

ORIGINAL ARTICLE

DENTAL CARIES STATUS AMONG ORPHANS AND PARENTED CHILDREN IN NORTH INDIA: A COMPARATIVE STUDY

Abhinav Sinha¹, Kuldeep Kaur², Karanprakash Singh³, Mahijeet Singh Puri⁴, Chitra Anandani⁵, Jasveen Kaur⁶

^{1,2}Intern, ³Reader, ⁴Professor, ⁶Lecturer, Department of Public Health dentistry, ⁵Senior Lecturer, Department of Oral Pathology & Microbiology, Luxmi Bai Institute of Dental Sciences & Hospital, Patiala, India

ABSTRACT:

Objective: The study was planned to assess the prevalence of dental caries among orphans and parented children. **Materials and Methods:** A total of 62 Orphans and 60 school children were taken in the study. The age group of all the study subjects was from birth to 20 years. The clinical examination was done using the DMFT (Decayed + Missing + Filled Teeth) Index for assessing caries prevalence. The Statistical software namely SPSS 16.0, was used for the analysis of the data and significance level was fixed at $P < 0.05$. **Results:** This study revealed that 66.4% of primary teeth among orphans were decayed as compared to 27.9% in parented children whereas 57.2% permanent teeth were decayed among orphans as compared to 76.3% in school children. Prevalence of dental caries was found to be more in parented children with mean DMFT of 1.85 ± 2.177 as compared to orphans with mean DMFT of 1.61 ± 1.978 . **Conclusion:** Overall the level of dental health was compromised in the study subjects. Further, children residing with their parents had more carious teeth as compared to orphans.

Keywords: Dental caries; Orphans; Parented children

Corresponding Author: Dr. Karanprakash Singh, Reader, Department of Public Health dentistry, Luxmi Bai Institute of Dental Sciences & Hospital, Patiala, India

This article may be cited as: Sinha A, Kaur K, Singh K, Puri MS, Anandani C, Kaur J. Dental caries status among orphans and parented children in North India: A comparative study. J Adv Med Dent Scie Res 2017;5(6):54-57.

Access this article online	
Quick Response Code 	Website: www.jamdsr.com
	DOI: 10.21276/jamdsr.2017.5.6.14

INTRODUCTION

Parents are the primary care takers and savior of a child but woefully thousands of children have to lead their live without parents, the later either being dead or incapable of bringing up their children, such section of society is called as orphans.¹ It is estimated that 153 million children worldwide, ranging from infants to teenagers have lost one or both the parents.² As orphan children comprise of deprived and isolated population, they deserve special attention to become robust citizens physically fit, mentally alert and morally sound, endowed with the skills and motivation needed by the society.³ Orphans are generally adopted and raised by their foster families or by orphanages which provide them care, housing and education as well as social and medical care. However, dental care is sometimes underestimated for this underprivileged community.

As oral health care and general well being of an individual are related to each other therefore, poor living conditions in orphanages might be related to many complex general and oral health problems. Dental caries is one of the most

prevalent of all oral health diseases in childhood age due to which it has become the main focus of dental health professionals.⁴

Unawareness, lack of oral health education and motivation, improper dietary habits, poor oral health practices and several other factors including compromised socioeconomic factors like overcrowding, lack of adequate staff and psychological stress have mainly been attributed to oral health problems in this overlooked segment of society.

The World Health Organization (WHO) recommend planning of dental services, based on the information collected through surveys about oral health and treatment needs of the population.⁵

A number of studies have examined the relationship between dental caries and material deprivation and have found a positive association between them.⁵ Though orphans contribute to only 2% of world population, but there is still scanty information on dental status among orphan population and their comparison to children living with parents.

This study was taken up with the objective of assessing and comparing dental caries status among orphans and children with parents.

MATERIALS AND METHODS

A descriptive cross – sectional study was conducted to assess the dental health status of orphan children residing in an orphanage and compare it with school going children living with parents. Institutional ethical clearance was obtained prior to the study.

Orphans from birth to 20 years were residing in the orphanage centre and the total number of students was 62. For comparison, school children of similar age group were enrolled in the study. Therefore, sixty two orphans and sixty school going students living with their families were finalized. An informed written consent and permission was obtained from orphanage as well as school authorities.

The clinical examination was done using the DMFT (Decayed + Missing + Filled Teeth) Index for assessing caries prevalence. DMFT Index is a widely used tool to measure dental caries experience.⁶

Oral examination for the measurement of Decayed-Missing-Filled Teeth Index (DMFT) was done by one examiner under strict infection control procedures using disposable gloves and mask. Children were asked to sit comfortably on an ordinary chair with backrest in a well-illuminated room. The clinical examination was carried out using sterilized instruments: (mouth mirror and dental explorer). The data was recorded by one surveyor in a form especially designed for the study.

After oral examination, oral health education was given to all the children and all the cases that needed treatment were referred to dental hospital.

The recorded data was compiled and entered in a spreadsheet (Microsoft Excel 2007). The Statistical

software namely SPSS 16.0, was used for the analysis of the data. Students and ANOVA test were used to evaluate the statistical significance of differences in means between subgroups. Significance level was fixed at P < 0.05.

RESULT

This cross sectional study was conducted to compare the prevalence of dental caries among orphans and school children. Results of the study revealed that 66.4% of primary teeth among orphans were decayed as compared to 27.9% in school children whereas 57.2% permanent teeth were decayed among orphans as compared to 76.3% in school children. 3.2% of permanent teeth were missing in school children. Filled teeth in permanent dentition were higher among school children (3.2%) as compared to 1.7% in orphans.

Prevalence of dental caries was found to be more in school children with mean DMFT of 1.85± 2.177 as compared to orphans with mean DMFT of 1.61± 1.978. More number of school children had undergone restorative therapies (0.02± 0.129) as compared to orphans. Further are the individual component of DMFT (DT, MT and FT) were higher in parented children as compared to orphans.

Among orphans, in the age group of 5-10 years, more number of decayed teeth was found than the other age groups and the mean of decayed teeth were 1.39± 1.894. However, no score in missing teeth component was observed. Overall mean DMFT was 1.61± 1.978 and the peak values were noticed in 5-10 years age group.

Among school children, decayed and missing teeth were found to be more in 15-20 years age group with mean of 2.85±2.375 and 0.14±1.340 respectively as compared to other age groups whereas filled teeth were seen more in 10-15 years age group.

Table 1: Prevalence of DMFT in Primary and Permanent dentition

	Orphans		School Children	
	Primary teeth	Permanent teeth	Primary teeth	Permanent teeth
DT/dt	66.4%	57.2%	27.9%	76.3%
MT	-	-	0.0%	3.2%
FT/ft	0	1.7%	0.0%	3.2%
DMFT/dft	66.4%	58.9%	27.9%	82.7%

Table 2: Mean DMFT scores in parented and orphan children

	Subjects	No	Mean	SD	p-value
Decayed	Parented	60	1.85	2.161	.170
	Orphan	62	1.39	1.894	
Missing	Parented	60	.04	1.037	.174
	Orphan	62	.00	.000	
Filled	Parented	60	.04	1.363	.269
	Orphan	62	.02	.178	
DMFT	Parented	60	1.85	2.177	.407
	Orphan	62	1.61	1.978	

Table 3: Mean DMFT scores among Orphans according to age

	Age(yrs)	No	Mean	SD	F-value	Sig.
Decayed	5-10	8	2.25	2.435	2.525	.089
	11-15	30	.87	1.042		
	16-20	24	1.75	2.364		
	Total	62	1.39	1.894		
Missing	5-10	8	.00	.000	.	.
	11-15	30	.00	.000		
	16-20	24	.00	.000		
	Total	62	.00	.0004		
Filled	5-10	8	.00	.000	1.088	.344
	11-15	30	.07	.254		
	16-20	24	.00	.000		
	Total	62	.02	.178		
DMFT	5-10	8	3.00	2.726	3.107	.052
	11-15	30	1.13	1.106		
	16-20	24	1.75	2.364		
	Total	62	1.6	1.978		

Table 4: Mean DMFT score in Parented children according to age

	Age(yrs)	No	Mean	SD	F-value	Sig.
Decayed	5-10	8	.88	1.126	2.373	.102
	11-15	39	1.72	2.164		
	16-20	13	2.85	2.375		
	Total	60	1.85	2.161		
Missing	5-10	8	.00	.000	1.378	0.462
	11-15	39	.00	.000		
	16-20	13	.14	1.340		
	Total	60	.04	1.037		
Filled	5-10	8	.00	.000	1.396	0.487
	11-15	39	.14	.160		
	16-20	13	.00	.000		
	Total	60	.04	1.363		
DMFT	5-10	8	.88	1.126	2.336	.106
	11-15	39	1.72	2.188		
	16-20	13	2.85	2.375		
	Total	60	1.85	2.177		

DISCUSSION

This present study was carried out to explore the prevalence of dental caries status among orphans and parented children.

DMFT index (Decayed + Missing + Filled Teeth) is a widely used tool to measure dental caries experience.⁶ DMFT score gives the dental caries status at the population level for public health is planning and policy making purposes. The DMFT is cumulative caries measure index, which indicates past and present dental caries experience. This is the most frequently used index for assessing dental caries and has been used for more than 76 years.⁷

To categorize dental caries severity, a scale was formulated by World Health Organization on the basis of DMFT scores. DMFT scores falling between 0.0 to 1.1 were categorized as very low; 1.2 to 2.6 as low; 2.7 to 4.4 as moderate ; 4.5 to 6.5 as high, and values more than 6.6 as very high.⁷

Out of the three components Decayed, Missing and Filled, Decayed component constituted the major part of DMFT index which clearly indicates lack of knowledge and awareness among the children about the importance of oral health. The high decayed pattern showed the fact that population has poor access to dental care which is the sign of negligibility. Further high percentage of decayed teeth was seen in parented as compared to orphans. This might be due to more sugar intake and frequent snacking in children living with their parents as compared to orphans who had fixed mess timings and less availability of sugary food in their diet pattern.

In this study, 57.2% of permanent teeth among orphans were decayed while Shanbhog et al stated that 80% of female orphan adolescents and 50% of parented children had decayed teeth as contrast to 76.3% of parented children as shown in this study.⁸ A previous study by Ain et al among 12 year old School children in Kashmir

showed prevalence of dental caries to be 25% which was lower than the current study.⁹

The prevalence of filled teeth was seen more in school children as compared to orphans due to more accessibility as well as easy funding to dentists. Abraham et al observed filled component to be 1.47 ± 1.28 among the children studying in private school of Kerala which was higher compared to this study.¹⁰

The missing component was not observed among orphans in this study. Similarly an epidemiological study by Ahmed et al in Baghdad, showed mean missing teeth scores as 0.1 ± 0.3 .¹¹

The need for systemic oral health care to orphans was clearly demonstrated in the study as higher percentage of orphans had increased DMFT values. This study showed the mean DMFT of 1.85 ± 2.177 among parented children while Goyal et al noticed a little lower mean scores of overall DMFT among school children in Ambala district of Haryana.¹²

Percentage of caries prevalence among orphans in deciduous teeth was 66.4%, while in permanent teeth was 58.9% which was in contrast to the findings by Mazhari F et al (2008) among 6-12 year old children in Mashhad orphanage which showed the caries prevalence of 43.8% in deciduous teeth while permanent teeth showed higher prevalence of caries 73.7% than the present study.¹³

Cexar M D A et al (2003) reported caries in 52.9% of 12 years old school children as compared to 82.7% in permanent dentition among parented children in present study. However Dental caries was found in approximately 90% of school children worldwide and disease being more prevalent in Asian and Latin American countries.¹⁴

The study has some limitations as dental caries was diagnosed by oral clinical examination; no radiographs were taken which can over or underestimate the actual severity of the problem.

CONCLUSION

The overall experience of DT, MT and FT was high in parented children as compared to orphans due to low parental education and frequent consumption of snacks. Also there is a need to educate, promote and to spread awareness regarding dental health care in children and young adults. An improved accessibility to dental services as well as dental education is necessary to ensure that optimum dental health is within the easy reach of the less fortune children.

REFERENCES

- 1.Orphanage [Internet]. Wikipedia, the free encyclopedia.mht. [Cited on 2011 Dec 12]. Available from <http://www.en.wikipedia.org/wiki/Orphanage>.
- 2.Children of Brink 2002 [Internet]. A joint report on orphan estimates and program strategies. TvT associates; Washington, DC. 2002. [Cited on 2009 Dec 12]. Available from http://www.data.unaids.org/Topics/Young-People/childrenonthebrink_en.pdf.
- 3.De Waqt A, Connolly M (internet). Orphan and the impact of HIV/AIDS in sub-saharan Africa Available from [http://www.ftp://ftp.fao.org/esn/nutrition\(hiv\)dewagt.pdf](http://www.ftp://ftp.fao.org/esn/nutrition(hiv)dewagt.pdf).
- 4.Prakash H, Sidhu SS, Sundaram KR. Prevalence of dental caries among Delhi school children. J Ind Dent Assoc 1999;70:12-14.
- 5.Naidu R, Prevatt I, Simeon D. The oral health & treatment needs of school children in Trinidad and Tobago: Finding of a natural survey. Int J Paed Dent 2006;16:412-18.
- 6.World Health Organization, 2000. Global Data on Dental Caries Prevalence (DMFT) in Children Aged 12 years. Global Oral Data Bank. Oral health country/area profile programme, Management of non communicable diseases. Geneva, May 2000 WHO/NMH/MNC/ORH/Caries.12y.00.3.
- 7.Klein H, Palmar CE, Knutson JW. Studies on dental caries I. Dental status and dental of elementary schoolchildren. Public Health Rep 1938; 53:751-765.
- 8.Shanbhog R, Godhi BS, Nandlal B, Kumar SS, Raju V, Rashmi S. Clinical consequences of untreated dental caries evaluated using PUFA index in orphanage children from India. J Int Oral Health 2013; 5(5):1-9.
- 9.Ain TS, Sultan S, Gowhar O, Ravishankar TL, Kumar S. Prevalence of Dental Caries among 12 year old School children in Kashmir, India- A cross-sectional study Int. 2016; 3(7): 2156-59.
10. Abraham A, Pullishery F, Raghavan R. Dental caries and calculus status in children studying in Government and Private Schools in Malappuram, Kerala, India. IAIM 2016; 3(3): 35-41.
11. Ahmed NA, Astrom AN, Skaung N, Petersen PE. Dental caries prevalence and risk factors among 12-year old schoolchildren from Baghdad, Iraq: a post - war survey. International Dental Journal 2007; 57:36-44.
12. Goel R, Vedi A, Goyal P, Veerasha K L, Sogi G M. Prevalence dental caries among 12-15 years old school children in Ambala district of Haryana State. J Dent Res Updates 2014; 1(1):1-5.
13. Mazhari F, Ajami B, Ojrati N. Dental treatment needs of 6-12 year old children in Mashhad orphanage in 2006. J Mashhad Dent School 2008;32(1):81-86.
14. Almeida CM, Petersen PE, Andre SJ, Toscano A. Changing oral health status of 6- and 12-year old schoolchildren in Portugal. Community Dental Health 2003; 20,211-16.

Source of support: Nil

Conflict of interest: None declared

This work is licensed under CC BY: *Creative Commons Attribution 3.0 License*.