

# **DENTAL HEALTH OF PRESCHOOL CHILDREN IN PESHAWAR IN RELATION TO THEIR DIETARY AND ORAL HYGIENIC HABITS**

Pages with reference to book, From 225 To 230

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## **Abstract**

A survey of dental health, hygiene and dietary habits in children was done in Peshawar. Dental ailments observed in pre-school children were due to lack of regular dental check ups, intake of refined sugary foods and wrong application of brushes. Thorough cleansing of teeth after meals particularly after dinner with good quality clean brushes, consumption of coarse fibrous foods, milk and raw vegetables and regular dental check ups are recommended to improve dental health in children (JPMA 36: 225, 1986).

## **INTRODUCTION**

It has been observed and generalized that dental health of even small children in Pakistan is deteriorating which is assumed to be due to excessive intake of sugar, sweetened and sugar concentrated foods, deficient intake of nutritionally rich foods due to ignorance and poverty, poor practices in oral hygiene and no concept of regular dental check-up. It has also been noted that increased prosperity is coupled with increased use of commercialised refined foods and confectionaries.

In Pakistan, especially in N.W.F.P. no reliable data is available about the dental health of pre-school children. The present study therefore, is a pilot investigation of the state of dental health of pre-school children in Peshawar in relation to their dietary and oral hygienic habits.

## **MATERIAL AND METHODS**

One hundred 3-6 years old children belonging to different areas of Peshawar were randomly selected from four schools situated in the university campus and university town. A questionnaire and a dietary schedule was designed and a structured interview technique was used to collect the following information:

1. Age of the child
2. Monthly income of the family
3. State of dental health of the child
4. Oral hygiene and dietary habits of the child
5. Practices in dental check-up of the child by the dentists

The teeth of the children were checked personally by the investigators. They also interviewed the child's mother and filled in the questionnaires. Dietary schedules were distributed among the mothers to record daily dietary intake of their children for one week. The family's income was grouped in three categories i.e. lower middle income group (LMIG) Rs. 1000-3000, middle income group (MIG) Rs. 3000-5000 and high income group (BIG) Rs. 5000 and above. The investigation was completed during the months of January to March 1984.

## RESULTS

Of 52% children with poor dental health 55.56% belonged to LMIG, 52.17% to MIG and 44.44% to BIG (Table I).

**TALBE-I**  
State of Dental Health of 100 Pre-school Children.

INCOME GROUP	Total No Respondents	Good		Poor		Total N=100	
		N	%	N	%	N	%
Lower middle (Rs. 1000-3000)	36	16	44.44	20	55.56	36	100
Middle (Rs. 3000-5000)	46	22	47.83	24	52.17	46	100
High (Rs. 5000& above)	18	10	50.56	8	44.44	18	100

tooth extraction (Table II). Dental caries, tartar deposits, hypoplasia and tooth extraction were more frequent in LMIG, bleeding gums in MIG and infection in HIG.

Dental maladies afflicting children were dental caries (92.3%), Tartar deposits (48%), bleeding gums (30.77%),

**TABLE-II**  
Frequency of Dental ailments among 52 Pre-school Children.

Dental ailments	Lower Income		Middle Income group		High income group		Total N = 52	
	N=20		N=24		N=8		N=52	
	N	%	N	%	N	%	N	%
Dental caries	19	95	22	91.6	7	87.5	48	92.3
Tartar deposits	11	55	12	50.0	2	25.0	25	48.0
Bleeding of gums	5	25	9	37.5	2	25.0	16	30.77
Infection	1	5	2	8.3	1	12.0	4	7.69
Hypoplasia	1	5	-	-	-	-	1	1.92
Tooth extracted	1	5	-	-	-	-	1	1.92

Note: Since these ailments are occurring once or more than once among the respondents, there is overlapping in total numbers and percentage. The exact picture is presented in table-III.

infection, hypoplasia and Various dental problems can occur alone or in combination of two or three at a time or as separate illness. Their frequency in various groups is shown in Table III.

**TABLE -III**  
**Incidence of Dental ailments afflicting 52 Pre-school Children.**

Dental ailments	Lower Middle Income Group N=20		Middle Income Group N=24		High Income Group N=8		Total N=52	
	N	%	N	%	N	%	N	%
Tartar deposits	–	–	–	–	1	12.5	1	1.92
Infection	–	–	2	8.3	–	–	2	3.8
Dental caries	7	35.0	6	25.0	3	37.5	16	30.57
Infection plus Dental caries	–	–	–	–	1	12.5	1	1.92
Infection+Bleeding of Gums	1	5.0	–	–	–	–	1	1.92
Hypoplasia + Dental caries	1	5.0	–	–	–	–	1	1.92
Tartar deposit + dental caries	7	35.0	7	29.7	1	12.5	15	28.85
Bleeding of Gums + Dental caries	–	–	4	16.67	2	25.0	6	11.4
Tartar deposit + Bleeding of Gums +Dental caries	3	15.0	5	20.83	–	–	8	15.38
Tartar deposit + Bleeding of Gums +Dental caries	1	5.0	–	–	–	–	1	1.92
<b>TOTAL</b>	<b>20</b>	<b>100</b>	<b>24</b>	<b>100</b>	<b>8</b>	<b>100</b>	<b>52</b>	<b>100</b>

Oral hygiene is practiced by 70% of the selected children (Table IV).

**TABLE –IV**  
**Practices in oral Hygiene among 100 Pre-school Children.**

Daily practices in oral hygiene	Lower income group N = 36		Middle income group N = 46		High income group N =18		Total N = 100	
Cleaning of Teeth:	N	%	N	%	N	%	N	%
No.	18	50.0	8	17.39	4	22.22	30	30
Yes	18	50.0	38	82.61	14	77.78	70	70
<b>TOTAL</b>	<b>36</b>	<b>100.0</b>	<b>46</b>	<b>100.0</b>	<b>18</b>	<b>100.00</b>	<b>100.0</b>	<b>100.0</b>
Cleaning time	N=18		N=38		N=14		TOTAL N=70	
Before breakfast	13	72.22	25	65.79	9	64.29	47	67.14
After breakfast	2	11.11	1	2.63	–	–	3	4.29
After dinner	3	16.67	12	31.58	5	35.71	20	28.57
<b>TOTAL:</b>	<b>18</b>	<b>100.0</b>	<b>38</b>	<b>100.0</b>	<b>14</b>	<b>100.0</b>	<b>70</b>	<b>100.0</b>
	N=18		N=38		N=14		TOTAL N=70	
Cleansing Agents	N	%	N	%	N	%	N	%
Brush	10	55.56	35	92.11	12	85.71	57	81.43
Miswak	2	11.11	1	2.63	–	–	3	4.29
Rinsing	6	33.33	2	5.26	2	14.29	10	14.28
<b>TOTAL:</b>	<b>18</b>	<b>100.0</b>	<b>38</b>	<b>100.0</b>	<b>14</b>	<b>100.0</b>	<b>70</b>	<b>100.0</b>

Sixty seven percent cleaned their teeth before breakfast, 4.29% after breakfast and 28.57% after dinner. Majority of children used brushes to clean their teeth. Only 12% children had a regular dental check-up (Table V).

**TABLE-V**  
**Practices in Dental Check-up among 100 Pre-school Children.**

Regular dental check-up by the dentists	Lower income		Middle income Gp. N=36		High Income Gp. N=18		TOTAL N=100	
	N	%	N	%	N	%	N	%
NO	34	94.94	42	91.30	12	66.67	88	88
YES	2	5.56	4	8.70	6	33.33	12	12
TOTAL	36	100.00	46	100.00	18	100.00	100	100
Frequency of Dental check-up	N=2		N=4		N=6		N=12	
	N	%	N	%	N	%	N	%
After 6 months	–	–	3	75.0	3	50.0	6	50.0
After one year	2	100.0	1	25.0	3	50.0	6	50.0
TOTAL	2	100.0	4	100.0	6	100.0	12	100.0
Reasons for No Dental check-up	N=34		N=42		N=12		N=88	
	N	%	N	%	N	%	N	%
Don't know the importance of dental check-up	30	88.24	40	95.24	10	83.33	80	90.91
Practice home treatment	3	8.82	–	–	–	–	3	3.40
No knowledge of the provision of dental check up	–	–	1	2.38	–	–	1	1.14
No time	1	2.94	1	2.38	2	16.67	4	4.55
TOTAL	34	100.0	42	100.0	12	100.0	88	100.0

The reason for no dental check-ups offered by 90.9% of mothers was their ignorance about its importance.

Refined foods, sweets and confectionaries were consumed 5.94 times/week/child by LMIG, 11.78 times/week/child by MIG and 15.5 times/ week/child by HIG (Table VI).

**TABLE--VI**  
**Frequency of Food intake/week by 100 Pre-school Children.**

Food Items	Low Income Group		Middle Income Group		High Income Group		Total	
	N=36	p/wk	N=46	p/wk	N=18	p/wk	N=100	p/wk
Meat	175	4.86	458	9.96	268	14.89	901	9.01
Eggs	60	1.67	199	4.33	113	6.28	372	3.72
Milk	171	4.75	492	10.69	268	14.89	931	9.31
Pulses	111	3.08	140	3.04	36	2.00	287	2.87
Fruits	136	3.78	438	9.52	218	12.11	792	7.92
Vegetables (cooked)	231	6.42	230	5.00	79	4.39	540	5.40
Coarse/Fibrous/* Foods	117	3.25	242	5.26	108	6.00	467	4.67
Cereals	774	21.50	1055	22.93	389	21.60	2218	22.18
Refined ** food/confectionaries.	214	5.94	542	11.78	279	15.50	1035	10.35
TEA	433	12.03	310	6.74	84	4.67	827	8.27

\* Poppers, nuts, grams, sugar-canes and raw vegetables. (Carrots, radishes, cucumber and onions)

\*\* Sweetmeat, toffees, candies, jam, cakes, biscuits and white bread.

Intake of meat, eggs, fruits and coarse fibrous food was inadequate particularly in LMIG.

## DISCUSSION

Dental ailments are common in pre-school children in Peshawar and their frequency is inversely proportional to the financial status of the family<sup>1</sup>

Dental caries, which afflicted most of the children with poor dental health in this study is much less than what has been reported from European countries and Canada.<sup>2,6</sup>

A strong correlation ( $r=0.93$ ) was observed between tartar deposits and lack of coarse fibrous food intake (Table VII).

**TABLE--VII**  
Correlation between some of the Parameters.

Parameters		Correlation
Tartar Deposits	Lack of fibrous foods*	0.93
Gums Bleeding	Inadequate fruit intake	0.228
Overall dental ailments	Adequate fruit intake	0.393
Tartar Deposits	Gum bleeding	0.57
Gum Bleeding	Brushing of teeth	0.997
Dental Caries	Lack of tooth-brushing	0.5
Tartar Deposits	Lack of tooth brushing	0.72
Dental ailments	No cleaning of teeth	0.77
Dental ailments	No teeth cleaning after dinner	0.997
Dental ailments	No regular dental checkup	0.789
Dental ailments	Inadequate milk intake	0.88
Dental ailments	Inadequate meat intake	0.35
Dental ailments	Refined and sugary foods**	0.99
Dental caries	Refined and sugary foods **	1.028

\* Poppcorns, nuts, roasted grams, sugar – canes, and raw vegetables (carrots, radishes, cucumbers and onions)

\*\* Sweetmeats, toffees, candies, jam, cakes, biscuits and white bread.

This emphasized the importance of these foods in prevention of tartar deposits and dental caries<sup>7</sup>. Bleeding gums were more frequently observed in MIG than in LMIG. Inadequate intake of fruits had no effect on gum bleeding health.<sup>8,9</sup> Tartar deposits had no effect but a significant correlation ( $r=0.997$ ) was observed between brushing and bleeding gums. This might be due to wrong method of brushing teeth, use of poor quality brushes with hard bristles or keeping the brushes in unhygienic condition. Oral hygienic measures were practiced by majority of the selected children but how regularly they clean their teeth, the method of cleaning and the time at which they clean vary from one income group to another and hence influence their dental health. The highest percentage of children from MIG clean their teeth regularly and use tooth-brushes mostly as a cleansing agent as compared to children from LMIG and HIG, although highest percentage of children of HIG enjoy better dental health than that of MIG. This might have been because of an inefficient application of tooth brushes by the children of the latter income group.<sup>10</sup> There was a significant correlation ( $r = 0.72$ ) between poor teeth cleaning habits, tartar deposits and overall dental ailments ( $r = 0.77$ ) and a weak correlation ( $r=0.5$ ) with dental caries. The habit of cleaning teeth after dinner is commendable as the lack of it adversely ( $r = 0.997$ ) affect the dental health.

Among the selected group, very few children go through regular dental check-up by the dentists.

Majority of these belong to the HIG followed by MIG and LMIG<sup>11</sup>. This observation may be considered as one of the reasons for fewer dental illnesses of severe nature like dental caries and tooth extraction among children from MIG and HIG as compared to children from LMIG. A significant relationship ( $r=0.789$ ) was observed between dental ailments and lack of dental check-ups. Ignorance about their importance and lack of time were the main reasons given by mothers for no dental check-

ups in children.

Socio-economic status of the family affects the nutritional status and thus the dental health of the children. A very strong correlation ( $r=0.88$ ) was found between dental ailments and deficient intake of milk<sup>12,13</sup> and an insignificant correlation ( $r=0.35$ ) between dental ailments and deficient intake of meat as the meat deficiency is probably met by legumes in the affected children.

Majority of children even from MIG and HIG in spite of taking nutritionally adequate diet have poor dental health because the frequency of their consumption of sugary foods in between meals daily is even higher than the nutritionally required foods. On the whole a considerably strong correlation of  $r=0.99$  is observed between dental ailments and sugary foods and a correlation of a remarkable significance of  $r=0.028$  is also found between dental caries and sweets intake.<sup>14,16</sup>

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