



## Assessment of Parental Care on Oral Health of Children with Special Needs in Trivandrum District

1. Sona Bose, 2. Sonu S, 3. Sreelekha B S, 4. Sreepriya S P, 5. Uthara M S, 6. Vishnupriya S, 7. Dr Alaka Subodh 8. Dr Praveen D

*Final year Student, Sri Sankara Dental College, Trivandrum*

*Final year Student, Sri Sankara Dental College, Trivandrum*

*Final year Student, Sri Sankara Dental College, Trivandrum*

*Final year Student, Sri Sankara Dental College, Trivandrum*

*Final year Student, Sri Sankara Dental College, Trivandrum*

*Final year Student, Sri Sankara Dental College, Trivandrum*

*Assistant Professor, Department of Public Health Dentistry, Sri Sankara Dental College, Trivandrum*

*Associate Professor, Department of Public Health Dentistry, Sri Sankara Dental College, Trivandrum*

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### ABSTRACT

**AIM:** To assess oral hygiene practices and oral health care given by parents of children with special needs.

**METHODOLOGY:** A Cross sectional study was conducted among parents of children with special needs aged between 5 – 21 years old in Kalyan School and day care, Thycaud, Thiruvananthapuram, Kerala.

**RESULT:** 75% of parents who only watch and advice their child in tooth brushing noticed bleeding gums while brushing since they have increased chance of getting gingivitis while 67.6 % parents who assist their child in brushing haven't noticed any bleeding gums while brushing since they have reduced chance of gingivitis.

**CONCLUSION:** Children with special needs lack proper oral health care. Parents are unaware of the unique problems faced by these children with special needs.

**KEY WORDS:** Parental care, children with special needs, dentist, oral hygiene, attitudes, toothbrush

on the psychological health of an individual. The implications of poor oral health are substantial<sup>5</sup>. Several obstacles to preventive care exist, however, and these can include lack of access to dental care, lack of ability of dental professionals to care for children with SHCNs, lack of cooperation at dental appointments, oral aversions, other overriding medical needs and the financial and psychological burden on the child's family<sup>6</sup>. In cases where the child is very young, where the child has serious conditions or where the child is accommodated in a care facility, the child's oral hygiene is the responsibility of whoever takes care of them. This can be problematic when a parent or caregiver lacks knowledge and understanding about the significance of oral hygiene<sup>7</sup>. Oral health is an essential part of an individual's overall well-being. This is particularly true for children with special healthcare needs as they are at an increased risk of developing oral diseases throughout their lifetime<sup>8,9</sup>. Furthermore, children with special healthcare needs have additional oral health requirements that necessitate management in a dental care setting that has been adapted to their specific needs by an oral care provider with specialised knowledge and training.

### I. INTRODUCTION:

Children with special healthcare needs (SHCNs) comprise of children with chronic physical, cognitive, communication and/or behavioural difficulties<sup>1</sup>. As the population continues to grow, the demand for dental care for individuals with special needs also increases<sup>2</sup>. Studies have reported that the prevalence of dental caries in children with SHCNs is similar to other children of the same age<sup>3</sup>. Systematic review carried out by Davis and Anders (2010) emphasised that the prevalence of untreated dental caries and periodontal disease is higher among those with SHCNs<sup>4</sup>. Oral health also has a significant impact

### II. MATERIALS AND METHODOLOGY:

This is a cross sectional study conducted between October 2022 to November 2022. Participants were selected using convenience sampling.

### INCLUSION CRITERIA:

The study was conducted among natives of Kerala state, India. 50 questionnaires were sent to parents of children with special needs aged between 5 – 30 years old in Kalyan School and day



care, Thycaud, Thiruvananthapuram, Kerala. Out of which 38 people participated, from whom written consent was obtained.

**EXCLUSION CRITERIA:**

Participants who did not consent to the survey were excluded from the survey.

**METHODOLOGY:**

A cross sectional study was conducted among parents of children with special needs aged between 15 – 18 years old in Kalyan School and day care, Thycaud, Thiruvananthapuram, Kerala. The study was conducted from October 2022 to November 2022. The views and attitudes of parents regarding oral health care was assessed based on questionnaire method. A total of 21 questions were included in the questionnaire. The questions included sections covering: (demographic details, methods of tooth brushing, Parental supervision or assistance during tooth brushing, Oral hygiene practices, examination of oral cavity and Awareness of parents on oral health)

The questionnaires were distributed among the parents of children with special needs. Informed consent was taken from all the participants at the beginning of the survey. The parents were instructed to choose an appropriate response for each question from the set of options provided under each question. Data was collected from the recorded responses.

**III. STATISTICAL ANALYSIS:**

Collected data was analysed using SPSS software version 25.0. The data was analysed using descriptive statistics and association among the variables were done using Chi square test.

**IV. RESULTS:**

The study was completed with 38 responses of which 68.4 % of respondents were males and 31.6 % females as given in figure 1.

As given in figure 2, 26.3 % of responses were recorded from the age group 5-10 years, while 47.4 % belong to 11-20 years group and 26.3 % of children belong to 21-30 years group.

Figure 1: Frequency of gender distribution

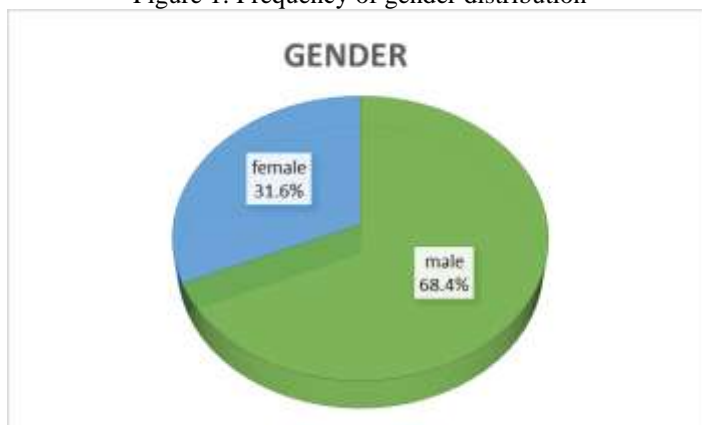


Figure 2: Frequency of age distribution

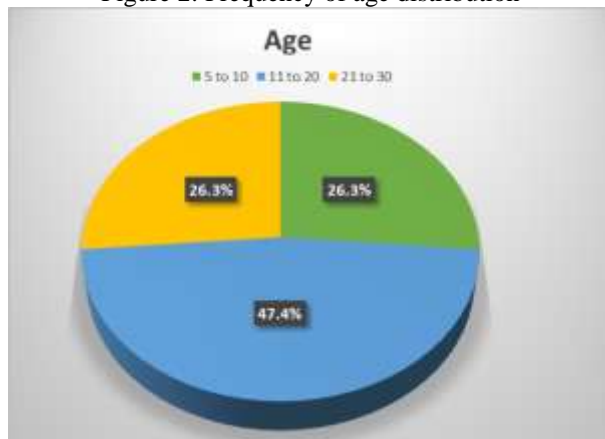




Table 1 shows the frequency of parental care on overall health of children with special needs. 94.7% said that tooth brushing is the ideal method for teeth cleaning at home .89.5% said that they help their child in tooth brushing. 92.1% said that toothbrush and paste are the oral hygiene method used .39.5% said that their child brush once daily. 60.5% said they use soft toothbrush. 47.4% said that their child takes about 2-3 minutes to brush their teeth. 63.2% said that their child cleans their tongue. 60.5% said they are willing to brush their teeth. 57.9% changed their toothbrush every 2-3 months. 63.2% think regular dental check-up is necessary. 55.3% said that their child visit dentist when in pain.78.9% think improper brushing habit results in tooth problems. 63.2% said haven't noticed any bleeding gums during brushing. 81.6% think that it is necessary to clean child's mouth after every meal.68.4% noticed black spots or decayed tooth in child's mouth.63.2% said that their child does not suffer from bad breath. 42.1% of the child visited dentist for tooth ache or decay last time. 44.7% said that their child doesn't feel nervousness on visiting dentist. 52.6% haven't noticed any abnormality in tooth shape or size. 94.7% think that health of mouth affects health of body. 50% of them are aware of powered toothbrush but never used it.

Table 2 shows the comparison between age and parental care. Most of parents of children of all age group considered tooth brushing as the ideal method for cleaning tooth with tooth paste ,tooth brush or finger twice daily and they assist their child in brushing.100%,50% parents of 5-10,11-20 year old children reported their child used soft tooth brush and 50% parents of 21-30year old children reported that child used medium tooth brush.40%,50%,50% parents of children of all agegroup reported their child brushed about 2-3minutes. Most of the parents of children belonging to all age group reported their child cleans tongue,shows willingness to brush, changes brush every 2 to 3 months and felt visiting dentist for regular checkup is necessary.50%,77.8% parents of 5-10,11-20 year old children responded that their child do not suffer from bad breath and 40%parents of 21 -30 year old children reported their child suffer from bad breath.60%,38.9% parents of 5-10 ,11-20 year old children reported that child visited dentist for tooth ache or decay and 10 % parents of 21-30 year old children reported they visited dentist for gum problems and as a part of regular dental checkup for the last time. Most of the parents of children of all age group reported their child visited dentist when in pain, noticed black spot or decay and shows no abnormality in size or shape of

teeth.80%,44.4% parents of 5-10,11-20-year-old children reported that they are aware of powered tooth brush but never used it.60%parents of 21-30year old children responded they are unaware ofpowered tooth brush. Most of the parents of children belonging to all age group agreed that oral health affects generalhealth of body, improper tooth brushing results in problem and is necessary to clean child's mouth after every meal. All the above reveals no statistically significant differences.40% parents of 21- to 30-year-old children noticed bleeding from gums while brushing. 80% parents of 5- to 10-year-old children reported that gums do not bleed while brushing. This gives significant difference with p value = 0.006

On comparison of gender and parental care on oral health of children with special needs. All the parents of the male children and 83.3% of the parents of the female children considered tooth brushing as the ideal method for cleaning teeth. Most of the parents of the male and female children reported that their child used tooth brush and paste for cleaning teeth, uses soft type of brush, brushed teeth for about 2-3 minutes along with cleaning their tongue, changed tooth brush every 2-3 months and that their child showed willingness to clean their teeth. Most of the parents of the male and female children thought it was necessary to visit dentist for regular checkup but they reported that their child visited dentist only when in pain and last visited dentist to treat tooth ache or decay. parents of 69.2% male children reported that their child brushes twice daily where as parents of 58.3% female children reported that their child brushes only once daily, parents of 42.3% of male children reported that their child feels nervous on visiting dentist whereas parents of 75% of the parents of the female children reported that their child does not feel nervous on visiting dentist. Most of the parents of both male and female children thought that improper brushing habits result in problems of teeth , considered that it was necessary to clean child's mouth after every meal , noticed black spot or decay in their child's mouth ,reported that their child does not suffer from bad breath , did not noticed any abnormalities in tooth size or shape and thinks that health of the mouth affects health of the body. parents of 57.7% of male children were aware of powered tooth brushes but never used it whereas parents of 66.7% female children were not aware of powered toothbrushes. 69.2% of the parents of male children reported that they did not notice bleeding from gums when their child brushes teeth whereas 50% parents of female children reported that they noticed bleeding from gums when their child brushes teeth. This gives a



significant difference with p value = 0.006.26% of the parents of the male children helped their child in brushing tooth whereas 4% of the parents of the female children only watch and advice their children in brushing. There is significant difference (p value = 0.002).

Table 3: While comparing the parental assistance in tooth brushing and any kind of black spot or decay in child’s teeth 70.6% help their child in tooth brushing and said that their child has tooth decay. While comparing the parental assistance in tooth brushing and tongue cleaning 64.7% help their child in tooth brushing and tongue cleaning. On comparing the parental assistance in tooth brushing to the oral hygiene method used 94.1% help their child in tooth brushing and they use tooth brush and paste as method of choice. While comparing the parental assistance in tooth brushing with behaviour on dental visit 75% said that they only watch and advice their child in tooth brushing

and they are not nervous on dental visits. While comparing the parental assistance in tooth brushing with bleeding gums on brushing 75% watch and advice their child in tooth brushing and notices bleeding gums during brushing. 67.6% help their child in tooth brushing and do not notice any bleeding gums during brushing. There Is a significant value(P=0.019) .While comparing the parental assistance in tooth brushing with frequency of dental visit 55.9% help their child in tooth brushing and visit dentist when in pain. While comparing the parental assistance in tooth brushing with the duration of changing tooth brush 55.9% help their child in tooth brushing and change tooth brush every 2-3 months. While comparing the parental assistance in tooth brushing with the effect of oral health on systemic health 97.1% help their child in tooth brushing and they think that oral health affects systemic health.

Table 1: Frequency of parental care on oral health of children with special needs

S No			Frequency	Percentage
1.	What is the ideal method for teeth cleaning at home	Tooth brushing	36	94.7
		Washing with water	2	5.3
		Cleaning with mouthwash	0	0
		I haven't any idea	0	0
2.	Do you help your child in tooth brushing to maintain good oral hygiene	Yes, I help the child	34	89.5
		Only watch and advice	4	10.5
		Only advice but do not watch	0	0
		No, they brush themselves	0	0
3..	Oral hygiene method used	Tooth brush and paste and finger	35	92.1
		Tooth powder	3	7.9
		Any sticks	0	0
		Any others, if any specify	0	0
4.	How many times do they brush their teeth	Once daily	15	39.5
		Twice daily	23	34.2
		Once in two days	0	0



		I haven't any idea	2	5.3
5.	What type of brush do they use?	Soft	23	60.5
		Medium	13	34.2
		Hard	0	0
		I haven't any idea	2	5.3
6.	Duration of brushing	Less than 1 minute	15	39.5
		About 2-3 minutes	18	47.4
		More than 2 minutes	3	7.9
		I haven't any idea	2	5.3
7.	Does your child clean their tongue	Yes	24	63.2
		No	7	18.4
		Sometimes	7	18.4
		I haven't any idea	0	0
8.	Are they willing to brush their teeth	Yes	23	60.5
		No	11	28.9
		Sometimes	4	10.5
		I haven't any idea	0	0
9.	When do you change their tooth brush	After one month	13	34.2
		After every 2-3 months	22	57.9
		When brush gets damaged	1	2.6
		Not particular	2	5.3
10.	Do you think visiting dentist for regular check-up is necessary	Yes	24	63.2
		No	12	31.6
		I haven't any idea	1	2.6
11.	Frequency of visiting a dentist	Regularly	8	21.1
		When in pain	21	55.3
		Occasionally	2	5.3
		Never	7	18.4
12.	Do you think improper brushing habit results in problems in tooth	Yes	30	78.9
		No	5	13.2
		I haven't any idea	2	5.3
13.	Do you notice	Yes	8	21.1



	any bleeding from gums during brushing their teeth?	No	24	63.2
		I haven't any idea	6	15.8
14.	Is it necessary to clean child's mouth after every meal	Yes	31	81.6
		No	6	15.8
		I haven't any idea	1	2.6
15.	Have you noticed any kind of black spot or decay in your child's teeth	Yes	26	68.4
		No	30%	31.6
		I haven't any idea	0	0
16.	Do they suffer from bad breath	Yes	9	23.7
		No	24	63.2
		Sometimes	4	10.5
		I haven't any idea	1	2.6
17.	For what purpose do you make them visit dentist for the last time	As a part of regular check-up	3	7.9
		For tooth ache / decay	16	42.1
		Gum problems	1	2.6
		Others	3	7.9
		Not visited	15	39.5
18.	Do they feel nervous on visiting a dentist	Yes	14	36.8
		No	17	44.7
		Sometimes	2	5.3
		I haven't any idea	5	13.2
19.	Have you ever noticed any abnormality in tooth shape or size	Yes	17	44.7
		No	20	52.6
		I haven't any idea	1	2.6
20.	Do you think health of mouth affect health of body	Yes	36	94.7
		No	2	5.3
		I haven't any idea	0	0
21.	Are you aware of powered tooth brush?	Yes, child uses it	4	10.5
		Yes, but never used	19	50.0



	No	15	39.5
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Table 2: Comparison of age and gender with parental care on oral health of children with special needs

S No			AGE ( IN YEARS )				GENDER		
			5-10	11-20	21-30	p value	Male	Female	p value
1	What is the ideal method of teeth cleaning?	Tooth brushing	100	94.4	90	0.604	100	83.3	0.032
		Washing with water	0	5.6	10		0	16.7	
		Cleaning with mouthwash	0	0	0		0	0	
		I haven't any idea	0	0	0		0	0	
2	Do you help your child in tooth brushing?	Yes, I help the child	100	88.8	80	0.344	100	66.7	0.002*
		Only watch and advice	0	11.1	20		0	33.3	
		Only advice but do not watch	0	0	0		0	0	
		No, they brush themselves	0	0	0		0	0	
3	Oral hygiene method used?	Toothbrush and paste	100	88.95	90	0.556	92.3	91.7	0.946
		Tooth powder	0	11.1	10		7.7	8.3	
		Any sticks	0	0	0		0	0	
		Any other	0	0	0		0	0	
4.	How many times do they brush their teeth?	Once daily	30	38.9	50	0.656	30.8	58.3	0.106
		Twice daily	70	61.1	50		69.2	41.7	
		Once in two days	0	0	0		0	0	
		I haven't any idea	0	0	0		0	0	
5	What type of brush do they use?	Soft	100	50	40	0.055	53.8	75	0.374
		Medium	0	44.4	50		38.5	25	
		Hard	0	0	0		7.7	0	
		I haven't any idea	0	5.6	10		0	0	
6.	Duration of brushing	Less than 1 min	40	38.9	40	0.692	38.5	41.7	0.807
		2-3 min	40	50	50		46.2	50	
		More than 2 min	20	5.6	0		7.7	8.3	
		I haven't any idea	0	5.6	10		7.7	0	
7.	Does your child clean their tongue?	Yes	80	61.1	50	0.659	65.4	58.3	0.207
		No	10	16.7	30		11.5	33.3	
		Sometimes	10	22.2	20		23.1	8.3	
		I haven't any	0	0	0		0	0	



		idea							
8.	Are they willing to brush their teeth?	Yes	80	50	60	0.157	61.5	58.3	0.692
		No	0	44.4	30		30.8	25	
		Sometimes	20	5.6	10		7.7	16.7	
		I haven't any idea	0	0	0		0	0	
9.	When do they change their tooth brush?	After 1 month	20	44.4	30	0.088	42.3	16.7	0.232
		After every 2-3 months	80	55.6	40		53.8	66.7	
		When brush gets damaged	0	0	10		0	8.3	
		Not particular	0	0	20		3.8	8.3	
10.	Do they think visiting dentist for regular checkup is necessary?	Yes	70	66.7	50	0.437	69.2	50	0.349
		No	20	27.8	0		23.1	50	
		I haven't any idea	50	50	0		3.8	0	
11.	Frequency of visiting a dentist?	Regularly	10	27.8	20	0.676	15.4	33.3	0.513
		When in pain	80	44.4	50		57.7	50	
		Occasionally	0	5.6	10		7.7	0	
		Never	10	22.2	20		19.2	16.7	
12.	Do you think improper brushing habit result in tooth problems?	Yes	90	72.2	80	0.366	80.8	75	0.807
		No	0	22.2	10		11.5	16.7	
		I haven't any idea	10	5.6	0		3.8	8.3	
13.	Do you notice any bleeding from gums during brushing their teeth?	Yes	0	22.2	40	0.006*	7.7	50	0.006*
		No	80	77.8	20		69.2	50	
		Sometimes	20	0	40		23.1	0	
		I haven't any idea	0	0	0		0	0	
14.	Is it necessary to clean child's mouth after every meal?	Yes	90	72.2	90	0.667	80.8	83.3	0.248
		No	10	22.2	10		19.2	8.3	
		I haven't any idea	0	5.6	0		0	8.3	
15.	Have you noticed any kind of black spot or decay in your	Yes	70	55.6	90	0.170	65.4	75	0.553
		No	30	44.4	10		34.6	25	





	child's teeth?	I haven't any idea	0	0	0		0	0	
16.	Do they suffer from bad breath?	Yes	30	11.1	40	0.419	23.1	25	0.508
		No	50	77.8	5.6		65.4	58.3	
		Sometimes	20	5.6	10		11.5	8.3	
		I haven't any idea	0	5.6	0		0	8.3	
17.	For what purpose do you make them visit dentist for the last time?	As a part of regular check up	0	11.1	10	0.691	7.7	8.3	0.673
		For tooth ache or decay	60	38.9	0		42.3	41.7	
		Gum problems	0	0	10		0	8.3	
		Others	10	5.6	10		7.7	8.3	
		Not visited	30	44.4	40		42.3	33.3	
18	Do they feel nervous on visiting a dentist?	Yes	50	27.8	40	0.612	42.3	25	0.058
		No	50	44.4	40		30.8	75	
		Sometimes	0	5.6	10		7.7	0	
		I haven't any idea	0	22.2	10		19.2	0	
19	Have you ever noticed any abnormality in tooth shape or size?	Yers	40	44.4	50	0.563	46.2	41.7	0.738
		No	50	55.6	50		50	58.3	
		I haven't any idea	10	0	0		3.8	0	
20	Do you think health of mouth affect health of body?	Yes	90	100	90	0.387	96.2	91.7	0.565
		No	10	0	10		3.8	8.3	
		I haven't any idea	0	0	0		0	0	
21	Are you aware of powered toothbrush?	Yes, child uses it	0	16.7	10	0.169	15.4	0	0.047
		Yes but never used	80	44.4	30		57.7	33.3	
		No	20	38.9	60		26.9	66.7	

Table 3: Comparison of parental care with oral hygiene measures

S no	Do you help your child in tooth brushing to maintain good oral hygiene?	p value								
	<table border="1"> <thead> <tr> <th>Yes, I help the child</th> <th>Only watch and advice</th> <th>Only advice but do not watch</th> <th>No, they brush themselves</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Yes, I help the child	Only watch and advice	Only advice but do not watch	No, they brush themselves					
Yes, I help the child	Only watch and advice	Only advice but do not watch	No, they brush themselves							



1	Oral hygiene method used	Tooth brush and paste	94.1	75	0	0	0.180
		Tooth powder and finger	5.9	25	0	0	
		Any sticks	0	0	0	0	
		others	0	0	0	0	
2	Does your child clean their tongue?	Yes	64.7	50	0	0	0.186
		No	14.7	50	0	0	
		Sometimes	20.6	0	0	0	
3.	When do you change their tooth brush?	After one month	35.3	25	0	0	0.876
		After every 2-3 months	55.9	75	0	0	
		When brush gets damaged	2.9	0	0	0	
		Not particular	5.9	0	0	0	
4.	Frequency of visiting a dentist	Regularly	20.6	25	0	0	0.941
		When in pain	55.9	50	0	0	
		Occasionally	5.9	0	0	0	
		Never	17.6	25	0	0	
5	Do you notice any bleeding from gums during brushing their teeth?	Yes	14.7	75	0	0	0.019*
		No	67.6	25	0	0	
		Sometimes	17.6	0	0	0	
		I haven't any idea	0	0	0	0	
6	Have you noticed any kind of black spot or decay in your child's teeth?	Yes	70.6	50	0	0	0.402
		No	29.4	50	0	0	
		I haven't any idea	0	0	0	0	
7	Do the feel nervous on visiting a	Yes	38.2	25	0	0	0.592
		No	41.2	75	0	0	



	dentist?						
		Sometimes	5.9	0	0	0	
		I haven't any idea	14.7	0	0	0	
8	Do you think health of mouth affect health of body?	Yes	97.1	75	0	0	0.062
		No	2.9	25	0	0	
		I haven't idea	0	0	0	0	

## V. DISCUSSION:

From the analysis of the results yielded from our study, we deciphered the following facts and information:

Most of the parents said that tooth brushing is the ideal method for maintaining oral hygiene with tooth brush and paste and they assist their child in tooth brushing. Most of them brush once daily using soft toothbrush. Duration of brushing is about 2-3 minutes. Most of them also clean their tongue and are willing to brush their teeth. They change their tooth brush every 2-3 months. Most of the parents think that regular dental check-up is necessary and improper brushing habits result in tooth problems. They think that it is necessary to clean child's mouth after every meal. Most of the parents noticed decay or black discolouration on tooth but haven't noticed any bleeding gums or any abnormality in tooth shape or size nor do they suffer from any bad breath. Most of the child doesn't feel nervousness on visiting a dentist. Most of the parents are aware of powered toothbrush, but never used it. On comparing different age group with parental care on oral health of children with special needs, most of them showed no significant difference. Bleeding gums were noticed by 40% of parents among 21-30 year-old children while 80% of parents haven't noticed any bleeding gums in 5-10-year-old children. This shows a significant different ( $p = 0.006$ ). The relationship between gender and parental care on oral health of children with special needs were not significant because the number of males who participated in the study were more when compared to female participants.

It was noticed that most of the parents only watch and advice their child while brushing and noticed bleeding gums during brushing and there is increased risk of gingivitis. While parents who help their child in brushing haven't notice any bleeding gums so there is reduced risk of gingivitis. It is necessary to not only watch and advice but also to assist their child

since they need special care. This is supported by the study conducted by Bozorgmehr, et al, Haji Zamani, et al, Mohammadi, et al on the topic 'Oral health behavior of parents as a predictor of oral health status of their children' <sup>10</sup>

## VI. CONCLUSION:

The views and attitudes of parents regarding oral health were influenced by a number of factors. Parents were not aware of the unique problems faced by these children. Children with special needs lack proper oral health care. Parental care highly influenced the percentage of oral health problems in children with special needs. Significantly high levels of caries prevalence were observed in children with special needs irrespective of their age and gender. Oral health promotion programs should be aimed specifically at special needs schools and parents of disabled children. Oral health promotion should include facilitating access and regular use of oral health services. Taking into consideration, the multifactorial influence on oral health status of children with special needs, oral health promotion and intervention programs should be targeted and concentrated towards these risk groups.

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