Prevalence of Dental Caries and the Effectiveness of Demonstration on Dental Hygiene among Primary School Students in Selected Schools of Rural Community, Assam

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Abstract

Introduction: Oral health promotion through schools is recommended by WHO for improving knowledge, attitude and behaviour related to oral health and for prevention of dental diseases among school children. In India, 70 -72% of population live in the rural areas of which more than 40% are children. These children tend to be more vulnerable to oral health problems.

Aim and Objective: To assess prevalence of dental caries and the effectiveness of demonstration on dental hygiene among primary school students.

Material and Method: The study was a cross-sectional study conducted at selected schools of Rani rural community of Kamrup District, Assam. 118 primary school students of class IV and V were selected using consecutive sampling technique. The subjects were assessed for the presence of dental caries using dmft scoring and observed for their practice of brushing with Fones method of brushing. Later demonstration for the Fones method was given to the participants and post test was done to evaluate the effectiveness of demonstration. The collected data was analyzed using SPSS version 20 software.

Results: The study showed that more than half i.e., 92 (78%) of the students have dental caries. It was found that in pre-test, 79 (61%) of the participants have good practice of dental hygiene which was increase to 93 (78.8%) in post test. Again, in pre-test 46 (39%) of the participants have poor practice of dental hygiene, which was reduced to 25 (21.2%) in post test. The mean post test practice score (7.03) is higher than the mean pre test practice score (4.70) of dental hygiene. The median post test practice score (7) is also higher than the median post test practice score (5) of dental hygiene and the post test SD (0.67) seems to be less disperse than the pre test SD (0.73) of dental hygiene. It also shows that the "t" value (-28.482) and p -value 0.00 is highly significant at 0.05 level of significance. So it is evident that the demonstration on Fones method of brushing is effective in increasing the dental hygiene practice among the students.

Conclusion: Regulating good practice of dental hygiene is important during the early school period. As health personnel, community nurse can take active role in imparting information on dental hygiene practice among students by conducting school health programme and demonstrating on brushing technique. And also recommending inclusion of dental hygiene in the curriculum of the school.

Keywords: *Practice of dental hygiene, Fones method of brushing.*

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Introduction

"Children are like wet cement; whatever falls on them makes an impression." –Haim Ginott

School children represent about 25% of total population in India. This very size of the population

suggests that health care of the school children can contribute to the overall health status of the country. The health and well being of school children has become a high profile issue, lying at the heart of numerous government initiatives and policies and receiving considerable public attention.[1] Dental caries is one of the most common chronic disease that affect individuals at all ages. The ages for greatest vulnerability are 4-8 years for the primary dentition and 12-15 years for the secondary (or) permanent dentition. Dental caries, if untreated, result in total destruction of involved teeth.[2]

There is a saying that "Mere teaching of cleanliness of body and surrounding is not enough unless it is effectively demonstrated". "Cleans" to be observed by all children include clean environment, clean hands, clean food, clean water, clean mouth, clean teeth and clean tongue. Therefore, the mouth has to be kept clean and healthy. School age is a period of overall development. If proper oral hygiene habits are cultivated during this period, habits will go a long wayin maintaining the oral health of a child throughout the life.[4]

According to Osler "Oral cavity is a mirror of rest of the body." Dental caries remain one of the commonest disorders affecting the teeth, starting right from the early age. School ages are lost because of dental problems and dental visit, with poor children reporting almost 12 times restricted activity day due to dental related illness than higher income children. Between 11% to 72% of poor children have been found to have early childhood caries. One study found that school age dental decay could be predicted in toddler by determining the frequency of brushing and other variables. This suggests the importance of regular brushing of young children.[6]

WHO reports that 60-90% of school children worldwide have experienced dental caries, with the disease being most prevalence in Asia and Latin America.[1] The scenario in India also shows similarities with other developing countries. Prevalence study on dental caries in India has shown a results ranging from 31.5% to 89% (Wolters et al. 2011).[7]

Healthy, clean, strong and good teeth are like a valuable possession. Therefore, attention should be paid to the dental care.

Material and Method

A quantitative research approach was considered to be the most appropriate and adopted for the study.

Research Design: A pre-experimental one group, pre-test post test design has been used to attain the objectives of the present study.

Group	Pre-test	Intervention/Treatment	Post test
Experimental group (class IV and V students of primary schools in Rani rural community)	O_1	X	O_2

O_1- Pre-test: Observation on correct practice of brushing among primary school children.
X- Intervention: Demonstration on Fones method of brushing teeth.
O_2- Post test: Observation on correct practice of brushing among school going children.

A total of 118 primary school students of class IV and V from selected schools of Rani rural community of Kamrup District, Assam, were selected using consecutive sampling technique for the study.

The data were collected from 4th February to 4th March 2019. The investigator checks for the presence of dental caries of all the participants one by one. The time taken to check the oral condition for each student was 2-3minutes. Later observation of their practice of brushing teeth with the observation checklist on Fones method of brushing teeth. The time taken by each student was 3-5 minutes. Followed by demonstration on Fones method of brushing teeth using model of denture and toothbrush for 5 minutes. On the 8th day, post-test was done to observe the skills in practice of brushing teeth by the participants using the same tool.

Ethical approval was obtained from Institutional Ethical Committee of Army Institute of Nursing Guwahati. Formal permission was taken from the Headmaster/ Headmistress of the selected schools of Rani rural community. Informed consent was taken from the parent/guardian of the participants prior to the study.

Privacy and confidentiality was maintained throughout the study.

Findings: Data analysis was done using spss version 20.

Description of selected demographic variables: a total of 118 students were present in the study, out of which 61(52%) of participants are girl and 57(48%) of them are boy. Most of the participants have one sibling (39.8%) and (46.6%) of the participants are first child of their parent. More than half of the participant's parent was daily wagers by occupation (70.3%) and only few (2.5%) of the participant's parent have completed their senior secondary standard.

Prevalence of Dental Caries: The prevalence of dental caries in this study is found to be high i.e. 92 (78%) out of 118 are having dental caries and only few i.e., 26 (22%) of them does not have dental caries.

Effectiveness of Demonstration: It was found that in pre-test, 79 (61%) of the participants have good practice of dental hygiene which was increase to 93 (78.8%) in post test. Again, in pre-test 46 (39%) of the participants have poor practice of dental hygiene, which was reduced to 25 (21.2%) in post test. The mean post test practice score (7.03) is higher than the mean pre test practice score (4.70) of dental hygiene. The median post test practice score (7) is also higher than the median post test practice score (5) of dental hygiene and the post test SD (0.67) seems to be less disperse than the pre test SD (0.73) of dental hygiene. It also shows that the "t" value (-28.482) and p -value 0.00 is highly significant at 0.05 level of significance. So it is evident that the demonstration on Fones method of brushing is effective in increasing the dental hygiene practice among the students.

Table 1: Frequency and Percentage Distribution of Participants with Dental Caries N =118

Dental Caries	f	Percentage
Present	92	78%
Absent	26	22%

Table 2: Frequency and Percentage Distribution of Practice of Dental Hygiene of the Participants. N=118

Category	Pre-test			Post test		
	Score range	f	%	Score range	f	%
Poor practice	0-4	46	39%	0-6	25	21.2%
Good practice	5-8	79	61%	7-8	93	78.8%

Table 3: "t" Test of Pre Test and Post Test Practice Score on Dental Hygiene. N=118

Knowledge Score	Mean	Median	Standard deviation	"t" value	P value
Pre test	4.70	5	0.73	-28.482	.000
Post test	7.03	7	0.67		

Conclusion

Dental caries is one of the common problem of children. The education has a vital role in improving practice of the students regarding dental hygiene. Since school education is an integral part of medical and dental services, nurses can play an important role in health educational programme, making the children an important channel for disseminating the health information to the families and the communities. Frequent screening for dental caries and demonstration on correct technique of brushing teeth can help in reduction in prevalence of dental caries among the primary school students.

Limitations:

The present study has following limitations:

- Small sample size from selected schools of Rani rural community of Kamrup district, Assam, which limits the generalization of the findings.
- Sample of the study was limited to class IV and V students only.
- Sampling technique was non- probability consecutive sampling technique.

Recommendations:

- A comparative study can be conducted on the prevalence of dental caries among rural and urban primary school children.
- A follow-up study can be conducted to determine the effectiveness of the demonstration method of teaching on dental hygiene for school children.

CONFLICT OF INTEREST: There is no conflict of interest.

SOURCE OF FUNDING: Self

Ethical Clearance: The study was approved by Institutional Ethical Committee of Army Institute of Nursing Guwahati, Assam on 4th May 2018.

Reference

1. Peterson PE. The global burden of oral diseases and risk to oral health. Bulletin of the World Health Organization. 2005; 83(9):661-69.
2. Abeer A, Subait A, Alausaine M, Amritha G, Ali A, Ashraf EM. Oral health among Saudi children. The Saudi Journal for Dental Research. 2016 [cited 2015 January 25]; 7(3): 45-50. Available from: http:// creativecommons.org/licenses/by-nc-nd/4.0/
3. Ponnudurai A, Kumar SM, Jeevarathan J. Prevalence of dental caries among school children in Chennai. Journal of Clinical and Diagnostic Research. 2014 [cited 2016 April]; 10(4):9-12. Available from: www.jcdr.net
4. Kaur MP. A Pre-experimental study to assess effectiveness of structured teaching programme on knowledge about dental caries and its prevalence among students in selected schools of district Gurdaspur, Punjab. Int. J. Nur. Edu. and Research. 2016[Cited 2017 March]; 5(1): 83-6. Available from:www.anvpublication.org
5. Arangannal P, Mahadev SK, Jeevarathan J. A study to assess the prevalence of dental caries among school children in Chennai. Journal of Indian pedodontics and preventive dentistry.2016 [Cited 2015 April 29]; 34(3): 249-256. Available from: https://www.researchgate.net/publication/303711947
6. Dr Thakur K, Renuka. A pre-experimental study to evaluate the effectiveness of planned teaching program on knowledge and practice of oral hygiene among school children. Journal of Clinical and Diagnostic Research. 2012 [Cited 2013 Dec]; 7(12): 3107-10.
7. Datta P and Datta PP. Prevalence of dental caries among school children in Sundarban, India. ISSN. 2013 [Cited 2013 July 25]; 4(3):2-4. Available from:http://dx.doi.org/10.4172/2161-1165.1000135
8. Ashok GV, Krishnaprasad. A study on oral hygiene among school children in a rural area ofTamilnadu. International journal of contemporary medical research. 2015 [cited 2016 September 6]; 3(9): 2454-7379. Available from: http: //www.whocotlab.od.mah.se/index.html.
9. Kumar Y, Sanadhya, Effectiveness of oral health education among fishermen's children in India. Int Marit Health. 2013 [cited 2014]; 65(3): 99–105. Available from:htpp://www.intmarhealth.pl
10. Umarani J, Nayana. Knowledge of children regarding oral hygiene: A schoolbased descriptive study. Journal of Scientific and Innovative Research. 2014 [Cited 2014 April 08]; 3 (2): 134-8. Available online at: www.jsirjournal.com.
11. Kalita C, Choudhary B, et al. Caries prevalence of school-going boys and girls according to cleaning method and soft drink-taking frequency in different localities, in and around Guwahati city. Journal of Indian society of pedodontics and preventive paediatrics. 2016 [Cited 2018 June 4]; 34:249-56. Available from: http://www.jisppd.com/text.asp?2016/34/3/249/186755
12. Andegiorgish, Amanuel Kidane a et al. Prevalence of dental caries and associated factors among 12 years old students in Eritrea. BMC Oral Health. 2017 [Cited 2017 Dec]; 17(9):169. Available from: www.biomedcentral.com/submit