



Influence of Screentime on Dietary Practices and Oral Hygiene of Preschool Children- A Cross Sectional Study

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ABSTRACT:

Background/Aim: Children of present generation have increased access to media devices such as smart phones, television, laptops. The American Academy of pediatrics recommends that the screen time of children and adolescents should be limited to no more than 2h/day. The excessive use of these devices are associated with unhealthy lifestyle, irregular meals, snacking, which can be detrimental to their general health and particularly oral health. This influences oral hygiene practices and cariogenic food consumption which may lead to increased plaque accumulation and dental caries. So the aim of this study is to find the influence of screen time of devices on oral health of preschool children using questionnaire given to parents.

Methodology: The study is conducted among 500 preschool children aged 3- 6 years who visits department of pediatric and preventive dentistry, with their parents. Questionnaire was formulated and distributed to parents during their children's dental visit. All results were subjected to statistical analysis.

Conclusion: This study concluded that screen time have an influence on oral health of preschool children

1. Introduction

Dental caries is one of the most common chronic conditions in children.¹ If left untreated, it can have a detrimental impact on a child's quality of life by impairing their ability to chew, their ability to communicate, their dietary choices, and their participation in school. The American Dental Association [ADA] recommends brushing twice a day for 2min with soft bristled toothbrush and fluoride toothpaste, limiting sugary drinks and snacks and taking regular dental check ups to maintain oral health.²

The risk factors for dental caries in childhood are mostly lifestyle related. The development of oral hygiene habits in childhood is influenced by other behavior like eating, sleeping, watching screens of various multimedia devices.³ Therefore discussing the possible effects of these behavior on oral health is necessary as it contribute to the improvement of their general health.

Children in this generation have increased access to media devices such as televisions, laptops, smartphones. Apart from using media devices for fast communication and accessing information, there is increased use of screen media for entertainment purpose. Children use screens more often because of the growing diversity of these devices and the simplicity with which they can be accessed at any time and from any location.⁴ Increase in screen time is greatly linked to intake of increased snacks, chocolates and sugar sweetened soft drinks.⁵ With this background we aimed to find the influence of screen of devices on oral health of pre school children.

2. Methodology

This was an observational cross sectional study conducted among 500 preschool children aged 3- 6 years who visits department of pediatric and preventive dentistry. The signed consent forms from the parents were obtained before the commencement of the study.



Method of data collection

A self administered questionnaire was formulated and distributed to parents of the children their routine dental visit to the department. Parents were asked to complete the questionnaire and steps were taken to ensure reliability of language and any query on questionnaire. The questionnaire included four major domains. The first part included patient’s name, age, parental employment status. The second part assessed the dietary practice which included influence of screen time on snacking, type of food and drinks preferred. The third part assessed oral hygiene practice which included child’s visits to dentists, frequency of brushing teeth and influence of screen time on oral hygiene practices. The fourth part assessed parental monitoring of child’s oral hygiene and dietary practices which included parental presence while brushing teeth, showing tantrums while brushing, hours child watches tv/ mobile phones. To evaluate the oral health status of the child, dmft index was taken at the end of the study.

3. STATISTICAL ANALYSIS:

Statistical Package for Social Sciences [SPSS] for Windows Version 22.0 Released 2013. Armonk, NY: IBM Corp., was used to perform statistical analyses. Chi Square Test was used to compare the Children's eating habits based on their Screen Time and also Children oral hygiene practices based on their frequency of dental visit. Mann Whitney test was used to compare the mean dmft scores based on the dietary habits followed during the Screening time and also on their oral hygiene habits. Kruskal Wallis Test followed by Dunn's post hoc Test was used to compare the mean dmft scores based on the frequency of dental visits. The level of significance was set at $p < 0.05$.

4. Results

The study included parents of 500 children with mean age of 4.36 years. Females accounted 53% (n = 265) and males 47 % (235) of the study population. In the present study 70% of parents believed that child has increased snacking while watching tv/ mobile phone. Also 70 % of children preferred sweets and salty chips rather than fruits and vegetables (4%). When compared to screen of more than >2 hrs ,this was found to be statistically significant.(p value – 0.003 & 0.006).42.2% of children preferred sugary drinks along with snacks. For a screen time of > 2 hrs the difference was statistically significant.(p – 0.03).

92% parents believed screen time has influenced oral hygiene practices in children. It was found that 51% of children brushed once daily. Most of the children preferred visiting dentist once in a year (53%) or when there is pain (40 %).

Table 1 shows parents response to parental monitoring child oral hygiene and dietary practices.75% of children brushes his/her own teeth and 91 % of parent were physically present while brushing. Also 87% of children throws tantrums while brushing. Parents have noticed that most of the children (79%) watches tv/ mobile phones more than two hours. Table 2 shows comparison of mean dmft scores based on dietary habits. For a screen time of >2 hrs mean dmft score was found to be 3.57 which was statistically significant when compared to screen time of less than 2 hrs. Children who preferred sweets, salty chips showed higher mean dmft values. Mean dmft score was found to be statistically significant in children who added sugary drinks along with their snacks. Table 3 shows comparison of mean dmft score based on their oral hygiene habits. Mean dmft score was found to be less in children who brushed their teeth twice daily. Most of the parents assisted children while brushing and showed significantly less mean dmft values.

Table 4 shows comparison of mean dmft scores based on frequency of dental visits. There was a significant difference in values of mean dmft in children who visits dentists every 6 months ,1 year and whenever there is pain. Higher mean dmft values were seen in children who visited dentist whenever there is pain (5.05).

Distribution of Parents' responses to the questions related to Parental monitoring of child oral hygiene and dietary practices			
Questions	Responses	n	%
Do you brush your child's teeth for them?	Yes	125	25%
	No	375	75%
Are you physically present while child brushes his/her own teeth?	Yes	455	91%
	No	45	9%
Does your child throws tantrums while brushing?	Yes	435	87%
	No	65	13%
How many hours does your child watches TV/mobile phones?	< 2 hrs	105	21%
	> 2 hrs	395	79%

Table 1



Comparison of mean dmft scores based on the dietary habits followed during the Screening time using Mann Whitney test					
Questions	Responses	Mean	SD	Mean Diff	p-value
How many hours does your child watches tv/mobile phones?	< 2 hrs	3.30	1.69	-0.27	0.60
	> 2 hrs	3.57	2.09		
Has your child increased snacking while watching TV/using mobile phones ?	Yes	3.40	1.76	0.13	0.66
	No	3.27	1.84		
Type of food preferred for snacking? Fruits & Vegetables	Yes	3.32	1.82	-0.12	0.65
	No	3.44	1.71		
Salty (potato chips, pop corns)	Yes	3.29	1.78	-0.24	0.54
	No	3.53	1.78		
Sweets (pastries, chocolates)	Yes	3.44	1.83	0.27	0.76
	No	3.17	1.64		
Does your child prefer drinks along with snacks?	Yes	3.35	1.75	-0.03	0.99
	No	3.38	1.91		
If YES,	Water	3.34	1.84	-0.03	0.83
	Sugary Drinks	3.37	1.67		
Does screen time has any effect on his oral hygiene practices?	Yes	3.41	1.79	0.66	0.31

Table 2

Comparison of mean dmft scores based on the their oral hygiene habits using Mann Whitney test						
Questions	Responses	N	Mean	SD		p-value
How many times does your child brush his/her teeth?	Once Daily	25	3.37	1.89		0.97
	Twice Daily	24		1.63		
Do you brush your child's teeth for them?	Yes	46	2.75	1.41		0.001*
	No	40	3.41	1.78		
Are you physically present while child brushes his/her own teeth?	Yes	12	3.76	1.61		0.18
	No	37	3.23	1.80		
Does your child throws tantrums while brushing?	Yes	45	3.33	1.76		0.37
	No	45	3.67	1.78		
Does your child visits dentist regularly?	Yes	43	3.38	1.74	0.15	0.35

Table 3

Comparison of mean dmft scores based on the frequency of dental visits using Kruskal Wallis Test followed by Dunn's post hoc Test						
Questions	Responses	Mean	SD	p-value ^a	Si g-dif f	p-value ^b
If Yes, How often do you take your	Every 6 Months	1.71	0.76	<0.001*	6M vs 1Y	0.27
	Every 1 Year	2.30	0.89		6M	<0.001*



child to dentist?				vs	
				N	
	When there is pain	5.05	1.3	1Y vs N	<0.001*

Table 4

Discussion

The past two decades have seen a considerable increase in digital media, which has raised both enormous promises and concerns for the development of children.⁶ Screen time in children have detrimental effect on general health and particularly oral health. Recent guidance from the Royal College of Paediatrics and Child Health highlights that the apparent adverse health effects of screen time could be attributed to the absence of other health activities, such as exercise, good sleep, and socialization.⁷ The number of hours children spent in front of the screen has shown strong association with consumption of unhealthy foods during the day.⁸ So the present study aimed to find the influence of screen time on oral health of preschool children. The study participants included parents of the children aged between 3-6 years. This is the age where child's mind and mental prowess develop at rapid rate. This can influence the food choices they make during their daily routine. This is the age where child attains treatment maturity and dentist can impart positive dental attitude in children.⁹ The age range of 3-6 was determined considering all these factors. In the present study mean age group was 4.36 years. In the present study it was found that in 70% children screen time has influenced snacking. It was also found out that most of children preferred salty/sweets food rather than fruits and vegetable. This can be attributed to various commercials which might have influenced their food choices. In previous study, food advertisements, have been shown to influence the poor dietary choices among young people which may lead to dental caries.¹⁰

In our study screen time is greatly linked to increased intake sweets, salty chips and sugary drinks. For a screen time of more than 2 hrs these showed significantly higher values. The American Academy of Pediatrics recommends that the screen time of children and adolescents should be limited to no more than 2h/day.¹¹ Increased screen time can affect snacking pattern which can result in dental caries as shown in our study. For a screen time of more than 2 hr, mean dmft scores were seen higher. Higher screen time resulted consumption more cariogenic foods which led to increased plaque accumulation and dental caries. Likewise, a previous study has observed that youngsters who viewed various forms of

screen while eating meals presented higher DMFT score and poor periodontal health.¹² Also in our study, oral hygiene practices in children were analysed. Most of the parents were physically present while the child brushes his/her teeth. This can possibly help the parents to impart correct brushing habits from childhood. Higher dmft scores were seen in children who brushed only once daily. These results could be because of increased screen time which has led to lower brushing frequency in children. A previous study indicated unfavourable impact of screen viewing on oral health behaviour in children aged 6 – 15 years.¹³ The present study found significant association between mean dmft scores based on frequency of dental visits. A considerable increase in mean dmft scores were seen in children who visited dentists only when there is pain. Oral health problems are significant issues that impact not only children's dental health but also their psychosocial wellbeing resulting in dental pain, anxiety and missed school days. This highlights the need of educating parents and guardians about the importance of regular dental check-ups.

Conclusions

The present study showed that screen time has significant influence on oral health of preschool children. As only few studies are there in literature, our study had led significant impact to recommend the following:

- Educating parents about the significance of limiting screen time
- The increase in screen time can be additive over a period of time which can be detrimental to their general health particularly oral health.
- Incorporating wholesome snack and meal patterns and increasing the awareness of oral hygiene practices and routine dental visits.

Monitoring increased screen time is important as increasing independence to food choices and daily habits in childhood lays foundation for habits in adulthood

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