

Impact of an Oral Educational Program on Secondary School Female Student's Knowledge and Practices Regarding Dental Caries in Erbil City

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ABSTRACT

Background and objectives: Dental Caries is common disease of the oral cavity with a high prevalence and most common health problem . This study aims to identify the impact of an Oral educational program on female secondary schools students toward dental caries.

Methods: A quasi-experimental quantitative study designed was carried out at Akhxtar and Shoxan female secondary schools in Erbil city, from first of July 2009 to end of September 2010. The sample consists of (600) females students in pre test and (300) in post test.

Results: According to the result there was significant differences between student's knowledge and practices, with their No. of Grade but no significant differences with (age, crowding house, father's occupation, and mothers occupation) .

Conclusion: The present study shows the student's knowledge and practice were improved after implementation the oral educational program .Depending on the results it's recommended that the program could be implemented to all the students in secondary schools to improve their knowledge and practices toward dental caries.

Key words; Impact, Education program, Dental caries

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INTRODUCTION: The mouth it is vital to every day life not only does good oral health means being free of dental caries and gums disease, it is also means being free of chronic oral pain condition¹. Caries is a disease that appears in all countries and all population but various in scopes and degree of severity². Dental caries is an infectious disease, which causes destruction of teeth by acid-forming bacteria found in dental plaque³. The most important concept of caries is a dynamic disease process and not a static problem⁴. The world health organization⁵ has ranked it as number three among all chronic non-communicable disease that require world wide attention for prevent and treatment. But is still a common disease among children and adolescents and affects 46% of 4 year-old children⁶ and 80% of 15 year old⁷. Although anyone can have a problem with tooth decay, children and senior citizens are the two groups at highest risk. Other high-risk groups include people who eat a lot of starchy and sugary foods; people living in areas without a fluoridated water supply; and people who already have numerous dental restorations⁸. In order to prevent early childhood, we must intervene before the first cavity develops, working with both mothers and infants⁹. Oral health knowledge and information form the basis of optimal dental health. It is important to establish the current status of oral health knowledge and source of oral health. Information among school before designing an effective prevention programs such information will assist in establishing an effective preventive dental health strategy. School nurses have an excellent opportunity to participate in community detection of dental needs, to educate children in dental hygiene, to make referrals, and motivation children to comply with prophylaxis and treatment¹⁰. The study attempts to achieve the following objectives to:

- 1- Assess knowledge and practice of female secondary school students regarding the dental caries.
- 2- Develop oral health education program and identify the association between student's knowledge and practice with some demographic variables.
- 4- Determine the impact of oral health educational program upon females secondary school students on their knowledge and practice toward dental caries.

Subject and methods: A quasi-experimental quantitative study designed was carried from first of July 2009 to end of Sep. 2010 For the purpose of this study a written Permission was taken from Ministry of Education, for two females secondary schools (Shoxan and Akhter) , (600) female students were participate in pre- test and (300) in post- test. **criteria of the study sample:** all the students who are accepting to participate in educational programme and all grades in both females' secondary schools. The questionnaire form was used as a mean of data collection and contain of following: (Socio- demographic characteristics of students, student's knowledge about information source of dental caries, oral health, eating habits ,information regarding dental visiting and treatment , source of water using and student's practices of dental caries. The oral education program consists : Introduction, anatomy and physiology of teeth ,dental cavities ,knowledge and practice toward dental caries . The program apply throw the following steps : all the (600) female secondary schools students were expose to pre-test in order to detect the student's knowledge and practices regarding dental caries ,and (300) students were expose to educational program by implemented four sessions regarding dental caries which

was presented by data show and pamphlet, each session take 25-30 mints for presented and after two weeks the investigator start to exposed the (300) students to post-test. In order to detect the effect of educational program in student's knowledge and practices regarding dental caries. The data were analyzed by statistical package for the social science (SPSS, version 17) p – value ≤ 0.01 High significant (HS), ≤ 0.05 Significant (S) and > 0.05 Non significant (NS)

Result: The sample of the study consisted of (600) female secondary school students in pre-test and 300 in post –test

Table (1): Socio- demographic characteristics of the female secondary schools students in pre-test.

Variables		Pre-test n= (600)	
		F.	%
Age/yrs	12- 14	360	60
	15-17	220	36.7
	18	20	3.3
No. Grad	First class	200	33.3
	Second class	200	33.3
	Third class	200	33.3
Mother's occupation	House wives	444	74
	Employed	154	25.7
	Retired	2	3
Father's occupation	Employed	166	27.7
	Unemployed	2	3
	Retired	51	8.5
	Free worker	381	63.5
Crowding House	< 1	13	2.2
	1-1.99	80	13.3
	2-2.99	165	27.5
	3-3.99	143	23.8
	≥ 4	199	33.2
House ownership	Own	349	58.2
	Recent	251	41.8

Table (1) shows that the highest percentage of study sample were their age between (12-14) years, (74%) of their mother's occupation were housewives, and (63.5%) father's occupation were free workers. and (58.2%) of the students were living in house ownership .

Table (2): Student's knowledge toward dental caries in pre and post-test.

Items		Pre-test N= (600)		Post-test N= (300)	
		F.	%	F.	%
Number of permanent teeth	30 teeth	23	3.8	--	--
	32 teeth	351	58.5	300	100
	34 teeth	20	3.3	--	--
	36 teeth	15	2.5	--	--
	I don't know	191	31.8	--	--
	3 types	168	28	--	--
	4 types	31	5.2	300	100

Types of teeth	5 types	23	3.8	--	--
	I don't know	378	63	--	--
Important of teeth	Chewing	230	38.3	--	--
	Talking	12	2	--	--
	Appearance	51	8.5	--	--
	All above	232	38.7	291	97
	I don't know	75	12.5	9	3
Dental caries is	Tooth loss	31	5.2	--	--
	Discoloration	150	25	--	--
	Tooth cavity	286	47.7	291	97
	I don't know	133	22.2	9	3
Causes of caries	Bad cleaning	77	12.8	10	3.3
	Avoid visiting dentist	23	3.8	3	1
	Having weak teeth	9	1.5	--	--
	Consumption of sugar food	235	39.2	--	--
	Bacteria	15	2.5	--	--
	All above	141	23.5	276	92
	I don't know	100	16.7	11	3.7
Signs of caries	Toothache	224	37.3	282	94
	Bleeding gums	20	3.3	--	--
	Calculus	11	1.8	--	--
	Cavities in teeth	165	27.5	12	4
	I don't know	180	30	6	2
Harmful of sweet food	Sticky food	175	29.2	278	92.7
	Liquid food	52	8.7	1	30.
	Both of them	190	31.7	21	7
	I don't know	183	30.5	--	--
Benefit of fluoride	Whitens the teeth	97	16.2	--	--
	It help protect teeth from decay	99	16.5	19	6.3
	Protect the gums	14	2.3	7	2.3
	All above	141	23.5	274	91.3
	I don't know	249	41.5	--	--
Methods of getting fluoride	Have dentist put fluoride on your teeth.	141	23.5	17	5.7
	Fluoride tooth paste	47	7.8	--	--
	Drink water	25	4.2	--	--
	From salt	18	3	--	--
	All above	79	13.2	283	94.3
	I don't know	290	48.3	--	--
Reasons of tooth brushing	Whitens teeth	273	45.5	--	--
	Remove bacteria and plaque	235	39.2	300	100
	Massage the gums	11	1.8	--	--
	I don't know	81	13.5	--	--
Number of tooth brushing day	Once daily	43	7.2	1	30.
	Twice daily	168	28	263	87.7
	After each meal	349	58.2	35	11.7
	Once a week	19	3.2	--	--
	I don't know	21	3.5	1	3

Table (2) shows that (100%) of students were know the (No. of permanent teeth) in post-test, and only (58.8%) in pre- test , (97%) were know dental caries is tooth cavity in post-test, and (47.7%) in pre- test , (92%) were know the causes of caries are (bad cleaning, avoid visiting dentist, having weak teeth, consumption of sugar food, and bacteria) in post-test, and (23.5%) in pre- test, and (87.7%) were know the number of tooth brushing /day (at least twice daily) in the post-test, while in pre-test only (28%) .

Table (3): Student's practices toward dental caries in pre and post-test.

Items		Pre-test N=(600)		Post-test N=(300)	
		F.	%	F.	%
Cleaning teeth by:	Tooth brush	455	90.7	270	90
	Stick	26	4.3	17	5.7
	Finger	4	7	1	0.3
	Siwaak	17	2.8	9	3
	Floss	9	1.5	3	1
Brushing teeth by:	Toothpaste	522	87	260	86.7
	Salt	78	13	40	13.3
Change tooth brush every:	3-4 months	345	57.5	259	86.3
	4-5 months	84	14	35	11.7
	5-6 months	133	22.2	6	2
	6-7 months	38	6.3	--	--
Brush at least	2-3 mints	184	30.7	210	70
	3-4 mints	171	28.5	51	17
	4-5 mints	120	20	14	4.7
	5-6 mints	125	20.8	25	8.3
Number of teeth brushing/ day:	1 times /day	178	29.7	52	17.3
	2 times /day	157	26.2	131	43.7
	3 times /day	200	33.3	85	28.3
	Weekly	13	2.2	7	2.3
	Rarely	48	8	22	7.3
	Never	4	7	3	1
Brushing techniques	Horizontal	309	51.5	21	7
	Vertical	106	17.7	8	2.7
	Circular motio	185	30.8	271	90.3
Preferable time for tooth brushing	Before breakfast	34	5.7	7	2.3
	At bed time	279	46.5	222	74
	After each mea	287	47.8	71	23.7
Using floss for	daily	144	24	80	26.7
	weekly	53	8.8	35	11.7
	Monthly	13	2.2	15	5
	Never	390	65	170	56.7
Cut the floss about	14 inches	366	61	28	9.3
	16 inches	89	14.8	7	2.3
	18 inches	32	5.3	248	82.7
	20 inches	113	18.8	17	5.7
Brushing your teeth at least after	20 mints	336	56	222	74
	30 mints	186	31	60	20
	40 mints	78	13	18	6
Avoid eating?	Hard food	91	15.2	17	5.7

	Sticky food	38	6.3	4	1.3
	Food high sug	191	31.8	46	15.3
	All above	280	46.7	233	77.7

Table (3) shows that the majority (43.7%) of the students were brushing their teeth 2 times/day in the post-test, and in the pre-test (33.3%). and (77.7%) were avoid eating (hard food; sticky food, and food with high sugar) before bed time in the post-test, and in the pre-test (46.7%) were avoid eating the same foods.

Table (4) One-way analysis of variance for the difference between student's knowledge and practices with their demographic data in pre and the post-test.

Demographic characteristics		Age (df)	Crowding house (df)	Mother's occupation (df)	Father's occupation (df)	No. of Grade (df)
Pre-test	Knowledge	0.55(2)	0.55(4)	0.55(2)	0.55(3)	0.55(2)
Post-test		0.55(2)	0.55(4)	0.55(1)	0.55(3)	0.000(2)
Pre-test	Practice	0.55(2)	0.55(4)	0.55(2)	0.55(3)	0.55(2)
Post-test		0.55(2)	0.55(4)	0.55(1)	0.55(3)	0.000(2)

Table (4) shows there were no statistical significant differences between student's knowledge and practice with their (age, crowding house, occupation of their fathers and mothers), after implementation of oral educational program on secondary school females student but there was Highly significant with No. of Grade of the students at p -value ≤ 0.01 .

DISSCUSSION: The finding of this study showed that the students were within age group (12-14) years, the analysis of variance has been shown, that there were no significant differences between students knowledge and practice regarding age, this result is in disagreement with the study which mentioned that there is significant difference between student's age and their knowledge and practice¹¹. Half of the sample were housewives, and father's occupation, were free workers (**Table 1**). The analysis of variance has been shown, there were no significant differences between students knowledge and practice regarding occupation of mothers and fathers. This result is in disagreement with the study found that there is significant difference between fathers, mothers occupation and their student's knowledge and practice. That means the lack of awareness of mothers and fathers about dental caries education, oral hygiene practices and eating habits, irregular dentist follow up and early detection for caries in their children teeth. Mother's education was inversely related to sever caries experience^{12,13}. (**Table 2**) shows that most of the study sample were know the importance of teeth are (chewing, talking, and appearance) in post-test, while in pre-test only a few of them were know the importance of teeth. This result is in disagreement with the study found that most of the students were aware of the importance of teeth in chewing (79.5%) and appearance (45.8%), and less than half (45.8%) of them were not aware of the importance of teeth in speech¹⁴. Most of students were know dental caries is tooth cavity in post-test, while in pre-test less than half of them, this is in agreement with a study that mentioned that dental caries is a spot on a tooth where

minerals have melted away and a hole has formed¹⁵. All of students were know that the cause of caries are (bad cleaning ,avoid visiting dentist ,having weak teeth, consumption of sugar food, and bacteria) in post-test, while in pre-test just a few of them know that. The present result supported by a study found that the majority of the students thought that dental caries is cased by inappropriate cleaning and consumption of sugared foods even if they did not know what dental caries is^{16,17}. More than half were know the number of tooth brushing /day at least twice daily in the post-test, while in pre-test only a few of them were know it. The epidemiological data for Australia and overseas found that the twice-daily use of a toothpaste containing fluoride will prevent new caries development in approximately 80% of children and 60-70% of adolescents¹⁸. (**Table 3**) shows that the majority of study sample were brushing 2 times/day in the post-test, and less than half in the pre-test. The result is indicated that (55%) of school children brushing their tooth twice a day ,often recommended as an increase in the daily frequency of tooth brushing reduces plaque accumulation or more plaque removal¹⁹. More than half of students were avoid eat hard food; sticky food, and food high sugar in the post-test, while in the pre-test less than half were they avoid eating the same foods. This result is supported by the study indicated that the food with high sugars consumption is still the most important determinant of caries prevalence.¹²

Conclusions: There were no statistical significant differences between student's knowledge and practice with their (age, crowding house, occupation of father and mother), after implementation of oral educational program on secondary school of females students. And the results indicate that the effect of oral educational program were effective in improving the students knowledge and practices toward dental caries.

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