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The Awareness of Sudanese Care-Givers on Oral Health and Attitudes for Childhood Caries in Khartoum State

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Abstract: Caregivers' awareness on health oriented attitudes that help to reduce caries is essential factor in the prevention and control of caries in children. This research aimed to determine the awareness and knowledge of Sudanese care-givers concerning health oriented attitudes which reduce the risk of the development of dental caries in children below 13years. A cross-sectional community based study of 103caregivers of children below13years were selected randomly from Khartoum, Sudan. An interviewer administered questionnaire used to assess the care-givers dental health knowledge and practice in relation to care givers exposure to dental health and education. Data were processed and analyzed by means of the IBM Statistical Package for Social Sciences (SPSS) version 20 Chicago. The significance was taken for P-value ≤ 0.05. The results were found that a majority of participants 79.6% had heard the importance of children dental hygiene and majority 83.5% took part in supervision of their child brushing but still their health oriented attitudes to control dental caries to children below 13yrs was still low as depicted by other factors revealed by the our recent study, like 48.5% caregiver not taking their children to dental clinic, the high number of caregivers poor response on tooth color change as 39.8% believe new ones will come and also the high percentage 53.4% of caregivers poor practice of giving sweets at a frequency of every four to six hours.
Keywords: Abbreviation AADA- American academy of pediatric dentistry, ECC- early childhood caries, S-ECC- severe early childhood caries, UAE-United Arab Emirates.

INTRODUCTION

Dental caries is an infectious microbiologic disease of the teeth that results in localized dissolution and destruction of the calcified tissues [1]. Dental caries is a disease caused by a number of general and local factors. The most significant factors affecting the development of dental caries include: dental plaque bacteria, carbohydrates (substrate), tooth susceptibility and time. Dental Caries is the most common chronic childhood disease to affect mankind. It is five times more common than asthma and seven times more common than hay fever [2]. Although, this disease is under control in developed countries with prevention methods and also treatment options, it is still a major concern among parents and educators, due mainly to a sugar-rich diet

Multidirectional preventive actions, conducted along with dental treatment, bring profit in the future; largely allow avoiding the problem of dental caries in children and contributing to the improvement of oral hygiene. For this reason, it is advisable that every caregiver remember that the costs of the treatment of dental caries are incomparable to investment in prevention. The prevention of dental caries in children and youth includes, among others:

- Early influence on the structure of hard tissues of a tooth - during the tooth's development and after its eruption - by proper diet and fluoridation as well as pit and fissure sealing of teeth vulnerable to caries,
- Hygienic treatment aiming at the reduction of dental plaque
- Various projects and lectures are also means of prevention and they are intended to acquaint every parent with the discussed subject [3].

Problem statement

Children continue to suffer from the dental caries and its effects despite the fact that this is a preventable problem that has been inflicting our society for a long time. Children who suffer from caries are at risk of caries in adulthood. The effects of children caries range from child's school performance, to social behavior.

Problem justification

Though the dental caries among children below 13years old is a common problem and its effects

are devastating, previous researches have included that to curb the problem there is need to raise the awareness among caregivers although data does not show the level of how sensitized care givers are on childhood caries; its risk factors, prevention and control. Care givers are used in this study as they play a key role in child dental health and their awareness on children caries has an impact on the control of the disease.

Objectives

To determine the awareness and knowledge of Sudanese care-givers concerning health oriented attitudes which reduce the risk of the development of dental caries in children below 13years

Specific objectives

- To determine the relationship between education level and dental health awareness
- To suggest measures to improves awareness on dental caries to children among caregivers
- To lay down measures on how to create a dental healthy child environment at both home and school.

MATERIAL AND METHODS& DATA ANALYSIS

This study is a cross-sectional study-community based conducted between March –June 2017 in Khartoum state. at al- mujahedeen, al-maamura and inkazi areas. Caregivers, who involve mothers, fathers, house -helpers', pre-primary and primary teachers. A total of 103 subjects will be sampled through random sampling technique With the following

Inclusion Criteria

1. Individual willing to participate in the study
2. Individuals who are parents
3. Individuals who are teachers at pre-primary or primary school
4. Individuals who are currently or have worked as child maids

Exclusion criteria

Unwilling individuals

A direct interview was be conducted where respondents were asked questions from prepared questionnaires and direct answers were filled .the respondents were had free will to express their views as per the question. Data were processed and analyzed by means of the IBM Statistical Package for Social Sciences (SPSS) version 20 Chicago. The significance was taken for P-value ≤ 0.05.

Ethical consideration

Ethical clearance was granted by the department of conservative dentistry at the International University of Africa faculty of Oral and Dental Medicine through the office of the Dean of the faculty. The participants were informed prior to the conduction of study and written consent was part part of the questionnaire whereby a participant was on his free will read understand and sign to signify his acceptance in the study without any enforcement nor conciquence3s of his or her denial.

Introduction

Prolonged bottle-feeding with sugar containing fluids, especially before sleep, and delayed weaning are frequently cited ECC risk factors.3-6 Dental caries with its consequences including pain, and diminished quality of life is a common health problem among children [4]. Since caries is a transmissible infectious disease, salivary contact is responsible for its transmission [5]. The organisms responsible for caries are mutans streptococci (MS) [6]. Children of mothers with high levels of mutans streptococci, are at greater risk and elimination of saliva-sharing activities (e.g. sharing utensils) reduces transmission of caries [7]. Although, early childhood caries (ECC) is preventable, most parents often think it is not [8]. Consequences of ECC include a higher risk of new carious lesions in both the primary and permanent dentitions [9]. Severe early childhood caries (S-ECC) interferes both with the quality of life of the child and the family.

Prevalence and incidence of dental caries

World Health Organization [10] has reported that worldwide 60-90% of school children have experienced dental caries at some point of time during their school tenure. Tooth decay or dental caries can hamper child's involvement in activities like eating, playing and socializing. It also affects speaking and concentrating ability, due to which children are not able to perform to the full potential.

Risk factors for dental caries

Dental caries remains the most important childhood disease affecting a considerable proportion of young children worldwide. Age, gender, socio-demographic variables and behavioral factors can act as caries risk factors associated with the host. One of the most susceptible periods for dental caries occurrence is 2–5 years of age [11].

A long-term prospective study conducted in Finland [12] strongly suggested that the habit of consuming excessive daily sucrose starts early in childhood and increases the risk of caries in children. A study done by [13]showed that prolonged bottle-feeding with sugar containing fluids, especially before sleep, and delayed weaning are frequently cited Early Childhood Caries risk factors. Level of education, behavioral, cultural and social factors influence caries risk [8].

These include sleeping with a bottle and frequent consumption of sugar containing snacks or drinks [13]. In a study done by [14] found fluoride content of the water, daily food habits, and parental knowledge, especially of the mother regarding daily oral hygiene practices, socio-economic status of the

family, and number of the children in the family have all been associated with increased incidence of dental caries.

Knowledge on oral health

Oral health is an integral component of preschool children's general health and well-being. Unfortunately, many children suffer from dental caries at an early age, even before they become 12 months of age [15]. Those affected often have a reduced oral health-related quality of life as compared to their caries-free counterparts [16].

Rafi *et al*., [17] found that majority of mothers (96.2%) believed that sweets and soft drinks can lead to caries, although this reflect excellent knowledge of sweet risk factor in dental caries, but at the same time, only 52.3% of the respondents relate this risk factor to the frequent sweets intake more than the quantity taken. In a study done by [18] found majority of the mothers were aware that sugary item likes chocolates can lead to dental caries. However, there was low awareness about the different forms of sugary items, which are harmful to the teeth. This throws the light on inadequate knowledge about the relationship between the different forms of sugar consumption and dental caries. Furthermore, knowledge about the caries preventive methods, cause and prevention of gum disease and malocclusion was low which was in line with the study done [19].

Oral health of children is associated with oral health knowledge of their parents/guardians as oral health related habits are established during infancy and maintained throughout early childhood [20].

Dietary habits and dental caries

A study done by Hiba S. Abduljalil and Amal H. Abuaffan in preschool children from 20 kindergartens in north Khartoum Sudan found that more than half of children (59.4%), had been bottle fed and (21.2%) of weaned after two years of age. Regarding snacking habit (52%) of children exposed to sugary snacks once to twice a day [21].

Children under the age of 5 years spend most of their time with mothers, so their oral hygiene and dietary habits are influenced by their care takers and level of education (Rajesh G, et al 2008). In addition to the level of education, behavioral, cultural and social factors influence caries risk [8]. These include sleeping with a bottle and frequent consumption of sugar containing snacks or drinks [22].

Dental visits and dental caries

Study done by Moulana *et al*., and Chan *et al*., suggested that earlier a child visits a dentist; the greater would be the likelihood of being caries-free [18]. This would help to gauge the child as a risk factor of caries or not also it gives chance for a dentist to give the care giver some dental advices that could help in control of caries. This could also be made as a mark point for establish of dental home as statistics of the child would be present with the dental public health department.

Prevention of dental caries

Parents knowledge, attitude and practices about their children's oral health may help the dental community understand some of the reasons why children do not receive the dental care they need [23].

Infant oral health care should be seen as the foundation on which a lifetime of preventive education and dental care can be built. In order to help assure optimal oral health in childhood, the American Academy of Paediatric Dentistry (AAPD) recommend that infant oral health care should begin ideally with prenatal oral health counseling for parents. Then an initial oral examination within six months of the eruption of the first primary tooth and no later than twelve months of age should be carried out. The other recommendation is anticipatory guidance including preventive education and appropriate therapeutic intervention for the infant. These can enhance the opportunity for a lifetime of freedom from preventable oral disease [24].

RESULTS

On comparison between different variables that can help to gauge the level of awareness among the individuals the results were as follows in Fig-1.

Table-1: Showing caregivers Child supervision on brushing

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	86	83.5	83.5	83.5
	no	17	16.5	16.5	100.0
	Total	103	100.0	100.0	

Table-2: Showing Visit of dental clinic

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	53	51.5	51.5	51.5
	no	50	48.5	48.5	100.0
	Total	103	100.0	100.0	

Table-3: Showing care-givers Direction of brushing after meal

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	71	68.9	68.9	68.9
	no	32	31.1	31.1	100.0
	Total	103	100.0	100.0	

Table-4: Showing care-givers Response on child tooth color change

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	take to the clinic	62	60.2	60.2	60.2
	believe new ones will come	41	39.8	39.8	100.0
	Total	103	100.0	100.0	

Table-5: Showing of caregiver's awareness on child dental health

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	82	79.6	79.6	79.6
	no	21	20.4	20.4	100.0
	Total	103	100.0	100.0	

Table-6: showing care-givers issuing of sweets to children

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	97	94.2	94.2	94.2
	no	6	5.8	5.8	100.0
	Total	103	100.0	100.0	

Table-7: Showing caregiver Frequency of giving sweets in a day

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	one to three hours	18	17.5	18.0	18.0
	four to six hours	55	53.4	55.0	73.0
	seven hours and above	27	26.2	27.0	100.0
	Total	100	97.1	100.0	
Missing	System	3	2.9		
Total		103	100.0		

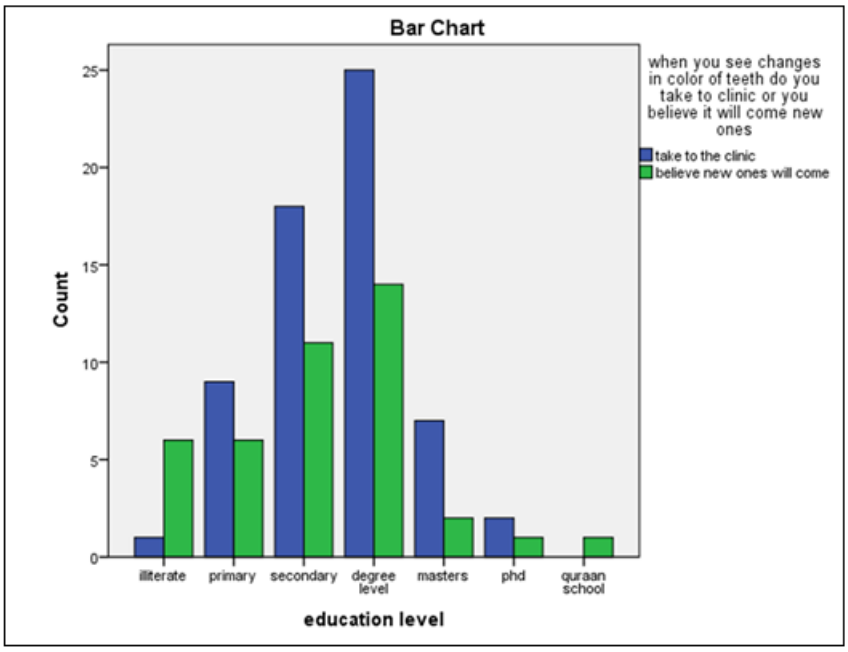

Fig-1: Tooth color change response and education level

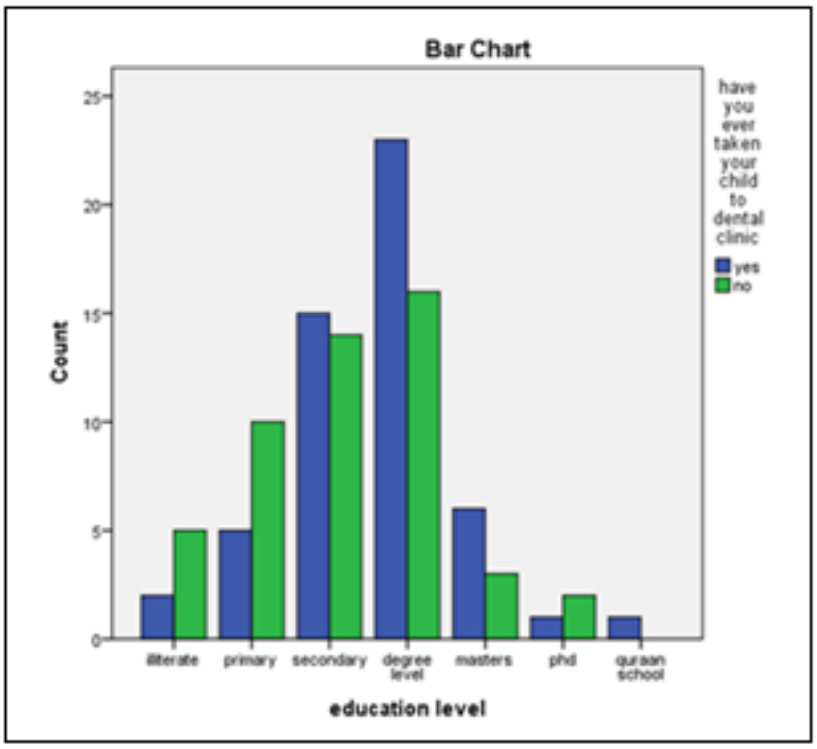

Fig-2: Dental clinic visit and education level

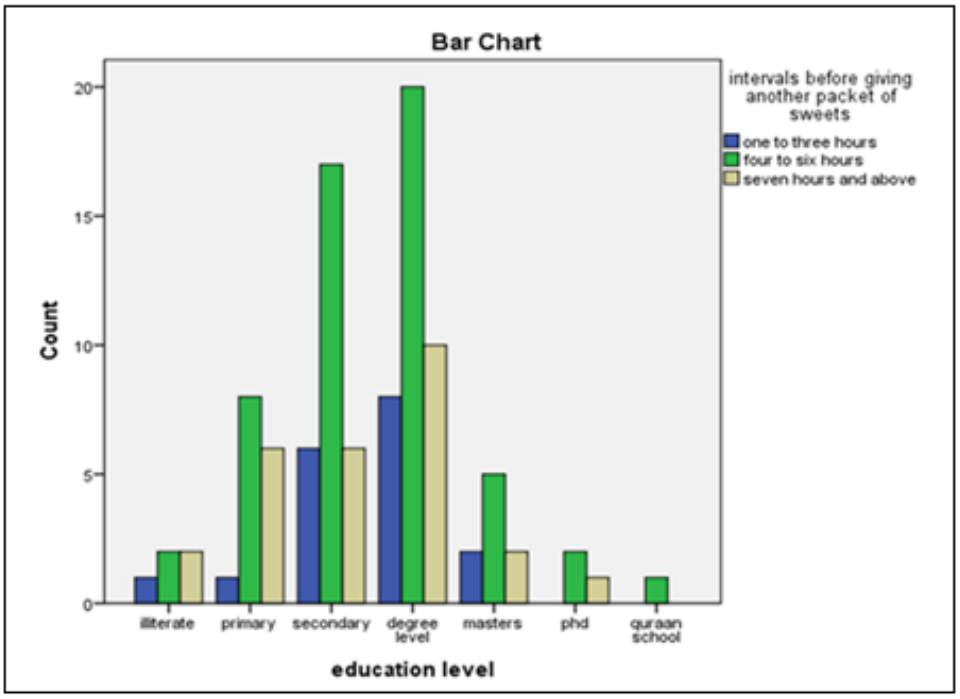

Fig-3: Intervals of giving sweets to a child in hours and education level.

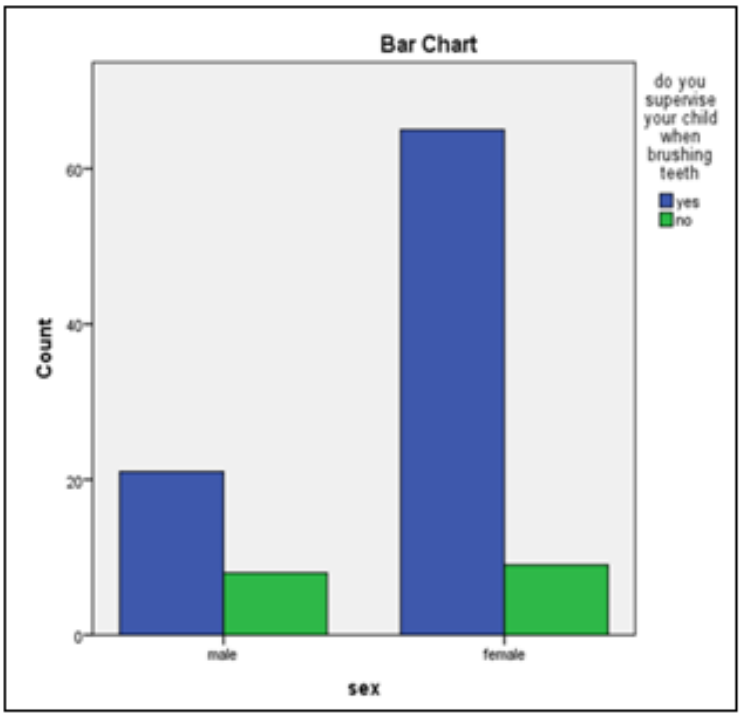

Fig-4: Supervision of child tooth brushing and sex.

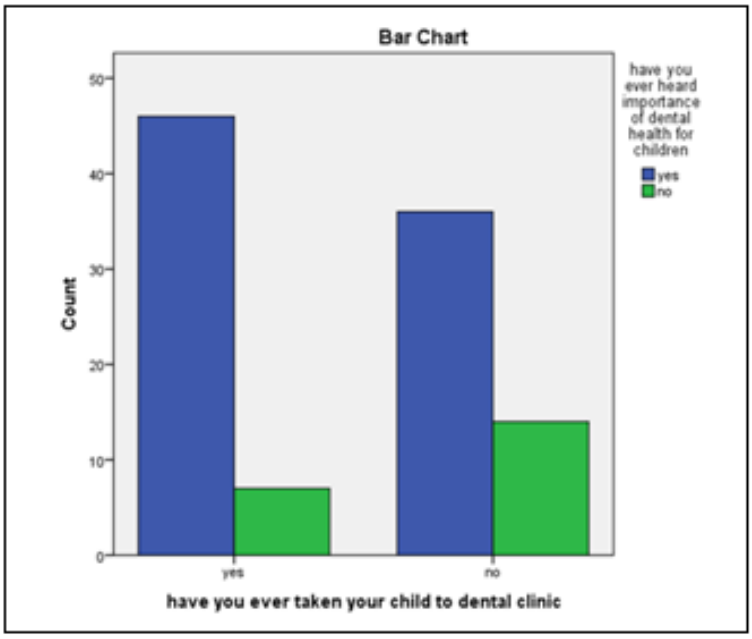

Fig-5: Awareness of importance of child dental health and dental visit.

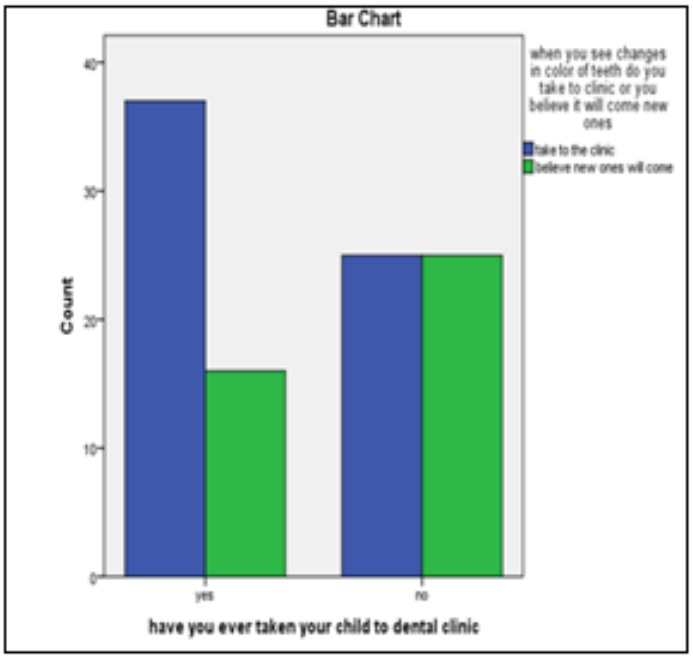

Fig-6: Changes in tooth color response and previous dental visit

DISSCUSSION

Many studies suggest that mother's education influences dental health of their children. Shamta *et al*., [25] found a strong interdependence on the mother's level of knowledge with that of their educational level which influenced the child's oral health.

This was found to be true in the present study as well, although peculiar results were found on the highly educated parents on taking their children to dental clinic as majority do not take their children to dental clinic regardless the importance of it after six month of birth (after the appearance of the first teeth) - American Academy on Pediatric Dentistry. The reason behind that is not definite as was not included in the questionnaire but might be because of their busy with work.

Also in the present study majority of the caregiver83.5% took part in the supervision of their child when brushing which is welcoming practice as children need be help to brush till the child develops dexterity-Canadian Paediatric Society. This was different to research conducted in randomly selected adult patients at the "Gold Clinic" dental practice in Warsaw whereby 54% shared the opinion that children should brush their teeth on their own [3].

Also a good number of parents in our present study 68.9% direct their child to brush teeth after meals its not prerequisite but it's one of the good dental practices if done 30minutes after eating as help to remove the food remains that might be decomposed by cariogenic bacteria to cause caries

On the response to color changes of tooth of child although our study revealed that majority would take the initiative to visit a dental clinic still anon despicable number39.8% have the believe that the milk teeth will shed and new ones willcome regardless that it's now formulated that early childhood caries is risk factor for future caries [26].

Also in our present study revealed that good number of care givers 79.6% have heard on the importance of children dental health although those who have never heard cannot be surpassed as it our research established direct link between lack of awareness and with how motivated they are to take the initiative their children to a dental clinic, although majority of them took their child to dental clinic as indicated in chart no.5.

On the evaluation of the initiative of taking a child to dental clinic the our results were alarming as almost half48.5% did not take their child to dental clinic up-to-date these results are higher than A Cross-sectional study carried out on 150 children in the age group of 2 - 4 years studying in different preschools of Pune city, Maharashtra showed that 39% of children had not visited any dentist by the time the study was conducted [27], in another study 67.1% of the participating children never visited a dentist. Regular dental visiting was reported only by 9 (2.1%) of the participants and the majority 95 (22.7%) visiting the dentist when in pain or trouble [21]. This happens regardless that ideally, the first dental visit should be done within 6 months after the eruption of first deciduous tooth Study done by [18, 28]. Suggested that earlier a child visits to dentist; the greater would be the likelihood of being caries-free [29]. This could be due

to their low level of sensitization of the caregivers as revealed by the 39.8% response of believe that new teeth would come thus no need to take child to dental clinic with in mind that there a changes in normal color of the teeth thus rising of the number of those not taking the initiative to visit a dentistry was the expected logic as the child at the first dental visit may be precisely dental healthy.

Our study on evaluation of the frequency of giving sweets it showed that majority of care givers 53.4% offer sweets to their children every four to six hours this can perpetuates the occurrence of caries as high frequency sucrose exposure may be the most important factor in producing cariogenic plaque [1]. The reason behind this is yet to be established as was not accounted in the questionnaire although another study conducted in Emirate of Ajman in United Arab Emirates (UAE), mothers explained this by noting that they believed that young children spend long hours in playing, get hungry, and therefore need to recover their energy by eating sweets [30]. In another study conducted in Saudi Arabia Half of the respondents do not know the contribution of frequent sweet consumption to dental caries [31].

Also mothers showed much attention on child dental care than fathers and that was reflected on the individual entry and their involvement in child supervision during brushing. Out of 74 mother only 9 could not take part in child supervision when brushing compared to father who 29 and 8 do not take part in the child supervision on brushing a requirement before a child ideally reaches 7years or maturity where a child has learned to perform his/her activities.

CONCLUSION

According to our research results it can be concluded that although majority of participants had heard the importance of children dental hygiene and majority took part in supervision of their child brushing but still their health oriented attitudes to control dental caries to children below 13yrs was still low as depicted by other factors revealed by the our recent study, like caregiver not taking their children to dental clinic, the high number of caregivers poor response on tooth color change as almost half believe new ones will come and also the higher percentage of caregivers poor practice of giving sweets at a frequency of every four to six hours.

Also we conclude that education contribute much on the awareness and health oriented practices that help to prevent and control caries to children below 13 year as depicted by the results and mothers took much part in child dental care that fathers

RECOMMENDATIONS

1. Dental public health sector should establish outreaches to caregivers to establish a comprehensive touch with the care giver thus well sensitize them on dental health oriented practices that help to curb childhood caries.
2. Public campaigns on oral health factors should conducted at community level to sensitize the caregivers on the childhood caries its preventive measures and control.
3. Awareness campaigns should be conducted by dental public health sector in primary and pre-primary school level to equip the child with the knowledge to supplement the caregivers' awareness.
4. Caregivers should be encouraged to give their children non sucrose sweets like xylitol which is non-cariogenic.
5. Government should set up policies that will enhance the awareness of caregivers on dental caries like enforcement of the media to take part in the campaign in its daily programs
6. Further studies should be conducted with larger sample size and different areas in Khartoum and other parts of Sudan may give more representative results.

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