

**ORIGINAL ARTICLE****IMPACT OF SOCIOECONOMIC STATUS ON ORAL HEALTH AND ORAL HEALTH PRACTICES AMONG PRESCHOOL CHILDREN**Sonal Rani<sup>1</sup>, Ambika Singh<sup>2</sup>, Mandeep Singh Virdi<sup>3</sup>, Lata Kiran Mehta<sup>4</sup><sup>1,2</sup>Post-Graduate Student, <sup>3</sup>Professor and Head, <sup>4</sup>Professor, Department of Pedodontics and Preventive Dentistry, PDM Dental College and Research Institute, Sarai Aurangabad, Bahadurgarh, Haryana, India.**ABSTRACT:**

Oral health is an integral part of general health. Socioeconomic status(SES) is one of the most important factor which influence the oral health and oral health practices of an individual. Present study conducted on 2600 preschool children taken in groups(I-V) according to their SES from Anganwadis and Nursery schools. Mean dt ranged from 0.93 - 1.67, mean mt ranges from 0.03- 0.22, mean ft ranges from 0.13-0.18 and mean dmft ranged from 1.15-2.02 in SES groups I-V. The dm and dmft were found to be significantly affected by the SES group. Tooth brushing practice and use of toothpaste decreased from upper SES to lower one. Tooth brushing twice a day was mainly found in uppermost SES which was 15.81%. Results showed a significant relation between oral health status and oral health practices among different socioeconomic groups. Oral health promotion programmes should include preventive measures, while public health strategies should focus on community empowerment and development of accessible and responsive dental services.

Key words: Dental caries, preschool children, socioeconomic status, oral hygiene practices.

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This article may be cited as: Rani S, Singh A, Virdi MS, Mehta LK. Impact of socioeconomic status on oral health and oral health practices among preschool children. J Adv Med Dent Scie Res 2017;5(5):44-48.

Access this article online	
<b>Quick Response Code</b> 	Website: <a href="http://www.jamdsr.com">www.jamdsr.com</a>
	<b>DOI:</b> 10.21276/jamdsr.2017.5.5.12

**INTRODUCTION**

Oral health is an integral part of general health. Oral health status has a direct impact on general health. Children who suffer from poor oral health are 12 times more likely to have restricted activity days than those who do not.<sup>1</sup> Dental caries is the most prevalent oral disease. There is practically no geographic area in the world where inhabitants do not exhibit some evidence of dental caries. It affects both the sexes, all races, all socio-economic status and all dentate age groups.<sup>2</sup> Oral diseases are of multi-factorial etiology. The important role of socio-behavioural and environmental factors in oral health and oral diseases has been established. Socio-economic status probably is related to one or more intervening variables often referred to as “barriers to care” that have a direct effect on dental health which include cultural, social and psychological (anxiety and fear of pain) barriers.<sup>3</sup>

Inequality in oral health has been expected to widen because of widening socio-economic inequality. The impact of socio-economic status is even higher in special

population like preschool children. They spend most of their time with parents and guardians, especially mothers, even when they attend preschools or nurseries and are dependent on the knowledge, behaviour, practices and socio-economic status of parents. Poor dental behaviours established at preschool age may be difficult to modify later. Preschool children form an innocent and compassionate segment of the society and their oral health care should be given due priority as it determines the oral health status of the future generations.

Considering this, the present study is planned to provide the base line data regarding oral health status and practices of preschool children between 3-5 years belonging to different socio-economic groups in District Jhajjar, Haryana.

**MATERIALS AND METHODS**

According to the earlier study in preschool children in anganwadis of Chandigarh,2012, prevalence of dental caries in 3-5 years age group of children was found to be 45.41%.<sup>4</sup> Based on this the sample size was calculated as

2581 at 95% confidence interval and 5% relative error. And hence for this study sample size was rounded off to 2600. The present cross sectional and comparative study was carried out among different socio-economic status children aged 3-5 years in Anganwadis and Pre schools in Jhajjar District, Haryana. Total 2600 children(both male and female) were selected from 113 anganwadis, 5 Pre schools to represent the regional and socio-economic variations of Jhajjar District.

Ethical clearance was sought from the institution. The permission to examine the children at various anganwadis was sought from the Programme Officer, concerned authorities of schools and consent to examine the children was taken from the parents.

For each child, data was collected on WHO Oral Health Assessment Form for Children and Oral Health Questionnaire for Children, 2013.<sup>5</sup> Modified Kuppuswami Socio-economic Scale- 2012<sup>6</sup> and dmft index (decayed,

missing, filled tooth) were used for assessing oral health status and socio-economic status of children. Intraoral examination was conducted according to WHO Oral health surveys basic methods using mouth mirror, CPI probe and appropriate lighting. During examination, the older children were seated on a chair and younger were examined with assistance of their parents by means of the ‘Knee to Knee’ technique. The clinical examination was carried out by five calibrated examiners. A sufficient number of instruments were packed and sterilized for each day of examination.

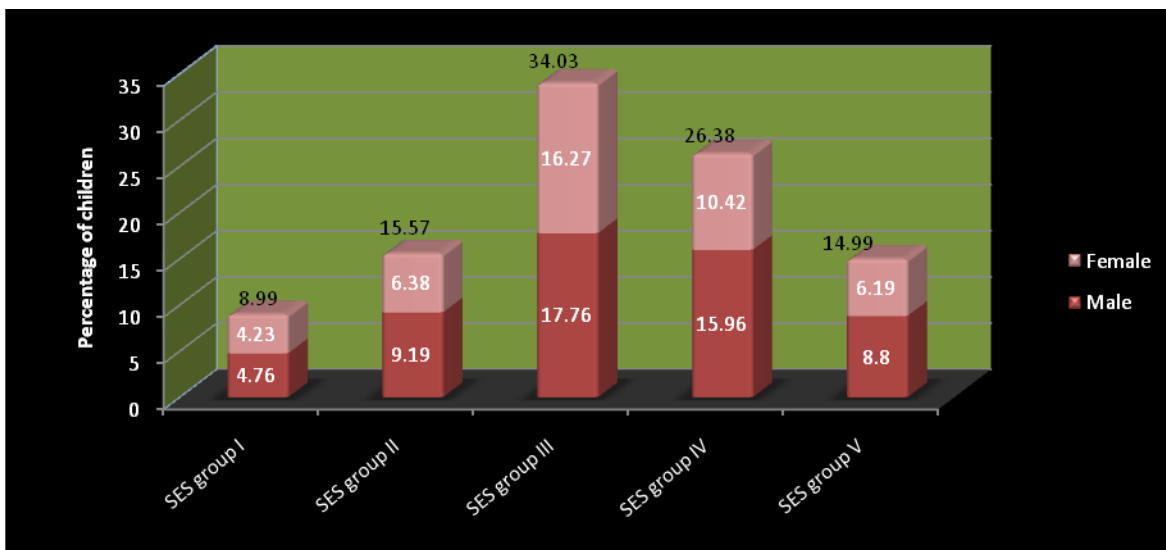
The data was entered in windows excel. Frequency tables and measures of central tendency were obtained by using “Statistical Package for Social Sciences” (SPSS 16.0) software. Intra and inter-examiner reproducibility of diagnosis were assessed by ICC statistics and found to be 0.83 and 0.87 respectively, which are almost perfect agreement.

**OBSERVATIONS AND RESULTS**

**Table 1:** Socio-economic status wise sample distribution

SES group	Male		Female		Total	
	No.	%	No.	%	No.	%
I	124	4.76	110	4.23	234	9.07
II	239	9.19	166	6.38	405	15.57
III	462	17.76	423	16.27	885	34.03
IV	415	15.96	271	10.42	686	26.38
V	229	8.80	161	6.19	390	15.00
<b>Total</b>	<b>1469</b>	<b>56.50</b>	<b>1131</b>	<b>43.5</b>	<b>2600</b>	<b>100.00</b>

2600 children taken in groups(I-V) according to their socio-economic status. Among them 234 children(9.07%) belonged to group I, 405 children(15.57%) belonged to group II, 885 children(34.03%) belonged to group III, 686 children(26.38%) belonged to group IV and 390 children(15%) belonged to group V.

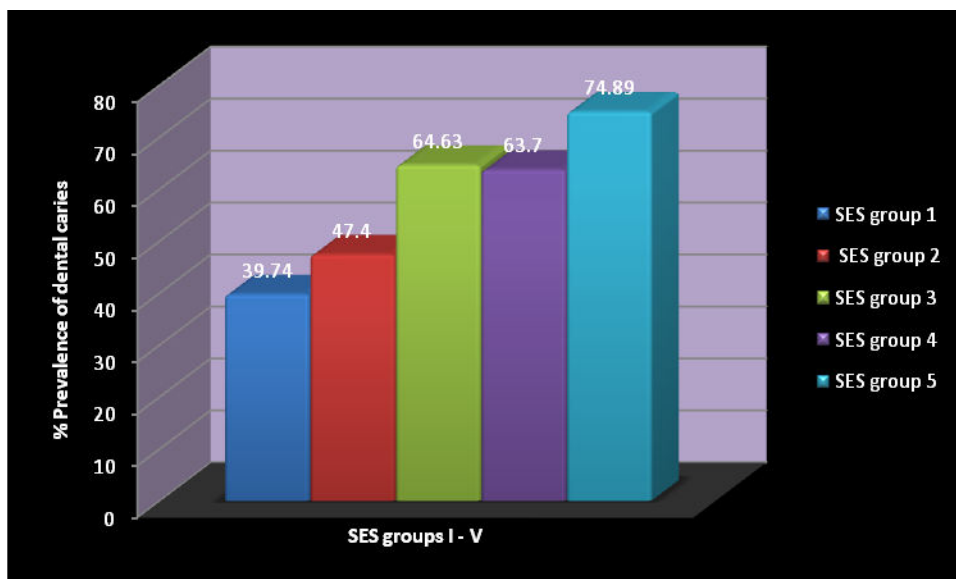


**Graph 1:** Socio-economic status wise sample distribution

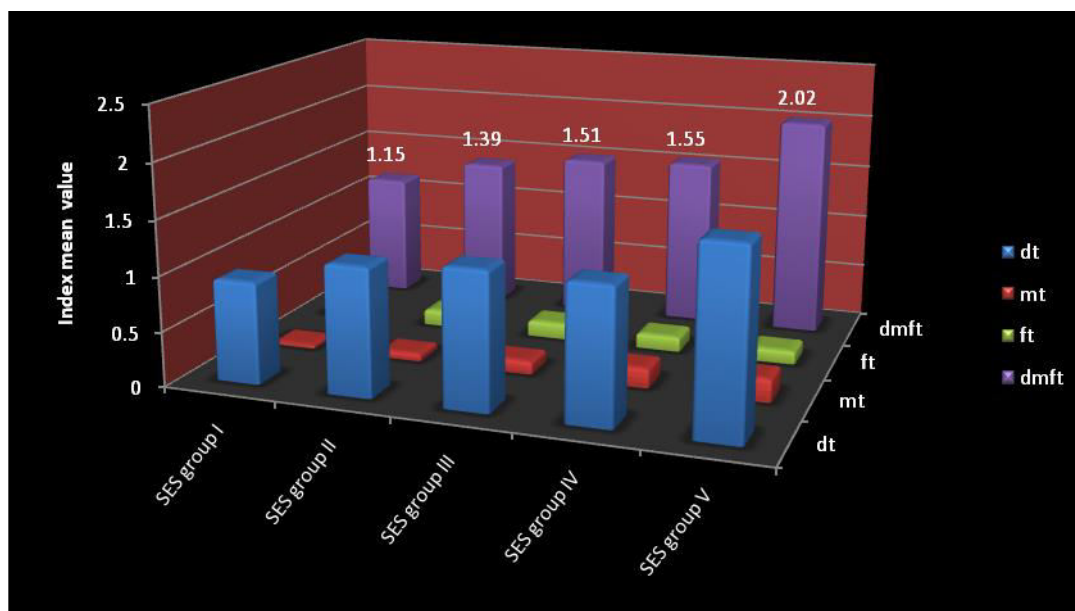
**Table 2:** Caries experience and mean dmft components according to SES groups

SES group	Children having Caries		dt	mt	ft	dmft	p value
	No.	%	Mean ± SD	Mean ± SD	Mean ± SD	Mean ± SD	
<b>Total Children</b>							
<b>I</b>	93	39.74	0.93 ± 1.85	0.03 ± 0.18	0.18 ± 0.51	1.15 ± 1.83	0.00
<b>II</b>	192	47.4	1.17 ± 1.91	0.07 ± 0.25	0.15 ± 0.40	1.39 ± 1.87	
<b>III</b>	572	64.63	1.25 ± 1.62	0.12 ± 0.32	0.15 ± 0.46	1.51 ± 1.59	
<b>IV</b>	437	63.7	1.23 ± 1.76	0.18 ± 0.51	0.14 ± .49	1.55 ± 1.69	
<b>V</b>	292	74.89	1.67 ± 2.25	0.22 ± 0.48	0.13 ± .44	2.02 ± 2.13	
<b>Total</b>	1586	61	1.25 ± 1.84	0.12 ± 0.39	0.14 ± 0.46	1.52 ± 1.76	

Caries experience according to socio economic status in group I was 39.74%, in group II it was 47.4%, in group III it was 64.63%, in group IV it was 63.7% and in group V it was 74.89%. Mean dt ranged from 0.93 - 1.67, mean mt ranges from 0.03- 0.22, mean ft ranges from 0.13-0.18 and mean dmft ranges from 1.15-2.02 in SES group I-V. The dm and dmft were significantly affected across the SES group where as ft component was not statistically significant.



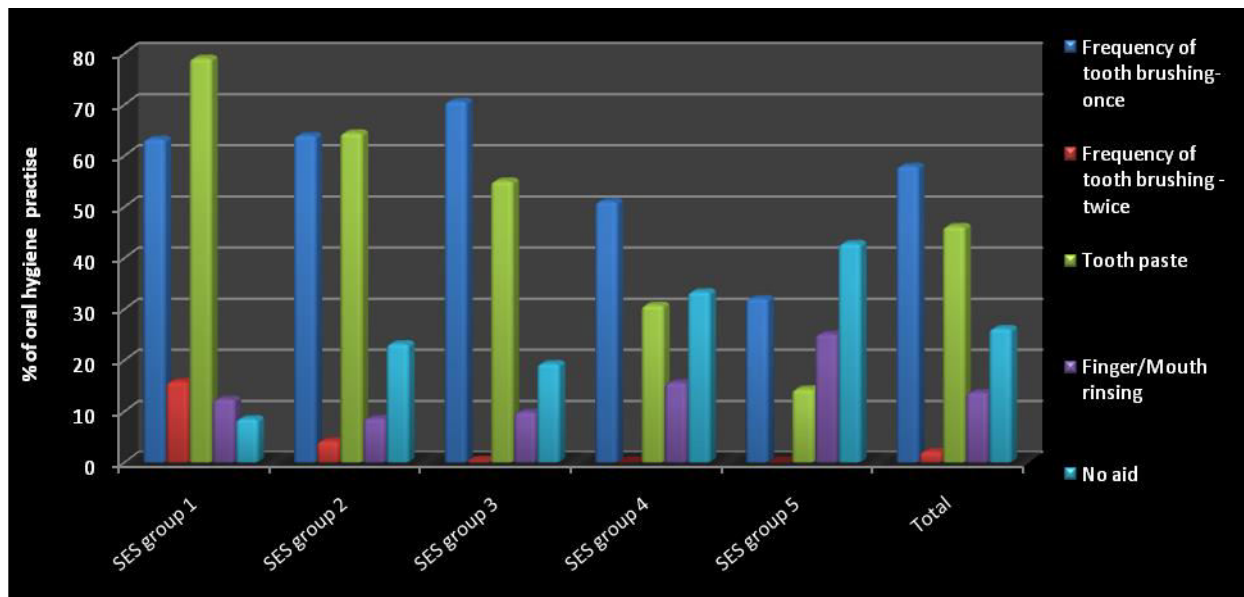
**Graph 2:** Caries experience according to SES groups



**Graph 3:** Mean dmft components according to SES groups

**Table 3:** Oral health practices of children in different SES groups

SES group	Frequency of toothbrushing				Tooth Paste		Finger/ Mouth Rinsing		No Aid	
	Once		Twice		No	%	No	%	No	%
	No	%	No	%						
I	148	63.25	37	15.81	185	79.05	29	12.39	20	8.55
II	259	63.95	17	4.20	261	64.44	35	8.64	94	23.21
III	625	70.62	2	0.23	487	55.03	87	9.83	171	19.32
IV	350	51.02	0	0.0	211	30.76	107	15.60	229	33.38
V	125	32.05	0	0.0	56	14.36	98	25.13	167	42.82
<b>Total</b>	1507	57.96	56	2.15	1200	46.15	356	13.69	681	26.19



**Graph 4:** Oral health practices of children in different SES groups

Overall, 57.96% children brush their teeth once daily and 2.15% brushes twice daily. Out of 2600 children, 1200(46.15%) children used toothpaste. 356(13.69%) used only finger and mouth rinsing as oral hygiene practice and 681(26.19%) children didn't use any oral hygiene practices. Tooth brushing practice and use of toothpaste were decreasing from upper SES to lower one. Tooth brushing twice a day was mainly found in uppermost SES which was 15.81%. Number of children were increasing from SES group ( I –V) who were not practicing any oral hygiene methods.

**DISCUSSION**

**SES and dental caries**

The present study shows that the socioeconomic status is one of the contributing factors for developing dental caries. The prevalence of caries in children of the lower most SES group is 74.89%, whereas the caries prevalence is only 39.74% in the children of uppermost SES group. The mean dt, mt and dmft is increasing as we descend from upper socioeconomic status to lower one. Whereas mean ft is 0.18 in SES group I and 0.12-0.15 in SES groups II- V. The differences in the decayed teeth, missing

teeth and filled teeth of the five SES groups might be due to the benefit of preventive measures, early diagnosis and specific treatment which are available to the higher economic group children than the middle and low economic groups children<sup>12</sup>.

Sogi GM and Bhaskar DJ (2002)<sup>7</sup> also reported low prevalence of dental caries among socio-economic status (SES) group I and II and it steadily increases from higher SES group to lower. They concluded that dental caries experience and oral hygiene status of children are strongly correlated to socio-economic status. Other studies conducted in Bucharest,<sup>8</sup> Chidambaram,<sup>9</sup> Chandigarh,<sup>4</sup> Bangalore,<sup>10</sup> Chennai,<sup>11,12</sup> Ghaziabad<sup>13</sup> and also agreed with the inverse relation of the dental caries and socioeconomic status. The reason for this could be due to lack of awareness about oral health importance and also due to non-affordability of toothpaste and tooth brushes. Al-Hosani E (1998)<sup>14</sup> in Abu Dhabi and Addo-Yobo C(1991) in Ghana<sup>15</sup> reported high prevalence of dental caries in children of high SES. It might be attributed to an increase in sugar consumption in those

developing countries in addition to limited access to fluoride and other dental caries preventive measures.<sup>16</sup>

### Oral health practices and SES

In the present study percentage of children using tooth brush, tooth paste and finger/mouth rinsing were 60.07%, 46.15% and 13.69% respectively. Percentage of children practising tooth brushing reduced from 79.05% to 32.05% as we go down socioeconomic group from (I – V). These findings were similar to the other studies conducted by Retnakumari N,<sup>17</sup> Sarvanan S et al,<sup>18</sup> Okeigbemen<sup>19</sup> and David et al.<sup>20</sup>

The children who did not use tooth brush to clean their teeth were found to have higher prevalence of dental caries (65.38%) as compared to the children (58.02%) who used tooth brush. This result was in accordance with the results of Jose B<sup>21</sup> and Retnakumari N.<sup>17</sup> The frequency of tooth brushing is more among group I and it reduces as we go to a lower SES. It could be explained due to availability of resources and awareness about oral health.

### CONCLUSION

The prevalence and severity of dental caries was very high in preschool children. However, the levels of use of dental services and oral health related behaviours are inadequate. Differences in the experience of caries and the oral hygiene practices in relation to socioeconomic status and demographic level, as well as living conditions is characteristic of Haryana. Oral health promotion programmes should include preventive measures, while public health strategies should focus on community empowerment and development of accessible and responsive dental services.

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**Source of support:** Nil

**Conflict of interest:** None declared

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