3)	
Perceived benefits	good	55(91.7)	56(93.3)	0.73
	average and week	5(8.3)	4(6.7)	
Cues to action	good	55(91.7)	53(88.3)	0.66
	average and week	5(8.3)	7(11.7)	

Table 3. Comparison of female students' status in experimental and control groups based on health belief model after intervention

Dimension	Status	Experimental group	control group	P-value
		Number (%)	Number (%)	
Perceived sensitivity	good	60(80)	60(56.7)	0.006 ^{1,2}
	average and week	48(20)	34(43.3)	
Perceived intensity	good	57(95)	46(76.6)	0.007 ^{1,2}
	average and week	3(5)	14(23.3)	
Perceived barriers	good	25(41.7)	12(20)	0.01
	average and week	35(58.3)	48(80)	
Perceived benefits	good	57(95)	50(83.3)	0.07
	average and week	3(5)	10(16.7)	
Cues to action	good	48(80)	54(90)	0.09
	average and week	12(20)	6(10)	

¹adjusted for maternal education

²adjusted for the effect before intervention and maternal education

Regarding the perceived sensitivity before intervention, 18 (30%) of the students in experimental group and 35 (58.3%) in control group were in good status, that is they showed sensitivity against dental caries and oral diseases. This indicated that perceived sensitivity in control group was significantly higher than in experimental group ($P=0.002$). However, after intervention, perceived sensitivity significantly increased in experimental group ($OR= 0.28$; 95%CI:0.11-0.69; $P=0.006$), rising from 30% to 80%, with adjustment for maternal education as well as

perceived sensitivity at the beginning of the study, while no significant change was observed in control group, decreasing from 58.3% to 56.7%. Therefore, perceived sensitivity before intervention in control group was higher than in experimental group, but after intervention, it increased 2.5 times in experimental group (Table 2 and 3).

In terms of perceived intensity, 66.7% of the students in experimental group and 80% in control group were in good status before intervention indicating they perceived

the intensity of the problem, but the difference was not statistically significant (P=0.09). However, after intervention the students' perceived intensity in experimental group significantly increased to 95% (OR= 0.13; 95%CI: 0.03-57%; P=0.007); whereas, it even decreased in control group to 76.7%. Also, the analysis of perceived barriers before intervention showed no significant difference between groups and merely 32.2% in experimental group and 26.7% in control group were in good status. However, after intervention, this value increased to 41.7% in experimental group while, it increased to 20% in control group, showing a statistically significant difference (OR= 0.3; 95%CI: 0.12-0.78; P=0.01) (Table 2 and 3).

Unlike other factors, perceived benefits both before and after intervention showed no significant difference between experimental and control groups (OR= 0.25; 95%CI: 0.05-1.12; P=0.07). In the analysis of cues to

action, no significant difference was observed between groups both before (P=0.66) and after intervention (OR= 0.4; 95%CI: 0.14-1.15; P=0.09) (Table 2 and 3).

The educational intervention improved the performance of students in the use of dental floss (OR= 0.35; 95%CI: 0.16-0.77; P=0.009), but it had no impact on the use of brush (OR= 1.89; 95%CI: 0.85-4.2; P=0.14) (Table 4). The analysis of the students' performance on flossing indicated 8.3% of the students used dental floss correctly before intervention, while, this reached 23.3% after intervention, but no changes were reported for control group. Moreover, the analysis of the students' performance in brushing indicated 43.3% of them in experimental group and 40% in control group brushed their teeth correctly. After intervention, correct brushing in experimental group reached 46.7%, but no change was observed in control group.

Table 4. Comparison of female students' status in experimental and control groups based on performance before and after intervention

Performance	Status	Experimental group	Control group	P-value
		Number (%)	Number (%)	
Dental floss	Before intervention	Correct	10(16.7)	0.35 ¹
		Partly correct	25(41.7)	
		Incorrect	25(41.7)	
	After intervention	Correct	10(16.7)	0.009 ¹
		Partly correct	21(35)	
		Incorrect	29(48.3)	
Brush	Before intervention	Correct	24(40)	0.17 ¹
		Partly correct	25(41.7)	
		Incorrect	11(18.3)	
	After intervention	Correct	26(43.3)	0.14 ¹
		Partly correct	24(40)	
		Incorrect	10(16.7)	

¹adjusted for maternal education

Discussion

Educational intervention based on health belief model improved the use of dental floss in female students; however, no significant changes were reported for the use of brush. Also, an increase for students' perceived sensitivity in experimental group. After intervention, these students paid more attention to their oral health. The analysis of perceived intensity revealed a similar result, which are students in experimental group gained more understanding of this issue after intervention. Given the fact that the more students perceive the sensitivity and intensity of the issue, the more they will employ preventive behaviors (10, 15), it can be argued that educational intervention has been successful in this study,

because education based on health belief model enhanced the use of dental floss in female students, which is a preventive behavior against dental caries and oral diseases.

In comparison with the present study, the findings of Solhi et al. (19) indicated that educational intervention could improve all aspects of oral health, including brushing, flossing, perceived sensitivity, intensity, benefits and barriers as well as cues to action. This study, however, indicated that common educations in oral health are not much efficient in taking appropriate health

behaviors; so, educational planning based on an appropriate model is required.

Although the results of the present study are in line with the findings of Solhi et al. (19, 20) in terms of perceived sensitivity, intensity and barriers as well as use of dental floss, they are different in terms of other factors, especially brushing. This difference may be due to the time gap of 15 years between these studies. Comparison of the findings of Solhi et al.'s study and those of the present study indicates that oral health behaviors in girls in Tehran has improved during the 15-year period resulting in an improvement in brushing behavior in most of the girls. On the other hand, low percentage of female students (16.7% in experimental and 18.3% in control group) brushed their teeth incorrectly in the present study demonstrating that educational intervention had no significant impact on this factor.

Rahimi et al. showed that education based on health belief model did not have any impact on the students' cues to action, which is in line with the results of the present study. However, it improved the brushing in male elementary students in Tehran, which is not compatible with the results of the present study. The difference between the results of the present study and Rahimi et al. can be attributed to gender or age of the students. The participants in the study of Rahimi et al. were male elementary students while in the present study, they were female secondary students (10). The results of other studies show a significant difference in knowledge, attitude and appropriate health behaviors in oral health domain in terms of gender indicating the better status of girls than male counterpart (21, 22). Thus, these results confirm our reasoning about the difference between the present study and the abovementioned study.

Moreover, Zare et al. (23) in a descriptive-analytical study conducted on 370 students (fifth and sixth grades) in Bushehr indicated that around 96% of students brushed their teeth at least once a day. The mean number of brushings during the week was 6.8 times. Among the variables, only a significant correlation was reported for perceived barriers and brushing and only perceived barriers predicated the brushing behavior. Falahinejad et al. (11) stated that 60.6% of the students had average knowledge and 29.6% had good knowledge. There was a significant correlation between the knowledge and attitude of parents about oral health and their education and job status. Also, there was a significant relationship between the students' education, type of school, gender and their knowledge about oral health. Female students, students of non-profit schools and secondary school students (third grade) had better knowledge. The students brushed their teeth at least twice a day and 18.8% used dental floss. Buglar et al. (13) evaluated the effect of

health belief model on oral health and indicated that this model improved perceived barriers.

Maternal education can also affect the oral health of the children. The study carried out by Hajimiri et al. (5) demonstrated that training the mothers with 3-6 year-old children with dental plaque increased the perceived sensitivity, intensity, benefits and barriers toward oral health in mothers and consequently led to development of preventive behaviors in their children. This improvement in behavior caused a significant decline in dental plaque number in experimental group. Lack of attention to oral health behaviors is important from several perspectives. The role of the teeth and gums in nutrition, speech, voice quality, general health and feeling healthy indicate the significance of proper care for dentitions, prevention of infections, chronic diseases and even mental diseases (24). So, it is necessary to seriously take oral health education into account and formulate educational programs at national level with the aim of promoting nutritional status of children and avoiding sweet meals as snack, using several healthcare methods (mouthwash, dental floss, and brush) regularly, brushing and flossing correctly, visiting dentist regularly and teaching the primary symptoms of oral traumas.

One of the limitations of the present study was that one gender was employed. Since oral healthcare in girls was better than in boys (21, 22), it could cause bias and influence the effect of educational intervention on the performance of children. However, the findings of the present study can be generalized to the female society in secondary school and be used to analyze the trend of changes in these health behaviors in comparison with the previous studies conducted on the population with the same age and gender. The strength of the present study was random sampling of the participants in both experimental and control groups. On the other hand, both groups were similar in most demographic factors, which indicated the high credibility of the findings and comparisons. It should be noted that, to our knowledge, this was the first study carried out on the oral health of the female students in deprived regions of the country. In the end, regular educational programs using health belief model are recommended to be conducted to promote the oral health level.

Conclusion

The findings of the present study indicated an increase in perceived sensitivity, intensity and barriers as well as correct use of dental floss in students after intervention. The results of this study and similar studies support the use of health belief model in preventive behaviors in

students. Therefore, this model is suggested to be used to train the people in the society.

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References

- Ahmed NAM, Åstrøm AN, Skaug N, Petersen PE. Dental caries prevalence and risk factors among 12-year old schoolchildren from Baghdad, Iraq: A post-war survey. *International Dental Journal*. 2007; 57(1): 36-44.
- Petersen PE. The world oral health report 2003: Continuous improvement of oral health in the 21st century—the approach of the WHO global oral health programme. *Community Dentistry and Oral Epidemiology*. 2003; 31(S1): 3-24.
- Nelson R. Periodontal disease and diabetes. *Oral Diseases*. 2008; 14(3): 204-205.
- Demmer RT, Desvarieux M. Periodontal infections and cardiovascular disease: The heart of the matter. *The Journal of the American Dental Association*. 2006; 137(S2):14S-20S.
- Hajimiri Kh, Sharifirad Gh, Hasanzade A. The effect of oral health education based on health belief model in mothers who had 3-6 year old children on decreasing dental plaque index in Zanjan. *ZUMS Journal*. 2010; 18(72): 77-86. [Persian]
- Yazdani R, Vehkalahti MM, Nouri M, Murtomaa H. School-based education to improve oral cleanliness and gingival health in adolescents in Tehran, Iran. *Int J Paediatr Dent*. 2009; 19(4): 274-281.
- Pitts N. Detection, assessment, diagnosis and monitoring of caries [electronic resource]. Basel; New York: Karger, c2009.
- Ramroop V, Wright D, Naidu R. Dental health knowledge and attitudes of primary school teachers toward developing dental health education. *West Indian Med J*. 2011; 60(5): 576-580.
- Biesbrock AR, Walters PA, Bartizek RD. Initial impact of a national dental education program on the oral health and dental knowledge of children. *The Journal of Contemporary Dental Practice*. 2003; 4(2): 1-10.
- Rahimi F, Shojaeezade D, Zeraati H, Akbarian M. Oral health care based on educational health belief model in child. *Ardebil Sci J Health*. 2010; 2(1): 74-81. [Persian]
- Fallahinejad GM, Mirshekar Z, Razavi S. Knowledge and attitude toward oral and dental health among Zahedan's guidance school students. *J Dent Sch*. 2006; 24(4): 492-498. [Persian]
- Glanz K, Rimer BK, Viswanath K. Health behavior and health education: theory, research and practice. 4th ed. San Francisco: Jossey-Bass Publication; 2008.
- Buglar ME, White KM, Robinson NG. The role of self-efficacy in dental patients' brushing and flossing: Testing an extended health belief model. *Patient Education and Counseling*. 2010; 78(2): 269-272.
- Hollister MC, Anema MG. Health behavior models and oral health: A review. *J Dent Hyg*. 2004; 78(3): 6.
- Mazloui Mahmoudabad S, Rouhani Tonekaboni N. Survey of some related factors to oral health in high school female students in Yazd, on the basis of health behavior model (HBM). *Journal of Birjand University of Medical Sciences*. 2008; 15(3): 40-48. [Persian]
- Torshizi L, Anoosheh M, Ghofranipour F, Ahmadi F, Houshyar-rad A. The effect of education based on health belief model on preventive factors of osteoporosis among postmenopausal women. *IJN*. 2009; 22(59): 71-82. [Persian]
- Masjedi MR, Naghan PA, Taslimi S, Yousefifard M, Ebrahimi SM, Khosravi A, et al. Opium could be considered an independent risk factor for lung cancer: A case-control study. *Respiration*. 2013; 85(2): 112-118.
- Hatamabadi HR, Mahfoozpour S, Alimohammadi H, Younesian S. Evaluation of factors influencing knowledge and attitudes of mothers with preschool children regarding their adoption of preventive measures for home injuries referred to academic emergency centers, Tehran, Iran *Int J Inj Contr Saf Promot*. 2013 (ahead-of-print):1-8.
- Solhi M, Shojaei Zadeh D, Seraj B, Faghieh Zadeh S. A new model for oral health education. *The Journal of Qazvin University of Medical Sciences*. 2000; 3(4): 3-11. [Persian]
- Solhi M, Shojaei Zadeh D, Seraj B, Faghieh Zadeh S. The application of the health belief model in oral health education. *Iranian Journal of Public Health*. 2010; 39(4): 114-119.

21. Schuller AA, Willumsen T, Holst D. Are there differences in oral health and oral health behavior between individuals with high and low dental fear? *Community Dentistry and Oral Epidemiology*. 2003; 31(2): 116-121.
22. Östberg AL, Halling A, Lindblad U. Gender differences in knowledge, attitude, behavior and perceived oral health among adolescents. *Acta Odontologica*. 1999; 57(4): 231-236.
23. Zare M, Noroozi A, Tahmasebi R. Factors influencing tooth brushing behaviour based on health belief model among Bushehr Primary School 5th & 6th grade students. *Hayat*. 2013; 19(2): 67-78. [Persian]
24. Amini K, Amini A, Madani H, Pourmemari MH, Fallah R. Investigation of oral and dental-care procedures in high school students of Zanjan, 2005. *Journal of Zanjan University of Medical Sciences & Health Services*. 2006; 14(54): 47-55. [Persian]