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Research Article

Oral Health Status and Treatment Needs among Orphanage Children of Jaipur City

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Abstract: The aim of the study was to assess oral health status and treatment needs of 5, 12 and 15 year-old orphanage children. A 'Descriptive Cross Sectional Survey' was conducted. Information on demographic characteristics of participants along with oral health behavior was collected. Clinical data were collected using WHO Oral Health Assessment Form (1997). Statistical analysis was done using SPSS 17.0. A total of 180 children were examined. Prevalence of caries was highest in 12 year old females. Mean DMFT was 1.64±1.52 and 1.52 ±1.03 among 12 year old males and females, while mean DMFT of 15 year old males and females was 0.94±0.89 and 2.07±2.14 respectively with statistically significant difference. Most of the subjects required one surface filling, followed by extractions, pulp care and two surface fillings. In the age group of 5 and 12 years, majority of the study subjects were having healthy periodontium. The findings of the clinical examination highlighted untreated caries and no filled component which may be attributed to poverty, illiteracy, poor awareness and lack of oral health services.
Keywords: Orphanage, Children, Dental caries, DMFT, Periodontium.

INTRODUCTION

Good oral health is an integral component of good general health. According to WHO published, global review of oral health, despite great improvements in the oral health of populations in several countries, global problems still persist. This is particularly so among underprivileged groups in both developing and developed countries [1].

Although enjoying good oral health includes more than just having healthy teeth, many children have inadequate oral and general health because of active and uncontrolled caries. Oral health and general wellbeing related to each other. If the oral health of children develops unfavorably, they should be considered a risk group demanding special attention for planning of Dental Health Program.

The maximum burden of all diseases rests with the disadvantaged and socially marginalized. However, groups of people such as socially handicapped children are often denied access to health information and knowledge due to a number of reasons for example in-accessibility and nature of the disadvantage that may necessitate participation of specialized professionals [2].

In socially handicapped children healthy personality development and full unfolding of potentialities are hampered by certain social elements such as parental inadequacy, environmental deprivation, and emotional disturbances [3]. The pattern of orphanage living is different from family living as it provides physical security, food, and shelter but is devoid of psychological security. Often these orphanage homes can only barely meet the needs of their inmates because of poor funding and the low care-taker to child ratio These children form a population at risk with reference to abnormal psychosocial development [4].

The groups in the most oral health survey conducted worldwide have consisted primarily of children, adolescents, and adults from the general population. A few specific studies describe the status of dental caries in orphan children living under institutionalized care in India [5]. So the present study was undertaken with the aim to describe the oral health status among orphan children living under institutionalized care in Jaipur.

MATERIALS AND METHODS

The study protocol was reviewed and approved by the research cell of Dental College and Hospital.

Written information was taken from orphanage officials. An intern was trained to assist the recording procedure. The survey was scheduled to spread over period of 2 months in August and September 2012. A detailed weekly schedule was prepared well in advance.

Consent was taken prior to examination. All examinations were carried out by making the patient sit on a chair with a back rest, the examiner standing near the chair. The WHO Oral Health Assessment Form (1997) was used for this survey.

All the examination was carried out by a single examiner (i.e, investigator himself). At the end of each district, 25 study subjects were re-examined to assess the intra-examiner reproducibility. Examiner wore disposable mouth masks and gloves during examination.

The data recorded was transferred from WHO oral health assessment form to a computer. Master chart was created tin Microsoft excel (2007) for the purpose of data analysis. The statistical average (Mean), standard deviation was employed to represent the different measurement. Prevalence of various diseases was assessed by determining the percentage of population affected. SPSS version 17.0.0 was used for statistical analysis; t-test was used to compare means. Level of significance was kept as 0.05.

RESULTS

A 'Descriptive Cross Sectional Survey' was conducted. A total of 180 children were examined. Out of which, 60 (26 boys and 34 girls) were of 5 years, 43 (22 boys and 21 girls) were of 12 years, and 77 (47 boys and 30 girls) were of 15 years old.

Prevalence of dental fluorosis was very low (2.3%). Only cases of mild fluorosis were seen. In primary dentition, prevalence of dental caries was high among 5 year males (61.54 %) and females (73.53 %) respectively as compared to 18.18% and 19.05% among 12 year old males and females (Table 2). In permanent dentition, among 12 and 15 year old children, prevalence of caries was highest in 12 year old females (85.71%) (Table 3).

Regarding permanent teeth, mean DMFT was 1.64±1.52 and 1.52 ±1.03 among 12 year old males and females, while mean DMFT of 15 year old males and females was 0.94±0.89 and 2.07±2.14 respectively with statistically significant difference. ($p = 0.0019$) (Table 4).

Treatment needs among study population showed that one surface filling was required for 35 subjects aged 5 years, 34 subjects of 12 years and 35 subjects of 15 years. Most of the subjects required one surface filling, followed by extractions, pulp care and two surface fillings (Table 5).

Table 6 attributes mean number of teeth per subject according to treatment needs. In age group of 5 year highest mean (1.76±2.98) was found for pulp care in females.

In the age group of 5 and 12 years, majority of the study subjects were having healthy periodontium (as per CPI). Majority of the subject 44 (57.14%) had calculus in 15 years.

For both male and female the highest mean number of sextants with healthy periodontium was observed in 5 year old (5.77 ± 1.1), (5.82 ± 1.02) respectively (Table 7). Highest mean number of sextants with bleeding on probing was observed among 15 year old female (3.23 ± 2.4).

11.7% study subjects had definite malocclusion based on Dental Aesthetic Index. No case of severe and handicapping malocclusion was found.

Table 1: Distribution of subjects according to age and sex

Age group	Males	Females	Total
5 years	26	34	60
12 years	22	21	43
15 years	47	30	77
Total	95	85	180

Table 2: Distribution of subjects based on absence or presence of caries in primary teeth

Age group	Gender	Number of individuals	Affected by caries	%	Free of dental caries	%
5	Male	26	16	61.54	10	38.46
	Female	34	25	73.53	9	26.47
12	Male	22	4	18.18	18	81.82
	Female	21	4	19.05	17	80.95
Total	Male	48	20	39.86	28	60.14
	Female	55	29	46.29	26	53.71

Table 3: Distribution of subjects based on absence or presence of caries in permanent teeth

Age group	Gender	Number of individuals	Affected by caries (1+2)	%	Free of dental caries	%
12	Male	22	17	77.27	5	22.73
	Female	21	18	85.71	3	14.29
15	Male	47	28	59.57	19	40.43
	Female	30	18	60.00	12	40.00

Table 4: Distribution of study subjects with Mean number of Decayed, Missing, Filled Teeth and DMFT

Age	Gender	No of Subject	Decayed teeth Mean ± SD Σ (DT)	Missing Teeth Mean ± SD Σ (MT)	Filled teeth Mean ± SD Σ (FT)	DMFT Mean ± SD Σ (DMFT)
12	Male	22	1.64±1.52	0±0	0±0	1.64±1.52
	Female	21	1.52±1.03	0±0	0±0	1.52±1.03
p- value			0.76	-	-	0.76
15	Male	47	0.94±0.89	0±0	0±0	0.94±0.89
	Female	30	2.07±2.14	0±0	0±0	2.07±2.14
p- value			0.0019(S)	-	-	0.0019 (S)

Level of significance (p –value) = 0.05, S = statistically significant difference

Table 5: Number and percentage of study subjects according to treatment needs

Age	Gender	Number of subjects	One surface filling (%)	Two surface filling (%)	Pulp care (%)	Extraction (%)
5	Male	26	14 (53.85%)	2 (7.69%)	7 (26.92%)	7 (26.92%)
	Female	34	21 (61.76%)	2 (5.88%)	10 (29.41%)	10 (29.41%)
12	Male	22	17 (77.27%)	1 (4.55%)	5 (22.73%)	0 (0.00%)
	Female	21	17 (80.95%)	1 (4.76%)	3 (14.29%)	0 (0.00%)
15	Male	47	20 (42.55%)	0 (0.00%)	0 (0.00%)	8 (17.02%)
	Female	30	15 (50.00%)	0 (0.00%)	2 (6.67%)	7 (23.33%)

Table 6: Mean number of teeth per subject according to treatment needs

Age	Gender	No of subjects	Mean ± SD One surface filling	Mean ± SD Two surface Filling	Mean ± SD Pulp care	Mean ± SD Extraction
5	Male	26	1.19±1.47(31)	0.15±0.12(4)	1.69±1.76(44)	1.19±1.24(31)
	Female	34	1.47±1.692(50)	0.12±0.478(4)	1.76±2.985(60)	1.24±2.13(42)
p- value			0.50	.75	0.9	.91
12	Male	22	1.64±1.52(36)	0.05±0.05(1)	0.23±0.24(5)	0±0(0)
	Female	21	1.52±1.078(32)	0.05±0.218(1)	0.24±0.7(5)	0±0(0)
p- value			0.76	1	0.19	-
15	Male	47	0.6±1.47(28)	0±0(0)	0±0.0(0)	0.34±0.47(16)
	Female	30	1.47±1.833(44)	0±0(0)	0.07±0.254(2)	0.47±0.93(14)
p- value			0.02(S)	-	0.06	.41

Level of significance (p –value) = 0.05, S = statistically significant difference

Table 7: Distribution of mean sextant values according to CPI scores

Age group	Gender	Number of study subject	CPI 0 (Healthy gingiva) Mean ± SD	CPI 1 Bleeding Mean ± SD	CPI 2 Calculus Mean ± SD
5	Male	26	5.77±1.17	0.23±1.17	0±0
	Female	34	5.82±1.02	0.15±0.85	0.03±0.17
p-value			0.86	.76	.37
12	Male	22	3.68±2.69	2.09±2.44	0.23±0.42
	Female	21	3.19±2.90	2.48±2.65	0.33±0.73
p-value			.56	.61	.58
15	Male	47	1.17±2.34	2.72±2.41	2.11±2.29
	Female	30	1.15±2.27	3.23±2.48	1.6±1.99
p-value			.97	.37	.31

Level of significance (p –value) = 0.05, S = statistically significant difference

DISCUSSION

Present study was conducted to assess the oral health status and treatment needs among orphanage children. Our results cannot be generalized to the whole population of Indian children since the study group comprises of a high risk group of disadvantaged children of an institute.

Here an attempt was made to compare the results of our study population with the others in India and abroad, but precise comparison cannot be justified due to their diverse culture, food pattern, geographic location, and other factors like diet of children in orphanages in India tends to be non-cariogenic where the food provided covers the three basic meals in a day.

The caries prevalence of 5 years old children was 68.3%, which is in contrast with the studies conducted by Bhat M [6] and Sampaio *et al*. [7] but similar to findings of the study conducted by Muralidharan D *et al*. [8]. The 12 and 15 years old children had mean DMFT of 1.86 and 1.37 respectively which is in accordance to the studies conducted by Hopcraft M [9] for aboriginal and Torres Strait Islanders children in Queensland and Sampaio *et al* for children from Potiguara Indian Reservation in Brazil. A statistically significant difference was found between 15 year old males and females in terms of Mean number of decayed teeth. Females had more decayed teeth as compared to males. This may be attributed to frequent in-between consumption of carbohydrate food products and lack of awareness towards oral hygiene practices. Prevalence of dental caries was found 60% among 15 year old children. Almost same results were obtained from studies conducted by Zouaidi K *et al*. [10], Al-Otaibi MF *et al*. [11], Shailee F *et al*. [12], Gaur A *et al*. [13] This has been attributed to overcrowding, lack of adequate staff, poor oral hygiene, and improper dietary habits.

Majority of the subjects were requiring one surface filling (37.54%) followed by extraction (37.04%). These findings are in accordance to the result of study conducted by Bhat M [6]; Mosha HJ *et al*. [14] and Bali RK *et al*. [15]. It had been seen that people in developing countries usually have low education level, unawareness; limited access to dental care resulting in higher levels of plaque and calculus than people in more economically developed societies. This is certainly true for the present study group for whom dental health services are virtually non-existent. These high treatment needs among orphanage children are basically due to the higher prevalence of oral diseases, lack of satisfactory oral hygiene practices and dental services in the region.

The prevalence of bleeding in 15 years old children was 23.37%, which is in contrast with the study conducted by Bali RK *et al*. [15]. Presence of calculus was the most common finding in all the age groups, in line with results of study conducted by Ojahanon *et al*. [16].

There are number of factors pertaining to variance of the result of present study with other studies. The children of this study had a variable period of institutionalization and were not brought up in such institutions from infancy. Past caries experience, before the children were institutionalized, could be the reason for high dental caries scores of these children.

CONCLUSION

The findings of the clinical examination highlighted untreated caries and no filled component which may be attributed to poverty, illiteracy, poor awareness and lack of oral health services.

To improve the oral health status a combined strategy that deals with current disease load and helps to prevent the further occurrence of disease in the long run is needed. Resources of the dental colleges can be utilized for providing prevention oriented dental care for underprivileged children. Implementation of such strategy will require co-

Results of this study bring out two major points:

- There is lack of appropriate oral hygiene practices and behaviour which reflects lack of awareness.

- There is a wide gap between oral health needs and provision of oral health care, which is evidenced by large disease burden and negligible oral health care received.

Therefore, to improve the overall oral health, a two branched approach is required:-

- Promoting oral health awareness and disease prevention.
- Improving the oral health care delivery system.

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