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### Original Article

## Oral Hygiene Practices and Dental Health Status of the Street Children of Varanasi, India: A Cross Sectional Descriptive Study

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#### ABSTRACT:

**Introduction:** Parental and family care is the prime need of any child which helps him to develop into a confident human being with sound general and oral health. Street children are at an increased risk for specific health problems including dental caries. **Aims and objectives:** The present study was taken up to assess the oral hygiene practices and DMFT and dmft status of street children of Varanasi. **Materials and methods:** A cross sectional descriptive study was conducted among 384 street children across the city of Varanasi. Consent was obtained prior to the start of the study; decayed, missing, filled teeth (dmft) and decayed, missing, and filled teeth (DMFT) indices were used to assess the caries status of primary and permanent dentition. Pre formulated questionnaire was used to collect data about their oral hygiene habits. **Results:** 75% of the children were using toothbrush as oral hygiene maintenance measures and the caries prevalence was 28.15%. The mean DMFT value obtained was  $0.34 \pm 0.848$  for boys and  $0.04 \pm 0.206$  for the girls. In the deciduous dentition a mean dmft of  $0.22 \pm 0.648$  and  $0.35 \pm 0.674$  was recorded for the boys and girls respectively. Majority of the children were using toothbrush (75%) and toothpaste (84.37%) for maintaining oral hygiene and a significant association between dmft and frequency of brushing and DMFT and brushing aids was found. **Conclusion:** Oral health of the street children of Varanasi area was satisfactory and acceptable but required more enforcement towards oral hygiene practices.

**Key words:** DMFT, dmft, Vagabond, Oral Hygiene, Varanasi.

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#### INTRODUCTION

Children, when young require wholesome emotional and physical care. Protection from the family inculcates self-confidence to face the world with its highs and lows. Young children are said to be the blessings of God to their parents. Not every child is as lucky though to be blessed with the care and affection of their parents. An insecure childhood may be a result of broken marriages, increased poverty, and unemployment, neglect, abuse and violence, natural and man made disasters, decreasing resources in rural areas or the attraction of cities<sup>1</sup>. The absence of family support has an impact on the general and oral health behavior and knowledge of the children. The results of these can well be seen extending through adulthood because it is a well-

established fact that factors leading to the causation or development of a disease may have their roots established in their earlier ages.<sup>2</sup>

Institutes or shelter homes serve as the primary residence and care givers of these street children in general.<sup>1</sup> Some of them may not be even that lucky and they get to stay on the streets. Oral and personal hygiene measures and health take a backseat in these children for their prime motto becomes affording meal even once a day. Consequently these children develop lot of disabilities early in their life which include poor oral health status. Diseases of the mouth are seldom paid attention to unless it reaches to a severely painful level.

General body health has always been given more importance than the oral health, be it at any level: the government, policy makers, NGOs, doctors or the common man. Consequently abundant literature can be found on the overall general health of street children but literature on their oral health is scarce.<sup>3</sup> Hence the present study was taken up to assess the oral hygiene practices and debilitating diseases of the oral cavity (Caries) of the street children of Varanasi city, India.

**MATERIALS AND METHODS**

The present descriptive cross sectional study was taken up in Varanasi city India from June 2017 to August 2017 and included a total of 384 street children. This study was part of a broad project taken up to assess the overall health of the street children of Varanasi in collaboration with different NGOs. The city was divided into 4 zones and from each zone an area was selected by lottery method. The four subareas that were included were Lanka, Jalalipati, Chiragaon and Phulwari area. All the children of that particular area between the age of 3-15 years who voluntarily consented to participate and were available on the day of study were included. Ethical clearance was obtained from the Institute Ethical Committee. Children who did not agree to participate or those who had some mental illnesses were excluded from the study.

A pilot study was conducted among 20 subjects in another area for the feasibility of the study. These subjects were not a part of the final study. Information regarding the demographic factors and oral hygiene practices was obtained by interview method using questionnaire. Along with this oral examination was performed according to ADA type III examination using mouth mirror, CPI probe in a natural day light. As per WHO 1997 guidelines, caries was recorded using decayed, missing, and filled teeth (DMFT/dmft) Index. The questionnaire was made, face and content validated by a team of experts in the field. The reliability of the questionnaire was assessed (Cronbach's  $\alpha =$

0.77). DMFT index was recorded by a single trained dental professional (intra examiner reliability was 0.81 [kappa value]).

Data entry was made in Microsoft Excel sheets and analyzed using SPSS 17 [SPSS Inc. Released 2008. SPSS Statistics for Windows, Version 17.0. Chicago: SPSS Inc.] Each question was analyzed by descriptive statistics and a chi square test was applied to check for association of questions and oral hygiene practices. T test and Anova were applied.

**RESULTS**

A total of 384 children participated in this study which consisted of 200 boys and 184 girls of which 36 boys and 48 girls were under the age of 6 whereas 164 boys and 136 girls were above the age of 6. Mean DMFT score was 0.34±0.848 for boys and it was 0.04±0.206 for the girls. In the deciduous dentition a mean dmft of 0.22±0.648 and 0.35±0.674 was recorded for the boys and girls respectively. 75% of the children were brushing their teeth once a day whereas 6.25% did not brush their teeth. The rest admitted to brushing their teeth twice daily. 84.37% children were using paste for maintaining their oral hygiene whereas the others resorted to powder. A mean DMFT score of 0.20±0.621 was found for the children using paste whereas it was 0.33±1.00 for the children using powder. Toothbrush was the prime aid used for maintaining oral hygiene (75%) followed by datum (9.375%) followed by fingers. A mean DMFT of 0.11±0.430 was recorded for the children utilizing tooth brush and 0.44±1.014 for using datum. Subjects using fingers were noticed to have high caries (1.50±2.121). The results for the deciduous dentition were almost similar. Majority of the candidates said they were using horizontal type of brushing (58.3%) followed by rolling (30.2%) and rest by vertical. The mean DMFT was maximum for the vertical type of tooth brushing (0.57±1.134) whereas in the deciduous dentition it was maximum seen in subjects who did not resort to brush their teeth (0.50±1.00).

**Table 1: Demographic Profile Of The Study Population**

AGE	MALE (200)	FEMALE (184)
<6	9.37%	12.5%
>6	42.70%	35.41%

**Table 2: Distribution of Dental Caries wrt Gender**

	Gender	N in %	Mean	p value
DMFT	MALE	52.08%	0.34±.848	0.023(S)
	FEMALE	47.91%	0.04±0.206	
Deci dmft	MALE	52.08%	0.22±.648	0.346(NS)
	FEMALE	47.91%	0.35±0.674	

• t test

**Table 3: Distribution of Dental Caries wrt Frequency of Brushing**

		N in %	Mean	P value
<b>DMFT</b>	No Response	6.25%	0.00±0.00	0.87
	Once daily	75%	0.25±0.727	
	Twice daily	18.75%	0.06±0.236	
<b>Deci dmft</b>	No response	6.25%	0.33±0.816	0.051
	Once daily	75%	0.21±0.604	
	Twice daily	18.75%	0.56±0.784	

\*ANOVA

**Table 4: Distribution of Dental Caries wrt Material of Brushing**

		N in %	Mean	p value
<b>DMFT</b>	No response	6.25%	0.00±.000	0.621
	paste	84.3755	.20±0.621	
	powder	9.375%	0.33±1.00	
	Total	100%	0.20±0.643	
<b>Decidmft</b>	No response	6.25%	0.33±0.816	0.947
	paste	84.375%	0.27±0.652	
	powder	9.375%	0.33±0.707	
	Total	100%	0.28±0.660	

\*ANOVA

**Table 5: Distribution of Dental Caries wrt Brushing Aid**

		N in %	Mean	p value
<b>DMFT</b>	No response	12.5%	.33±0.888	0.019
	toothbrush	75%	.11±0.430	
	daatun	9.375%	.44±1.014	
	fingers	2.08%	1.50±2.121	
	Total	100%	.20±0.643	
<b>Decidmft</b>	No response	12.5%	.33±0.778	0.9
	toothbrush	75%	.29±0.680	
	daatun	9.375%	.11±0.333	
	Fingers	2.08%	.50±0.707	

\*ANOVA

**Table 6: Distribution of Dental Caries wrt Brushing technique**

		N in %	Mean	p Value
<b>DMFT</b>	No response	4.16%	.00±0.00	0.25
	horizontal	58.3%	.23±0.713	
	vertical	7.29%	.57±1.134	
	rolling	30.21%	.07±0.258	
<b>Deci dmft</b>	No response	4.16%	.50±1.00	0.865
	horizontal	58.3%	.29±0.653	
	vertical	7.29%	.14±0.378	
	rolling	30.21%	.28±0.702	
	Total	100%	.28±0.660	

\*ANOVA

**Table 7: Distribution of Dental Caries wrt school advise**

		N in %	Mean	p value
<b>DMFT</b>	School Advise			.598
	Given	66.67%	0.19±0.614	
<b>Decidmft</b>	Not given	27.08%	0.27±0.778	.784
	Given	66.67%	0.27±0.648	
	Not given	27.08%	0.31±0.679	

\*t test

**Table 8: Correlation of frequency of brushing with DMFT/dmft**

FREQUENCY	DMFT	dmft
r	0.46	0.151
P value	0.654(NS)	0.141(NS)

## DISCUSSION

The present study was conducted in the city of Varanasi with the aim of assessing and evaluating the oral hygiene practices and oral health status of street children of the area. The definition of street children has been debated over years and consensus has been gained as referring to those children who are homeless or neglected, experiencing poverty, living on streets including unoccupied dwelling and wastelands and inadequately protected or supported.<sup>4</sup>

A total of 384 street children were recruited in the study of which 52% were boys and 48 % girls. This is in accordance with the results of the study done by Mehta et al<sup>5</sup> and Kahabuka et al<sup>3</sup> who reported more boys in their study on street children but in contrast to the results of the study done by Srinivas et al<sup>6</sup>, Elsa K Delgado et al<sup>7</sup> and Pisarn et al<sup>8</sup> who reported more girls in their study than boys amongst street children. The gender profile of the recruits of our study is also in accordance with the study done by Mohammedi et al<sup>9</sup> who reported 59.4% boys and 40.52% girls amongst school children. There is a very minor discrepancy in the gender ratio but can be explained by the fact that more number of girls prefer to work or stay at some relatives place rather than in institutionalized shelters. Moreover girls have an innate responsibility sense for their younger siblings hence they prefer to fend for their younger brothers and sisters rather than looking for just after themselves.

In the present study 78.1% children were in the age group of 6-15 years of age or the mixed dentition age group. The mean age of the children recruited in the present study was  $8.40 \pm 3.024$  with an almost equivalent distribution for each age group. Majority of the children were in the age group of 5,7,10 and 12 years. This is in accordance to study conducted by R Contreras-Bulness et al<sup>10</sup> who reported that 10.3% of the children belong to 15 years of age and 9.7% belong to 10 years of age. Studies have shown that the majority of street children are between the age group of 10-14 years .

Results of the present study reveal that 84.75% of these children use toothpaste to maintain their oral hygiene, others prefer using powder. This is in contrast to the study done by Srinivas et al<sup>6</sup> who reported only 60.8% of the subjects to be using toothpaste and 39% using powder in Guntur Andhra Pradesh India, the reason for this difference may be due to time frame between the two studies leading to more advancements. However in the study done by FK Kahabuka et al<sup>3</sup> (2006) an impressive 92.4% children were using toothpaste, the improved results in that study can be attributed to the impact of health education protocols used in that population prior to the study.

In the present study 75% children were using toothbrush as oral hygiene maintenance aid where as 9% reported datun and the rest resorted to fingers. These results are in accordance with the results of Srinivas et al<sup>6</sup> who reported 66.7% of children to be using toothbrush and the rest 33.3% were using fingers to maintain oral hygiene. Results

reported by Kahabuka et al<sup>3</sup> were better as compared to both these studies as they have reported 92% children to be using toothbrush. This may have been due to the various number of educational groups that had visited the shelter home. The subjects of our study gained oral hygiene knowledge solely in bits from advertisements and various media etc.

Some of the children of the present study were attending few evening classes run by a local group of social workers. These social workers did impart oral hygiene measures and awareness amongst the subjects of the present study, hence the better use of oral hygiene aids has been noticed as compared to the other studies. 66.6% of the subjects admitted to having gained knowledge about oral and personal hygiene from these social workers. Interestingly those confessing to having received oral hygiene instructions showed a low mean DMFT and dmft than the non receiving group; however the differences were not significant statistically.

The prevalence of dental caries is reported to be 28.15%, in contrast to the results of Srinivas et al<sup>6</sup> and Shah et al<sup>11</sup> who reported a dental caries prevalence of 50% and 69% in their studies respectively. The results of our study are encouraging than that reported by Mohammedi et al<sup>9</sup> amongst school children. A mean DMFT value of  $0.34 \pm 0.848$  and  $0.04 \pm 0.206$  was recorded for the boys and girls of the present study group, These values are also low as compared to the studies on either street children or on school children.<sup>5,6,9,12</sup> The dmft values  $0.22 \pm 0.648$  and  $0.35 \pm 0.674$  for boys and girls respectively in the present study group was also less than the values reported by other researchers.<sup>6,9,12</sup> These values are even less than that obtained by National Oral Health Survey where mean dmft and DMFT values in 5 and 12 year age were 1.9 and 1.7 respectively.<sup>13</sup> The differences reported in this study might be explained by the fact that these street children do not have easy and frequent access to soft sugary substances which are caries promoting.

An assessment of the DMFT and dmft with various oral hygiene maintenance techniques revealed a significant association between dmft and frequency of brushing and DMFT and brushing aids, symbolizing that frequency of brushing and proper use of brushing aids and techniques do impact the occurrence of caries in an individual. Thus it should be mandatory for all to maintain oral hygiene using proper aids and techniques and the dentists should educate and properly motivate each and every individual of the country to achieve an optimum level of oral health and a disease free state.

## CONCLUSION

The results of this study provide a baseline data of the oral hygiene status of the street children of this area to provide and promote oral health needs. Low caries prevalence in this area may be due to less access to sticky sugar consumption. Children needing dental care were given appropriate treatment free of cost and complex cases were

referred to the institution. Incharges and teachers involved with these children should specially emphasize on oral and personal hygiene importance and practice. More and more of the common man should also try to help these children grow up and develop a disease free youth. A point of concern in this study was the malnutrition state of the children. Most of them had signs of worm infestations and vitamin deficiency. Discussing this is beyond the scope of the present paper but the point to be noted is that this needs urgent medical attention. The present article is also an appeal to all to help improve the overall status of these children.

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