A Study on the Reasons of Noncompliance with Tooth Brushing in Young Males of Azadshahr Region of Yazd, Iran

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Abstract

Plaque control is the most important way in prevention of periodontal disease and caries. On the other hand, tooth brushing is the best and important mechanical way for plaque control. Poor compliance of patients in response to oral hygiene instruction is a common problem. The aim of this study was to evaluate the reasons of poor compliance with brushing in Azadshahr region of YAZD (Iran). 90 Non compliant and 90 compliant men (15-39 years) were recruited and interviewed during home visit. Their knowledge, attitude toward oral heath and their compliance with tooth brushing were evaluated. The results showed that factors in non compliance with brushing were as follows: inadequate knowledge about oral heath. The number of family members, economic status, lack of knowledge about the effect of oral disease on cardio-vascular problems, logistic analysis showed that increase in knowledge about oral heath almost doubled compliance with brushing. Some reasons had been mentioned by the non compliant people for their non compliance with brushing was as follows in descending order: being tired because of daily work being busy.The most important factors in compliance with brushing were as follows in descending order: Prevention of dental caries Having good breath

Key words: Tooth brushing- Compliance- Oral hygiene

Introduction

Periodontal diseases can be prevented through adequate oral hygiene practices and a periodontal maintenance program (1). Excellent long-term personal oral hygiene can modify the quantity and quality of subgingival plaque (2,3). Many failures in the treatment of periodontal diseases can be due to inadequate oral hygiene (4). Procedures for supra gingival plaque control are as old as recorded history. Hippocrates (460-377 BC) included in his writings commentaries on the importance of removing deposits from the tooth surfaces (5). Currently the use of a tooth brush and fluoridated tooth pastes are almost universal. The use of interdental cleaning devices, mouth rinses and other oral hygiene aids are less well documented, but available evidences tend to suggest that only a small percentage of the population use such additional measures on a regular basis (6).

The usefulness of a social cognitive approach to compliance with brushing and flossing behavior recommendations was tested with 39 patients recruited from the state university of New York at Buffalo periodontal disease clinical research center by Tedesco et al. In 1991.Results indicated that positive attitudes, believes, and norms for brushing and flossing and positive intentions to brush but less intention to floss (7).

Azadshahr is one of the Yazd regions (center of the state of Yazd, Iran) with a population of about 38500; and 9137

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families, All of them are nearly of the same social class. Our previous study in this region showed that 34.5% of men did not brush regularly. The aim of this study was to evaluate the reasons of non compliance with brushing.

Materials and Methods

In this descriptive analytic study, 180 males (15-39 years) at Azadshahr region of Yazd, Iran were recruited. 90 men who had not brush their teeth were selected as test group and 90 men who had brushed regularly and didn't show clear dental plaque according to Sillness and Loe plaque index (8) were recruited as control.

The subjects were selected by cluster sampling method and after filling a written inform consent, filled up a relevant questionnaire at the time of examination. The validity of the questionnaire was determined by specialists and the reliability was verified during test retest method.

The two groups then were compared to determine the reasons for non compliance with brushing.

The knowledge was scored in the following manner: 0-9: poor

10-14: fair 15-20: good

Mean scores of knowledge in two groups were compared using Mann-Whitney U test. The chi-square test was used to evaluate the relationship between brushing and other factors.

Table 1: The comparison of the mean score of knowledge in two groups

Group	Knowledge-level Average	S.D
Compliant with brushing	13.963	2.07
Non-compliant with brushing	10.832	1.947
Total	12.398	2.54

Mann Whitney U test P value=0.0001

Table 2. The comparison of distribution frequency of the responses to the following question: Does oral/dental problems affect heart and other organs?

Response Group	Yes		No		Unaware		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Compliant with brushing	72	59.5	2	11.1	16	39	90	50
Non-compliant with brushing	49	40.5	16	88.9	25	61	90	50
Total	121	67.2	18	10	41	21	180	100

Chi-square=17.239 P value=0.0001

Results

The mean score of knowledge in control and test groups were 13.96 and 10.832, respectively. Man Whitney U test showed significant difference between two groups. (Table 1)

59.5% of subjects, mentioned that non compliance with brushing affected other organs such as heart, brushed their tooth while 40.5% did not brush.

88.9% of the subjects who mentioned that periodontal disease had no effect on heart and other organs did not brash while the rest (11.1%) brushed. (Table 2)

The chi square test showed significant relationship between believing in the effect

Table 3. The comparison of distribution frequency of brushing according to the size of families in the given society.

The size families Group	1-2 members		3-4 members		5-6 members		7-10 members		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Compliant\with brushing	13	65	41	53.2	25	43.9	11	42.3	90	50
Non-compliant with brushing	7	35	36	46.8	32	56.1	15	57.7	90	50
Total	20	11.1	77	42.8	57	31.7	26	14.4	180	100

Chi-square=13.6 P value=0.0308

of oral diseases on heart/other organs and brushing (P=0.0001).

Table 3 indicates that 65% of those who were from small families (<2members) brushed regularly while 35% did not brush.

57.7% of subjects from large families (with 7-10 members) did not brush while 42.3% of them brushed. Chi-square test showed that significant relationship between the number of people in each family and brushing in society (R=0.0308).

Table 4. Relationship between literacy and compliance with brushing

Literacy Group	Lower than high school diploma		High school Diploma and higher	
	Number	Percent	Number	Percent
Compliant with brushing	28	31.1	62	68.9
Non-compliant with brushing	53	58.9	37	41.1
Total	81	45	99	55

X^2=14.02 D.f=1P value=0.000

31.1% of men who brushed regularly were under high school diploma while this stood 58.9% for those who did not brush. Chi square test showed a significant relationship between education and brushing (Table 4).

51.6% of those who had no income brushed while 48.4% of them didn't.

75% of those who had an income higher than 200 $ brushed but remaining 25% didn't.

Table 5. Reasons for brushing in patients who brushed regularly

Reasons	Value
Prevention of dental caries	178
Prevention of halitosis	104
Aesthetic reasons	54
Oral/dental health and cleanliness	50
Pain relief	11
Other organs health	11
Prevention of gingivitis	7
Prevention of plaque formation	6
Psychological health	5
Better communication	4

Table 6. Reasons for no brushing in patients who did not brush

Reasons	value
Impatience	133
Lack of time	78
Tiredness	69
Non on habit	52
Daily chore	35
Mental preoccupation	31
Gingival sensitivity	29
Carelessness	6
Having no pain	5
Having no encourager	5
Dental sensitivity	3
Expenses	2

Table 7. The Results of Regression and Logistic Analysis: the Effectiveness of Knowledge, Age, Literacy, Family Size and Income Factors on Brushing

Variable	B	Standard error	P. Value	Exp(B)
Knowledge	0.8462	0.157	0.0000	2.33
Age	0.0658	0.045	0.146	1.06
Literacy	0.6775	0.471	0.150	1.96
Income	0.0017	0.006	0.760	1.001
Family size	0.0750	0.265	0.777	1.07
Constant	-13.72	2.777	0.000	

Chi square test indicated a significant relationship between income and compliance with brushing (P=0.045). The most important reasons for compliance with brushing were: prevention of tooth caries (178 points), prevention of halitosis (104 points), aesthetic aspects (54 points) (Table 5).

On the other hand the most important reasons for non compliance with brushing were: Impatience (133 points), lack of time (78 points) and tiredness (69 points) (Table 6).

Table 7 shows that among the effective variables in compliance with brushing; knowledge, age, education, income, and number of family members had more effect on compliance with oral hygiene.

More knowledge about oral health improves compliance with brushing up to 2.33 times.

Discussion

The results of the study indicated that the mean score of general knowledge about oral heath in compliant group was 1.3 times higher than non compliant group. The difference between two groups was statistically significant.

Different studies have considered the subject's knowledge is sometimes effective or some times ineffective. It has to be pertinent and specific to lead to satisfying result. Knowledge gives people decision-making power thus the foundation for informing a society has to be provided through lectures, practical expositions, group discussion programs and pamphlets (9, 10).

According to Green (11); Knowledge, inclinations, beliefs and values invoke people to choose a certain behavior.

The results of this study showed that 59.5% of the subjects in compliant group believed that oral heath affects heart heath while for non compliant group this was 40.5%.

Barker (12) asserted that appreciated sensitivity to problem significantly increased using the equipments that control oral diseases.

This study showed that the major reasons mentioned for compliance with brushing were the prevention of tooth caries and halitosis as well as aesthetic consideration, whereas the principle reasons for non compliance with brushing were impatience and lack of time in this group. This not only represents the lack of knowledge in non compliant group but also indicates that by taking psychological measures, values such as aesthetic aspect of the teeth and the importance of brushing in controlling halitosis have to be underlined in society. Carelessness and in difference are factors for non compliance with health recommendations and normally the only thing that eliminates this unfavorable manner is motivating people.

According to Davidson et al. (13) higher academic education would increase the knowledge about oral health.

Our results showed significant relationship between education and compliance with brushing. People have to be encouraged to increase their tooth brushing duration because it has a profound impact on brushing effectiveness and longer brushing is highly correlated to more effective plaque removal (14, 15).

Regarding the effectiveness of the oral health knowledge on compliance with brushing it is suggested those who do not brush divide in to two groups: 1) those that are illiterate, 2) the literate group, and both groups orient to appropriate health education programs. Also in order to increase the appreciated sensitivity toward oral health training of reference groups have to be considered first.

Conclusion

The results showed that people in Azadshahr region of Yazd need organized oral hygiene instruction to improve oral health.

References

1. Demertzi A, Topitsoglou V, Muronidis S. Caries prevalence of 11.5 year-olds between 1989 and 2001 in a province of North-Eastern Greece. Community Dental Health 2006; 23(3): 140-146.
2. Dahlen G, Lindhe J, Sato K, Hanamura H, Okamoto H. The effect of supragingival plaque control on the subgingival microbiota in subjects with periodontal disease. J Clin Periodontol 1992; 19(10): 802-809.
3. Smiech-Slomkowska G, Jablonska-Zrobek J. The effect of oral health education on dental plaque development and the level of caries-related Streptococcus mutans and Lactobacillus spp. Eouro J Orthod 2007; 29(2): 157-60.
4. Antonio AG, Kelly A, Valle DD, Vianna RB, Quintanilha LE. Long-term effect of an oral health promotion program for schoolchildren after the interruption of educational activities. J Clin Pediatr Dent 2007; 32(1): 37-41.
5. Lindhe J, Karring TH, Lang NP. Clinical periodontology and implant dentistry, Fourth edition, Blackwell Munksguard, Oxford 2003: chap 21,P:449.
6. Bakdash B. Current patterns of oral hygiene product use and practices. Periodontol 2000 1995; 8: 11-14.
7. Tedesco LA, Keffer MA, Fleck- kandath C. Self- efficacy, reasoned action, and oral health behavior reports: a social cognitive approach to compliance, J Behav Med 1991; 14(4): 341-55.
8. Silness J, Loe H. Periodontal disease in pregnancy, II correlation between oral hygiene and periodontal condition. Acta Odontol Scand 1964; 22:112-135.
9. Eraker SA, Kirscht JP, Becker MH. Understanding and improving patient compliance. Ann Intern Med 1984; 100(2): 258-268.
10. Poutanen R, Lahti S, Hausen H. Oral health-related knowledge, attitudes, and beliefs among 11 to 12-year-old Finnish

schoolchildren with different oral health behaviors. Acta Odon Scan 2005; 63(1):10-16.

11. Green LU. Health promotion planning, Mayfield publishing company, Mayfield 2000, P: 30.
12. Barker T. Role of health beliefs in patient compliance with preventive dental device, Community Dent oral Epidemiol 1994; 22(5 Pt 1): 327-30.
13. Davidson PL, Rams TE, Andersen RM. Sociobehavioral determinants of oral hygiene practices among USA ethnic and age groups, Adv Dent Res 1997; 11(2): 245-53.
14. Biesbrock AR, Bayuk LM, Santana MV, Yates DS, Bartize RD. The clinical Effectiveness of a Novel power toothbrush and its impact on oral health. the J Contem Dent Prac 2002; 3(2):1-12.
15. Vander Weijden GA, Timmerman ME, Nijboer A, et al . A comparative study of electric tooth brushes for the effectiveness of plaque removal in relation to tooth brushing duration. Timer study. J Clin Periodontol 1993; 20(7): 476-81.