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Assessment Knowledge of Primary School Teachers Regarding to the Prevention of Dental Caries in Kirkuk City

Dr. Hewa Sittar Salih
Lecturer/ College of Nursing /University of Kirkuk

Abstract
Background:- Dental caries is a common disorder, second only to the common cold. It usually occurs in children and young adults but can affect any person. Tooth decay is a common cause of tooth loss in younger people
Aim of the study:- In order to assess knowledge of primary school teachers regarding to the prevention of dental caries in Kirkuk city
Methodology:- A descriptive study is carried out from 10th July 2013 to the 20th April 2014 in order to assess teachers' Knowledge Regarding the prevention of dental caries in Kirkuk city. Simple probability random sample of (100) teacher is selected from (25) primary schools in Kirkuk city. The sample is comprised of (21) male and (79) female. Developed questionnaire was constructed for the purpose of the study which consisted of two parts: the first part include the demographic data (6) items , the second part consist from (15) items about knowledge of teachers about prevention of dental caries . A pilot study was conducted from 22 to 27 September 2013 at the beginning of the study in three primary schools, which is (al-waten, al-tahade and asos primary schools); nine teachers were studied and evaluated. Content validity was determined by presenting the questionnaire to a panel of (10) experts. The data were collected through the use of interview. They were analyzed through the application of descriptive statistical analysis (frequency and percentage) and inferential statistical data analysis (chi-square)by using the statistical package of social science (SPSS) version (19).
Results :- The findings of the study indicated that (49%) of the teachers were in age group between (39-48) years , (79%) were females, (75%) were institutions graduated ,major of the study sample were married and constitute (83%), all sample were from urban area and constitute (100%).(61%) were premolar site for caries .
Conclusions:- the study finding the teachers have good knowledge about prevention dental caries also the result find significant relationship between teacher's knowledge about dental caries and their some demographic data except the mechanisms of saliva to inhibit caries formation.
Keywords:- Assessment , knowledge , primary school teachers ,dental caries.

1-Introduction

Health is a universal human need for all cultural groups. General health cannot beat tained or maintained without oral health. It is an important aspect of overall health status of an individual. The mouth is regarded as a mirror of body and the gateway of good health. Poor oral health has also been related to poor social relationship and permanent disabilities that affect the ability to learn and grow. Children with chronic dental pain might also have to limit their food choices because of chewing problems. Inadequate childhood nutrition can affect school readiness, school performance and behavior [(US department of health and human services 2003) (1) .

Oral health habits are measures people learn and practice regularly in order to maintain good oral health or prevent oral disease. The most common oral diseases, dental caries and periodontal disease, are considered behavioral diseases because adoption of healthy oral habits is crucial in controlling them. Traditionally, good oral health Practice consists of continuous implementation of two broadly defined sets of behavior: self-care habits dental hygiene, restriction of sugar products, use of fluoride products and utilization of dental services regular dental examinations, oral health education, and professionally applied preventive measures(2) .

The use of teachers in school health education and health promotion holds many advantages including continuity in instructions being given, integration of general and oral health with other activities as well as the overall low costs associated with such programmers(3).

Dental caries is an ecological disease in which the diet, the host and the microbial flora interact over a period in such a way as to encourage demineralization of the tooth enamel with resultant caries formation. Dental caries is still one of the most common diseases in the world today. Until recently almost everyone had experienced tooth decay in their lifetime .However, today many people are caries free and there has been a 40-60 % reduction in the incidence of tooth decay around the Western world. Most developed countries and many non-industrialized countries are now well below the World Health Organization goal of less than three decayed, missing or filled teeth per 12-year-old child.(4)

Dental caries, otherwise known as tooth decay, is one of the most relevant chronic diseases of people worldwide; individuals are susceptible to this disease throughout their lifetime. Dental caries forms through a complex interaction over time between acid-producing bacteria and fermentable carbohydrate, and many host factors including teeth and saliva. The disease develops in both the crowns and roots of teeth, and it can arise in early childhood as an aggressive tooth decay that affects the primary teeth of infants and toddlers. Risk for caries includes physical, biological, environmental, behavioral, and lifestyle-related factors such as high numbers of cariogenic bacteria, inadequate salivary flow, insufficient fluoride exposure, poor oral hygiene, inappropriate methods of feeding infants, and poverty. The approach to primary prevention should be based on common risk factors. Secondary prevention and treatment should focus on management of the caries process over time for individual patients, with a minimally invasive, tissue-preserving approach.[(5)]

Dental caries is a common chronic disease that causes pain and disability across all age groups. If left untreated, dental caries can lead to pain and infection, tooth loss, and edentulous (total tooth loss). Dental sealants are effective in preventing dental caries in the occlusal (chewing) and other pitted and fissured surfaces of the teeth. Enamel fluorosis is a hypo mineralization of enamel related to fluoride exposure during tooth formation (first 6 years for most permanent teeth). Exposure to fluoride throughout life is effective in preventing dental caries. This is the first CDC Surveillance Summary that addresses these conditions and practices[(6)] .

Dental caries is widely recognized as an infectious disease induced by diet. The main players in the etiology of the disease are; a) cariogenic bacteria, b) fermentable carbohydrates, c) a susceptible tooth and host and d) time. However, in young children bacterial flora and host defense systems are in the process of being developed, tooth surfaces are newly erupted and may show hypo plastic defects, and their parents must negotiate the dietary transition through breast/bottle feeding, first solids and childhood tastes. Thus, it is thought that there may be unique risk factors for caries in infants and young children[(7)] .

Dental caries affects more than half of U.S. school-age children and is the most common chronic disease for that age group. School days are lost to dental problems and dental visits, and self-esteem, along with general growth and function, can be hindered[(8)] .

The main objectives of this study was to assess knowledge of primary school teachers regarding to the prevention of dental caries in Kirkuk city

2-Methodology

A descriptive study is carried out from 10th July 2013 to the 20th April 2014 in order to assess Teachers' Knowledge Regarding the prevention of dental caries in Kirkuk city. The study is conducted at (25) primary schools in Kirkuk city. These schools are distributed throughout Hojaj Quarter (Q), Shorja Q, Shouhada Q, Sahat Al-oumal Q, Rahemawa Q, Teseein Q, Alkhadraa Q, Arafa Q, Wasity Q, Wahed huzairan Q, Dumiz Q, Emam Qasim Q, Qadisia alolaa Q, Almualmeen Q, Al-Nasser Q, Al-askare Q, Gharnata Q, Al-Mansoor Q, Al-Asra Q, Adan Q . Simple probability random sample of (100) teacher is selected from (25) primary schools in Kirkuk city. Through extensive review of relevant literatures, a questionnaire was constructed for the purpose of the study. Overall items included in the questionnaire are divided in to (2) parts as follows: Part I: demographic data this is comprised of (6) items, which are concerned with age, gender, educational level, marital status, number of children and residence. Part II: knowledge this part consist of (15) items composed of different questions that been distributed to teachers in Kirkuk city primary schools. These items are concerned with type of teeth, common site for caries, hard thick substance of tooth that surround the nerve, teeth will the baby have eventually, excess fluoride cause irreversible tooth discoloration, When do the primary (baby) teeth begin to erupt, which help to prevent dental caries, Early Childhood Caries tend to affect first, not a risk factor for the development of dental caries, caries development is directly related to the frequency exposed to sugar, By what age should every child begin receiving oral health assessments by a pediatrician, Which of children have prioritize for referral to a dentist, In which time the child is at risk for dental caries should be referring to a dentist, which mechanisms does inhibit caries formation and Method of prevention of dental caries. A pilot study was conducted from 22 to 27 September 2013 at the beginning of the study in three primary schools, which is (Al-waten, al-tahade and asos primary schools); nine teachers were studied and evaluated. Validity of the questionnaire was determined by presenting the questionnaire to a panel of (10) experts in different specialties. The data was collected between20th July 2013 up to the 25th of November 2013. Data were analyzed by using descriptive statistics, which include frequency and percentages and inferential statistics (chi-square test) data are prepared, organized and entered into the computer file; Statistical Package for Social Science (SPSS) version (19) is used for data analysis at ($P.value \leq 0.05$).

3-Results

Part one: Demographical Data

Table (1): Distribution of the sample accordingly to the teacher age of the sample. Shows the high percent of teacher were at age between (39-48 yrs) and constitute (49 %)

Teacher age	Frequency	Percentage	X^2
18-28yrs.	9	9	Chi-square -34.880 df = – 3 X^2 = 7.82
29-38 yrs.	23	23	
39-48 yrs.	49	49	
49years and over	19	19	
Total	100	100	

Table (2): Distribution the sample regarding to their teacher gender.

Teacher gender	Frequency	Percentage	X^2
Male	21	21	Chi-square -33.640 df= – 1 X^2 = 3.84
Female	79	79	
Total	100	100	

Shows the high percent of teacher were female and constitute 79% while 21% were males.

Table (3): Distribution of the sample regarding to the teacher level.

Teacher level	Frequency	Percentage	X^2
Secondary	6	6	Chi-square – 80.660 df 2 X^2 =5.99
Institution	75	75	
College	19	19	
Total	100	100	

This table shows 75% from teachers were institution graduation, 19% were college graduation and 6% were secondary graduation.

Part (2): knowledge data

Table (4): Which teeth is the most common site for caries:

	Frequency	Percentage	X^2
Premolars	61	61.0	Chi-square – 76.880 df- 3 X^2 =7.82
Incisors	16	16.0	
Molars	21	21.0	
Canines	2	21.0	
Total	100	100.0	

Shows high percentage from caries were in premolars and constitute (61%), while (16%) for incisors, (21%) for molars and (2%) for canines

Table (5): The hard, thick substance of the tooth that surrounds the nerve is known as the:

	Frequency	Percentage	X^2
Enamel	52	52	Chi-square–113.800 df – 4 X^2 =9.49
Dentin	39	39	
Hydroxyapatite	1	1	
Cementum	1	1	
Pulp	7	7	
Total	100	100	

Demonstrate (52%) from answers were enamel, (39%) answers dentin, (1%) answers hydroxyapatite, (1%) answers cementum and 7% answers pulp.

Table (6): By what age should every child begin receiving oral teeth assessment by a pediatrician or pediatric health professional

	Frequency	Percentage	X^2
When the first teeth erupt	43	43.0	Chi–square = 96.200 df.- 4 X^2 =9.49
1 month	5	5.0	
3 month	3	3.0	
6 month	4	4.0	
1 year	45	45.0	
Total	100	100.0	

Demonstrates 43% answers when the first teeth erupt, 5% answers in 1 month, 3% answers in 3 months,4% answers in 6 months & 45% from the samples answers in 1 year the child should begin receiving oral teeth assessment by a pediatrician or pediatric health.

Table (7): which of the following children should be prioritized for referral to a dentist

	Frequency	Percentage	X^2
Child with low socio-economic status.	22	22	Chi–square =15.200 df- 4 X^2 =9.49
Children with special health care needs.	21	21	
Children who breast-feed throughout the night.	5	5	
Children of mothers with a history of multiple caries.	25	25	
All of above	27	27	
Total	100	100	

Shows 22% answers Child with low socio-economic status, 21%answers Children with special health care needs, 5% Children who breast feed throughout the night25% answers Children of mothers with a history of multiple caries &27%from the samples answers all of above should be prioritized for referral to a dentist.

Table (8): the American of pediatrics recommends referring a child at increased risk for dental caries to the dentist:

	Frequency	Percentage	X^2
By 1 year of age.	21	21.0	Chi–square- 17.300 df- 4 X^2 = 9.49
When the child is developmentally ready	11	11.0	
By 3 years of age.	12	12.0	
When abnormalities are noted on a physician's examination	34	34.0	
When the child or parent complains of dental problems.	22	22.0	
Total	100	100.0	

Table (8) Shows 21%answers By 1 year of age,11%answers When the child is developmentally ready, 12%answers By 3 years of age, 34%answers when abnormalities are noted on a physician's examination a child at increased risk for dental caries &should referring to the dentist& 22%answers When the child or parent complains of dental problems.

Table (9): the method for prevention of dental caries.

	Frequency	Percentage	X^2
Regular tooth brushing	68	68.0	Chi–square -101.040 df-3 X^2 = 7.82
Eating less sugar	16	16.0	
Using a fluoride paste.	5	5.0	
Visiting the dentist	11	11.0	
Total	100	100.0	

Table (9) Shows 68% answers regular tooth brushing are method for prevention, 16% answers for eating less sugar, 5% for using a fluoride paste &11% for visiting the dentist.

4-Discussion

The finding of the study depict that the rate of "teacher age" which is the higher percentage was approximately half of the study was for 40-50yrs as 49%, while the lower percentage was for 18-28yrs as 9%, this result was comparable to result of previous study (Pradeep , et. al., 2011) shows that the mean age was 40-75 years, with the youngest subject being 21 years old and eldest being 55 years old[9]. While (Ramroop et. al., 2011) reported that the mean age of respondents was 41 years . The number of years in teaching ranged from 1 year to 40 years mean 19.[10]

Regarding to the "teacher's gender" it has shown that majority of them were female which represent (79%), while only (21%) of the them were males. this result supported by other study (Ramroop, et. al., 2011) who stated that 63 of the subjects were females and 37were males.[10]

According to the "teachers educational level" due to institution was 75% and the lowest percentage was 6%.and indicated most of the samples (83%) were married, the lowest (1%) were divorced, (13%) were single and (3%) were widow. (Ramroop et. al., 2011) noted that Almost all respondents (96%) received training in Teachers' College[10], while(Pradeep , et, al.,2011) show that there is 71 of the subjects had done only the schooling and the others 39 had completed a college degree.[9]

Part II: knowledge

Most of samples answer premolars were (61%) ,the others answer different (16%)for incisors ,(21%) for molars and the lowest answer for canines were (2%). Indicated to higher answers for 4 types were 58%& the lowest answer for 6 types were 2% . (**Dye, et.al., 2004)** state that early childhood caries (ECC) affects the teeth that erupt first, those least protected by saliva, and those with grooved surfaces. ECC tends to first affect the upper (maxillary)incisors because they erupt earliest, then the primary molars. The molars become involved because of their grooved surfaces.[11]

Concerning to the hard thick substance of the tooth that surrounds the nerve is known as (52%) from answers were enamel, (1%) answers hydroxyapatite and (1%) answers cementum (John Wileyand sons., 2007) states that the Dentine consists of a calcified connective tissue that give the tooth its basic shape and rigidity. Its basic shape and rigidity . It is harder than bone because of its higher content of calcium salts (70% of dry weight).[12]

Regarding to the age that every child begin receiving oral teeth assessment by a pediatrician or pediatric health professional. 45% from the samples answers in 1 year the child should begin receiving oral teeth assessment by a pediatrician or pediatric health, 43% answers when the first teeth erupt, 5% answers in 1 month, 4% answers in 6 months & 3% answers in 3 months. about 34%answers when abnormalities are noted on a physician's examination a child at increased risk for dental caries &should referring to the dentist, 22%answers When the child or parent complains of dental problems,21%answers By 1 year of age,12%answers By 3 years of age&11%answers When the child is developmentally ready.

Al-Hussainia.R.M.et.al., 2003, found the Most of the students at the Kuwait University HSC(health student center) visited a dentist only when there was a real need, and check-up appointments were uncommon[13], while the(Pradeep S. et. al., 2011) that Majority of the teachers visited the dentist only when needed, but when they were having tooth ache problem majority of them visited to the dentist[9], while [(G. Perinetti et.al 2004) and (Murthy GA. 2010)] shows that above half of the pediatricians felt that 1 year would be ideal for the first dental visit. This in accordance with the AAPD (American Academy of Pediatric Dentistry) guidelines and (American Academy of pediatrics) which say that the first dental visit should be within 6 months of eruption of the first teeth per years [American academy of pediatrics policy statement .pediatrics (AAPD) 2003-2009] .Half of the pediatricians were not aware of the biannual dental visit that is recommended by [AAPD 2009][14].

Another study about dental visits were performed under natural light according to the WHO oral health survey recommendations [World Health Organization,2007], and the data were recorded on a dedicated dental form. Briefly, the examiners performed all of the recordings at the schools, and the instrumentation used included a disposable plane dental mirror and a disposable explorer. Organizing clerks helped the examiners and checked the finished records of both the questionnaire and the dental forms for completeness and accuracy at the moment of the visit. Coronal status of the teeth was classified as either sound, decayed or filled.[15]

Regarding to the children should be prioritized for referral to a dentist**,** 25% answers Children of mothers with a history of multiple caries,22%answersChild with low socio-economic status,21%answers Children with special health care needs and 5% Children who breast feed throughout the night, 27%from the samples answers all of above should be prioritized for referral to a dentist. (Pernetti et al., 2004) also of the opinion that Socioeconomic status has been recognized for years as a main factor for inequalities in dental caries. The present survey demonstrated a recurrent influence of employment status on caries in both dentitions. Of interest, however, is that only the children from the lowest socioeconomic stratum (children of farmers/manual workers) had a greater caries prevalence as compared to the others[16]. These results are in agreement with previous data reported for caries prevalence in the primary dentition in Italian children [(Angelillo et. al., 2003) [17]and (Bolin et. al., 2005)][18].

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Most of the sample 68% answers regular tooth brushing is method for prevention and 5% for using a fluoride paste. (Karen J, 2009) show that the most effective means of preventing dental caries is proper oral hygiene. Children should be taught to perform their own dental care with the supervision and guidance of the parents. Parents should learn the correct brushing technique with their children[19]. While (jack D, et., al , 2010) show that the oral hygiene is necessary to prevent cavities. This consists of regular professional cleaning (every 6 months), brushing at least twice a day.[20]

5-Conclusions

The majority of the sample between age 40- 50 years old (49 %), female (79%), institutions graduated (75%),most of the samples married (83%) , premolar are most common site for caries (61%), enamel the hard thick substance of the tooth that surround the nerve (52%), the primary teeth begin to erupt are varies from child to child (70%),improving oral hygiene to prevent or delay dental caries(47%), Maxillary incisors teeth do early childhood caries tend to affect first(54%), presence of carries in immediate family members not consider risk factor for development of caries(41%), the risk of caries development is directly related to the frequency with which the teeth are exposed to sugar(98%), in 1 year the child should begin receiving oral health assessment by a pediatrician or pediatric health(45%),only (5%) of the samples children who breast feed throughout the night , when abnormalities are noted on a physician's examination a child at increased risk for dental caries &should referring to the dentist(34%), (14%)answers Supplying fluoride to aid in tooth demineralization. And showed there are significant assessment between teacher's knowledge about dental caries and their some demographic data except the mechanisms of saliva to inhibit caries formation.

6-Recommendations

1. Awareness program can be arranged for the whole teachers regarding prevention of dental caries, and the teachers should organize and conduct continuous educational programs in the school children.
2. Oral health education should be incorporated into the Social and Personal Health education (SPHE) program of the school curriculum.
3. Teacher should educate the children regarding maintenance of oral hygiene, nutrition and preventive measures.
4. Information about dental caries can be given in the form of brochures, posters, etc.
5. School teachers can also instruct parents regarding the oral health of their child during one of the many parent teacher meetings.
6-Teachers and children should be advised that foods and drinks containing sugar substitutes are available, but should be consumed in moderation.

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