ORIGINAL ARTICLE

Oral Health Promotion by Peer Group Model approach among Orphanages in Bhopal City, Central India

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ABSTRACT

Aim: To assess the effectiveness of peer group model among orphanages for oral health education and promotion.

Methodology: A study was carried out among orphans residing in Bhopal city in the age group of 11 to 17 years. The study was carried out in two phases. In the 1st phase, data regarding knowledge, attitude related to oral hygiene, and oral hygiene practices of the orphans were collected and certified gingival index and plaque index were examined. In phase 2, oral health education was given to all the caregivers and attenders and particular emphasis was given to oral hygiene procedure. Then after 3 months, the respective indices and knowledge attitude and practices were reviewed for orphanage children and pre- and postanalysis was done using statistical analysis.

Results: Mean gingival score, which was 1.37 ± 0.41 at baseline, gradually reduced to 1.05 ± 0.43 at 3rd month. The mean plaque score, which was 1.28 ± 0.33 at baseline, also gradually reduced to 1.04 ± 0.38 at 3rd month examination.

Conclusion: Peer group model is a significant method to enhance the behavior and it promotes a positive attitude toward the habits. There is a frequent need to monitor the oral health behavior of orphanage children and educating the peers to promote oral health among themselves.

Keywords: Education, Gingivitis, Oral health, Orphan, Peers, Plaque.

How to cite this article: Saxena V, Jain M, Tiwari V, Torwane N, Sharva V, De J, Pandey J. Oral Health Promotion by Peer Group Model approach among Orphanages in Bhopal City, Central India. J Orofac Res 2015;5(3):77-79.

Source of support: Nil

Conflict of interest: None

INTRODUCTION

According to a UNICEF report, it is estimated that there are between 143 and 210 million orphans worldwide, out of which 20 million are children, i.e., 4% of Indian population below the age of 18. According to SOS children's village data from national family health survey-3 for the year 2005 to 2006, the central zone has the highest number of orphan children. The study also highlights that a large number of children in India struggle to survive alone, having no access to education and other welfare measures. Some of these children end up being trafficked or pushed into illegal works.[1]

The maximum burden of all diseases rests with the disadvantaged and socially marginalized. Children from disadvantaged backgrounds have shown a high prevalence of dental caries and their knowledge of dental care is low.[2] Poor oral health of this socially deprived class of children is evident by existing literature, which also strengthens the idea of impact of social deprivation on the health of an individual. People in such deprived communities have little control over their own lives. Mostly utilization of dental services in Indian families is for the relief of pain where the mother plays a major role in preventing it, but these services are seldom received by these children.[3] Therefore, oral health in orphan children has to be delivered through dental health care providers by training the health care workers for basic oral health care and identification of dental problems among this special population. Various examiners who studied the behavior learning using peer group model have demonstrated that this model is effective in a variety of behavior changes including self-reinforcement, emotional behavior, etc.[4] Peer group is defined as a social group and a primary group of people who have similar interests (homophily), age, background, and social status. The members of this group are likely to influence the person's beliefs and behavior.[5] So, in the present study, peer has been targeted as an oral health promoter and educator among the orphans and the assessment of oral health will be done by oral health care providers.

The official provision to conduct the study was obtained from institute review board, and consent was taken from caretakers of the orphanage.

The orphans undergoing dental treatment were excluded. The study was carried out in two phases. In the 1st phase data regarding knowledge, attitude related to oral hygiene, and oral hygiene practices of the orphans were collected. The above selected data were pretested close under questionnaire and certified gingival index and plaque index was carried out.

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After collection of data in phase 1, all children who took part in the oral health promotion program were asked to participate in phase 2 as well. In phase 2 peers were selected randomly using lottery method and oral health education was given to all selected peers. Oral health education constituted teeth general health, diet and nutrition, oral anatomy, prevention of caries, periodontal disease, self-care, and emergency oral care, and particular emphasis was given to oral hygiene procedure. All peers were instructed to supervise the oral health of all the trainees and were asked to educate, focus, and supervise the oral health care of all the orphans in the institute. Caregivers were requested to implement this program according to their schedule in the institute.

The orphans took part in daily oral hygiene instructions supervised by peer group and instructed to use modified bass brushing method twice a day with fluoride toothpaste distributed during the study period. Throughout the study period, the activity was supervised by the investigators. Clinical examinations of orphans was carried out using type III examination under natural light and by a single investigator. The interexaminer reliability was checked.

Then, after 3 months, the respected indices and knowledge attitude and practices were reviewed for orphanage children and pre- and postanalysis was done using statistical analysis.

RESULTS

The present study was done to assess the effect of peer group health education on oral hygiene among orphans residing in Bhopal city, India. Table 1 shows the age distribution of the participants of this study. Majority of the participants belong to the age group of 12 to 16 years. Table 2 shows the mean gingival index scores of the participants at baseline, and at 3rd month interval. The mean gingival score, which was 1.37 ± 0.41 at baseline, gradually reduced to 1.05 ± 0.43 at the 3rd month. Table 3 shows the mean plaque index scores of the participants at baseline, and at 3 months interval. The mean plaque score, which was 1.28 ± 0.33 at baseline, gradually reduced to 1.04 ± 0.38 at 3rd month examination.

Table 1: Distribution of study subjects according to age group and gender

	Gender		
Age (years)	*Male*	*Female*	*Number of subjects, N (%)*
12	30	15	45 (40.5)
13	20	05	25 (22.5)
14	10	05	15 (13.5)
15	12	04	16 (14.4)
16	07	03	10 (9)
Total	79	32	111

DISCUSSION

Nowadays, collaborative learning is known as the most effective learning. Learning is enhanced when it is more like a team effort than a solo race.[6] The present study comprised of orphanage children exposed to sociopathies. Siddiqui reported that in most of the orphanages of India, there was no health facility available and there was a total absence of health education. Peers and caregivers have a key role in promoting health during adolescence, as well as the perception that youngsters have of their quality of life and subjective well-being.[7] Health does not depend solely on the delivery of health care during illness; on the contrary, influence of different settings may be crucial.[8]

It is important to consider who are the "peers" in orphanage learning program. Generally, peers are people in a situation similar to each other who do not have a role in that situation as teacher or expert practitioner.[4] Use of peer groups to provide health education has been a common approach in the medical field. Jordhein conducted a randomized controlled trail on venereal diseases education in New York using a peer-led and adult-led curriculum and found out greater improvement in knowledge among peer-led study participants.[9]

The study conducted in 2013[10] shows poor oral hygiene among orphanage children, with about 68% of them having fair oral hygiene status, which is in concordance with our study where 88% of children have shown moderate accumulation of plaque in first visit, which is implicated in the etiology and progression of periodontal disease and other oral hard and soft tissue disease, whereas in the second visit after the peer group health education the score came down to 45.5% after 3 months. That shows adequate awareness among the children regarding improved oral hygiene practices.

Table 2: Gingival index scores of the orphans participating in the study at the baseline and 3-month intervals

	Gingival score					
Examination	*1 (%)*	*2 (%)*	*3 (%)*	*Total N (%)*	*Mean ± SD*	*p-value*
Visit 1	15 (13.6%)	90 (81.8%)	5 (4.5%)	111 (100%)	1.37 ± 0.41	0.00*
Visit 2	60 (54.5%)	50 (45.5%)	0 (0.0%)	111 (100%)	1.05 ± 0.43	

*p < 0.05 is significant value; SD: Standard deviation

Table 3: Plaque index scores of the orphans participating in the study at the baseline and 3-month intervals

	Plaque score					
Examination	*1 (%)*	*2 (%)*	*3 (%)*	*Total N (%)*	*Mean ± SD*	*p-value*
Visit 1	20 (18.2%)	90 (81.8%)	0 (0.0%)	111 (100%)	1.28 ± 0.33	0.00*
Visit 2	50 (45.5%)	60 (54.5%)	0 (0.0%)	111 (100%)	1.04 ± 0.38	

$p < 0.05$ is significant value*; SD: Standard deviation

Several studies show that periodontal disease can be controlled by supervised preventive programs.[11] The dental plaque is associated with gingival inflammation periodontitis, which is clearly identified in our study where 81% of children are affected by moderate gingivitis. The proper mechanical plaque control can control the potential accumulation of dental plaque. The individual skills and acquired behavior pattern determine the effectiveness of oral hygiene practices. In the present study, an immense improvement was seen after the behavior modification of the children by using peer group model; it was improved to 54.5%, which shows the significant difference between two visits. This shows that orphans experience poor oral hygiene due to the neglecting behavior, which is significantly improved on the second visit.

Jose et al conducted the study among school-going children in Kerala, India, and found that only 15% of children were suffering from gingivitis, which is in contrast to our study as the study population in Joe's study were children residing with their parents, which could be the probable reason to understand the low level of gingivitis as compared with our study. As Manati and Saraswati further state, since most of the institutions were overcrowded and underfunded, there was a lack of trained staff and the institutions were not equipped to meet the developmental needs of children. Therefore, the difference in caries could have been due to lack of awareness, motivation, and accessibility to health care combined with the prohibitive cost of dental health care.[5]

CONCLUSION

Peer group model is a significant method to improve behavior, and promotes a positive attitude toward habits. There is a frequent need to monitor the oral health behavior of orphanage children and educate peers to promote oral health among themselves.

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