SHORT COMMUNICATION

Effectiveness of a Community Oral Health Awareness Program

MKC Nair, Manju Renjit, KE Siju, ML Leena, Babu George, G Suresh Kumar

From Child Development Centre, Medical College, Thiruvananthapuram, Kerala, India.

Correspondence to: Dr MKC Nair, Professor of Pediatrics and Clinical Epidemiology and, Director, Child Development Centre, Medical College, Thiruvananthapuram 695 011, Kerala, India. E-mail: nairmkc@rediffmail.com

Objective: To evaluate the effectiveness of a community oral health awareness program given to mothers through trained community level workers (Junior Public Health Nurses (JPHNs) and Anganwadi workers (AWWs). **Methods:** Oral health education materials were prepared based on the findings of a knowledge survey among community workers and mothers of children (0-6 years) in a selected block panchayat in Kerala. Using this material, classes were held for health workers and through them for the mothers. Post evaluation for both the groups was done using the same questionnaire. **Results:** The post intervention survey among both the community workers and the mothers showed statistically significant improvement in knowledge regarding oral hygiene habits, importance of milk teeth, causes of dental diseases, prevention of dental diseases, and treatment of certain dental conditions. **Conclusion:** A community health awareness program has a positive effect on knowledge of community workers and thereby in the mothers. The feasibility of integrating oral health education in the existing primary healthcare activities needs to be explored.

Keywords: *Community workers, Dental caries, India, Oral health education.*

Although the health indicators of Kerala are comparatively better than that of other states, prevalence of oral diseases like periodontal disease and dental caries are similar to the National figures as shown in 2002-03 National Oral Health Survey(1). The significant dental caries index was highest among the five year-olds in the state and awareness of oral health problems was also found to be low in this survey. Dental caries and periodontal disease are two most common oral diseases in India. A comprehensive review observed a prevalence rate of 1-12% of early childhood caries in developed countries, and prevalence as high as 70% in developing countries or within disadvantaged populations(2). These diseases can affect the growth and development of the child, by affecting diet and nutrition patterns and leading to chronic oral infections, pain, suffering and tooth loss. Persistent pain affects the overall wellbeing of the child. Their impact on individuals and communities, as a result of pain and suffering, impairment of function, and reduced quality of life, is considerable. Epidemiological studies have shown that 90% of the Indian population suffers from various type of dental diseases. The incidence of dental decay and gum disease is as high as 70% among children. Further, there is a critically low dentist to population ratio of only 1:100000 in rural areas and 1:35000 in urban areas(3). Besides this, there is acute shortage of equipment and material and other essential facilities to run the minimal curative services for vast populations(4).

Dental caries and periodontal diseases are both preventable diseases and significant reduction in the disease pattern has been demonstrated worldwide by oral health education emphasizing importance of preventive strategies. As the disease starts in early childhood with the eruption of the milk tooth, preventive strategies would be most effective if it is

started on or before the time of eruption of milk tooth at about 6 months of age. Many studies indicate that educational programs can effectively increase knowledge and improve attitudes related to infant oral health(5,6). Empowering community workers like junior public health nurses (JPHNs) of health services and anganwadi workers (AWW) of Integrated Child Development Services (ICDS), in oral health, and providing basic oral health awareness to the mothers through them is a feasible model for a country like India; where oral health is not a priority in the primary health care as yet. The service of a JPHN is available for every 5000 population while service of an anganwadi worker is available for every 1000 population. At the Anganwadis, monthly meeting of mothers are held and these serve as platforms for health education.

JPHNs and Anganwadi workers get rigorous training in various health aspects but dental health is not given due importance during their initial or in-service trainings. Nurses are expected to play active role in the promotion of health including oral health, particularly in the rural under-served communities. There is a paucity of oral health education in nursing curricula(7). Educating mothers on infant dental care will promote lifelong good oral hygiene habits and will bring down the prevalence of oral diseases considerably. Various types of oral health maintenance materials have been used and countless numbers of dental health information programs have been conducted in schools and other settings, but not primary health care settings catering to 0-6 year olds(8-12). The broad objective of the "Oral Health Care Project Kerala" is to incorporate preventive and promotive oral healthcare in to the broader concept of primary health care in the state. This report forms the results of the effectiveness of an education program conducted among community workers and mothers of under-6 year olds.

METHODS

The study was conducted in a block panchayat in Thiruvananthapuram district of Kerala, after obtaining ethical clearance of the institutional ethical committee. Two separate interviewer-administered questionnaires, one for the community workers and the other for mothers of children (0-6 years) were prepared, pretested, piloted and necessary odifications made. The results of the baseline survey, conducted among community workers and mothers provided an understanding of areas where knowledge should be imparted on oral health. The same was used in developing training materials, which included audiovisual aids, modules, charts, posters and brochures in the regional language. After finalization of the training schedule, training classes on oral health were conducted for JPHNs and AWWs. Training was conducted as one-day program in four batches of around 50 participants per day. Dental surgeons conducted the classes with the help of audiovisual aids and the trainees were given modules and booklets on oral health so as to help them to conduct training in the community.

Subsequently, the trained JPHNS and AWWs together conducted oral health classes during mothers' meetings at Anganwadis. Classes were conducted in 137 Anganwadis and 2708 mothers were trained during these meetings. The trained JPHNs and AWWs took classes using the modules prepared for this purpose. The effectiveness of the program was evaluated by a post-intervention knowledge survey among JPHNs and AWWs, and mothers who attended the training sessions, two months after the training. 115 workers and 232 mothers took part in the pre-intervention and post-intervention surveys. For statistical analysis, McNemar test using binomial distribution was used.

RESULTS

In order to assess the effectiveness of intervention, changes in knowledge level of the participants were analyzed in five important domains; oral hygiene habits, importance of milk teeth, causes of dental diseases, prevention of dental diseases and treatment of certain dental conditions. Results of the pre-and post-intervention among community level workers showed that statistically significant improvement in knowledge occurred among the participants in all areas (***Table* I**). The level of oral health knowledge in pre survey was low among the participants, which stresses the need for in-service training. Considering the fact that the training of trainers was given as a one-day program, the effect created is rather significant.

The workers conducted oral health classes at mothers meetings in the anganwadis. The pre and post comparison of knowledge level in mothers showed that the classes provided by the workers led to significant improvement in oral health knowledge of mothers (***Table* II**). In the pre-intervention survey, only 3% of mothers knew that professional scaling was a treatment option for gum disease and this improved to only 10% in the post intervention period. This low improvement in knowledge gain can be observed in the knowledge change of community workers also (***Table* I**). Being a one-day program, the training of trainers may not have covered these areas satisfactorily as reflected in the results. This highlights the need for incorporating more information about these aspects in the training program.

DISCUSSION

Dental diseases have a very high prevalence. Oral diseases have health consequences far beyond the oral cavity including health and developmental problems in children, adverse pregnancy outcomes and are even implicated in cardiovascular diseases. For optimal oral health, oral hygiene habits should be instilled at a very young age itself. Primary dental care is the way of achieving good oral health for the community. The most feasible and sustainable method to achieve this is through integration of oral healthcare in the existing primary healthcare activities, through training of community level workers to identify and promote oral healthcare practices. This intervention made statistically significant changes in knowledge level of the participants in the areas of oral health addressed.

TABLE I EFFECTIVENESS OF INTERVENTION IN JPHNS* AND AWWS (*N*=115)

	Health workers providing correct response		
	Pre-intervention N=115, *n* (%)	Post-intervention N=115, *n* (%)	*P* value
Knowledge about oral hygiene habits			
Amount of toothpaste	51 (44%)	106 (92%)	<0.001
Method of cleaning gum pads	13 (11%)	94 (82%)	<0.001
Starting of tooth brushing habit in children	37 (32%)	71 (62%)	<0.001
Knowledge about importance of milk teeth			
Conservation of milk teeth is essential	83 (72%)	112 (97%)	<0.001
Reasons for conserving milk teeth	32 (28%)	95 (83%)	<0.001
Knowledge about causes of dental diseases			
Causative factors in dental caries	14 (12%)	97 (84%)	<0.001
Dental decay as an effect of night feeding	40 (35%)	86 (75%)	<0.001
Causative factor in gum disease	47 (41%)	71 (62%)	<0.001
Knowledge about prevention of dental diseases			
Method of prevention of gum disease	68 (59%)	88 (77%)	0.006
Retained milk teeth should be extracted	10 (9%)	25 (22%)	<0.001
Knowledge about treatment of certain dental conditions			
Filling as treatment option for dental caries	95 (83%)	107 (93%)	0.027
Treatment method of gum disease	8 (7%)	25 (22%)	0.003
First measure for tooth avulsion	13 (11%)	82 (71%)	<0.001
Method of treating fractured tooth	17 (15%)	61 (53%)	<0.001

*JPHN: Junior public health nurse; AWW: Anganwadi worker

WHAT THIS STUDY ADDS?

- Knowledge of oral hygiene practices in children is poor among mothers and community workers.
- Oral health education classes can improve knowledge of oral hygiene practices of mothers and community workers.

This study results suggest that including oral health education in JPHNs and AWWs training program would enable them to provide oral healthcare instructions to mothers. The project which aimed to empower local communities through existing primary healthcare infrastructure and outreach mechanisms to provide a cost effective, replicable mechanism of providing primary preventive oral healthcare to the community proved to be a feasible model. However, for knowledge to be translated to positive practice and sustained behaviour change, concerted efforts and long term follow-up is necessary.

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TABLE II EFFECTIVENESS OF INTERVENTION IN MOTHERS

Mothers providing correct response	Pre intervention N=232, n (%)	Post- intervention N=232, n (%)	*P* value n (%)
Knowledge about oral hygiene habits	107 (46%)	142 (61%)	0.002
Starting of tooth brushing habit in children			
Knowledge about importance of milk teeth			
Conservation of milk teeth is essential	148 (64%)	206 (89%)	<0.001
Reason for conserving milk teeth	88 (38%)	118 (51%)	0.006
Knowledge about causes of dental diseases			
Causative factors in dental caries	16 (7%)	74 (32%)	<0.001
Causative factor in gum disease	84 (36%)	123 (53%)	<0.001
Causative factor in gum disease	21 (9%)	63 (27%)	<0.001
Knowledge about prevention of dental diseases			
Method of prevention of gum disease	125 (54%)	169 (73%)	<0.001
Prevention of malocclusion	88 (38%)	123 (53%)	0.002
Knowledge about treatment of certain dental conditions			
Filling as treatment option for dental caries	139 (60%)	75 (75%)	<0.001
Treatment method of gum disease	7 (3%)	23 (10%)	0.002
First measure for tooth avulsion	12 (5%)	46 (20%)	<0.001
Method of treating fractured tooth	23 (10%)	49 (21%)	<0.001

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