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Children as change agents in creating peer awareness for ear health

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Abstract: *Background:* Prevalence of ear health problems is common among school children. Students have the potential for changing the health scenario of the society if properly groomed and educated for healthful living. Several innovative approaches for health education like child to child programme have been tried in various health related situations to gain interest, support, involvement and commitment of students. *Objectives:* To evaluate the impact of health education in improving the knowledge of school children regarding ear health and to compare the effect of the Child to Child approach for health education with the Adult to Child approach. *Methods:* 212 students from the 2 classes were randomly divided into 2 groups. 4 children were trained to provide health education.105 students were educated using the child to child approach of health education while 107 were educated using the adult to child approach. Knowledge was tested pre and post intervention using a pretested closed ended questionnaire. *Results:* The overall pretest mean score of 4.91±1.29 increased significantly after health education to a mean posttest score of 6.89±1.84 ($p<0.001$). A significant improvement in mean scores after the health education within both the groups was seen (Child to child 4.94±1.29 Vs 7.01±1.85, Adult to child 2: 4.89±1.30 Vs 6.76±1.83, $p<0.001$). Mean pretest and post test scores of the two groups were similar. *Conclusion:* The study showed that children are as effective as adults for the dissemination of knowledge to other children and can be effective change agents in ear health.

Keywords: Child to Child, Adult to Child, Knowledge, Change agents, Ear health.

Introduction

Ear disease is a common cause for morbidity among children. The most common ear problems reported among school children in various studies are impacted wax, acute and chronic suppurative otitis media, hearing impairment [1-3]. Though interventions are available most have been found to be ineffective. Prevention of hearing impairment with early diagnosis and treatment of ear diseases is a better and cost effective option compared to rehabilitation of established hearing loss. The Department of Community Health, St. Johns medical college conducts regular annual school health appraisals for rural and urban underprivileged schools. On one such occasion a high morbidity due to ear disease along with a lack of knowledge regarding ear health was noted among the children at a government aided school in urban Bangalore. It was therefore thought necessary to assess and improve the knowledge of the children at this school regarding ear health and hearing impairment at the school. School Health education employs several approaches for the education of children regarding matters concerned with health promotion and prevention. It has been found to be an effective strategy for improving the health of population groups as the children of today will be the citizens of tomorrow. Research studies provide evidence that promoting and establishing healthy behaviors for younger people are more effective, and often easier than efforts to change unhealthy behaviors already established in adult populations [4]. The conventional approaches to health education are presently being replaced by interactive approaches that help children not only learn but also implement and teach others behaviors conducive to improvement in health at school, at home and in their community [5].

The Child to Child approach is a school-based, interactive education program that empowers youth to become agents of change in their families and communities with respect

to health and hygiene behaviors. It is an approach to health education based on participation and active learning, which relate knowledge to everyday life situations and experiences. Children are successful in communicating health messages because they are eager to learn and help. Moreover the change may be sustained longer if children are involved as they are the future of every community. Studies have shown that children can be effective agents of change in their schools, peer groups, families and communities [6-9]. But there are no researches done where children are used as change agents in promoting ear health. Hence this study was planned to evaluate the effect of health education in educating school children regarding ear health and also to compare the Child to Child method of health education over adult to child approach.

Material and Methods

This was an interventional study done among students in 6th and 7th standard at the government aided school in urban Bangalore in March 2007**.** Taking alpha error to be 0.05 (two sided) and beta error 0.20 (i.e. power=1-beta=0.80), considering raise in level of overall knowledge and skills among Group A and B to be approximately 65% and 70% respectively, a sample size of 97 students in each group was estimated. 212 children from the 6th and 7th standard were randomly divided into 2 groups. Group A, 105 children for the Child to Child approach (CTC) while Group B comprised of 107 children for the Adult to Child approach (ATC). A closed ended questionnaire with 10 questions was administered at baseline to assess the knowledge of children regarding the anatomy of the ear, ear hygiene, common ear disease and their prevention. As an interventional program health education was given by the doctors of St. Johns Medical College Bangalore to one group. Four students were chosen to impart the education to the other group of children. These children were trained and rehearsed before giving health education. The knowledge scores of educators and children chosen for imparting health education were comparable. The duration of the Health education was two hours. The knowledge was reassessed with the same questionnaire after 2 weeks of the intervention and change in knowledge was analyzed using the paired t test.

Results

Of the 212 children, 115 (52.2%) were females. 105 (49.5%) were in the 6th standard and the rest belonged to the 7th standard. Table 1 shows the mean pretest scores and post test scores in different approaches of health education, class and gender. Average overall pretest score was 4.91±1.29. The mean scores at baseline were found to be 4.94 ±1.29 for the Child to Child group and 4.89±1.30 for the Adult to Child group. Baseline mean scores were similar irrespective of approach, class or gender. No significant difference in the scores at baseline was noted for the two intervention groups, class and gender.

Table-1: Comparison of mean pretest and post test scores following intervention

Variable		N	Mean±S.D.	p value	Mean±S.D.	p value
Approach	Child to child	105	4.94± 1.29	0.799	7.01±1.85*	0.319
	Adult to child	107	4.89±1.3		6.76±1.83*	
Class	6th std	105	5±1.3	0.374	6.59±1.81*	0.018
	7th std	107	4.84±1.39		7.18±1.82*	
Gender	Males	97	5±1.3	0.411	6.97±1.86*	0.526
	Females	115	4.85±1.39		6.81±1.82*	
Overall		212	4.91±1.29		6.89±1.84*	

* $p < 0.001$

Overall mean post test scores raised to 6.89±1.84 which was statistically significant ($p< 0.001$) A significant improvement in the scores was seen after health education. Mean post test scores of child to child group raised to 7.01±1.85 and that of adult to child raised to 6.76±1.83. This

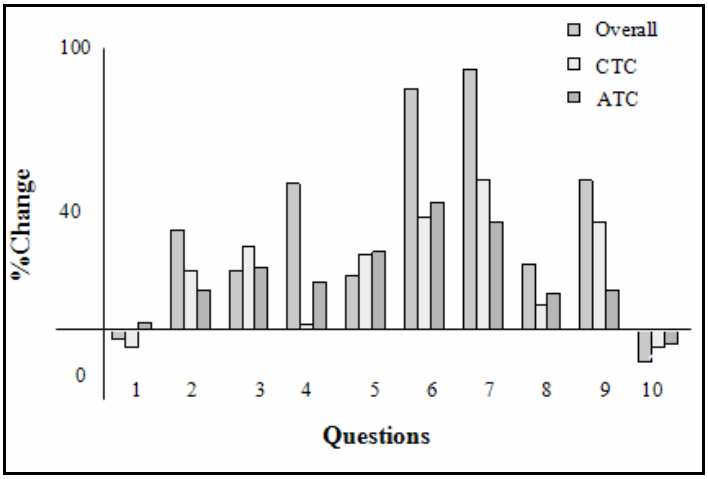
was statistically significant compared to the pre test scores (p<0.001). Mean post test mean scores were significantly higher than the baseline mean scores among males, females, students from seventh and sixth standard. Mean Post test scores of 7th standard students (7.18±1.82) was significantly more than the mean post test scores of 6th standard students (6.59±1.81) (p=0.02). Despite the overall improvement in scores after health education no significant difference in the improved scores was seen between the child to child and adult to child groups and between males and females.

Table-2: Pretest Vs Posttest: Change in incorrect responses of individual topics

Variable	Pretest Frequency	Posttest Frequency		p value
	Incorrect	Incorrect	correct	
1. Anatomy of ear	21	7	14	0.72
2. Importance of tympanic membrane	52	5	47	<0.001
3. Cleaning of ear canal	197	135	62	<0.001
4. Newborn hearing loss screening	115	48	67	0.07
5. Recurrent ear discharge – management	131	47	84	<0.001
6. Foreign body inside ear- management	52	36	16	<0.001
7. Wax in the ears – management	201	97	104	<0.001
8. Bleeding from ears - management	50	7	43	0.003
9. Ear hygiene following ear discharge	137	53	84	<0.001
10. Detection of hearing loss	32	7	25	0.2

Table 2 shows the change in incorrect responses of individual topics. The results of all 212 students for individual questions in the questionnaire revealed that health education had significantly improved the knowledge for 7 of the 10 items (p<0.05). Figure 1 shows the percentage change in the responses to individual topics after health education. The knowledge of the Group 1 improved for 6 of the 10 items (p<0.05) while the knowledge in Group 2 improved for 8 out of 10 items (p<0.05).Understanding of anatomy of the ear, newborn hearing loss screening and diagnosis of hearing impairment did not improve after health education in both methods. Few students who answered correctly for the questions on anatomy of the ear and detection of hearing loss had given wrong answers after health education. There was a significant percentage change observed in all other questions.

Fig-1: Percentage change in responses to individual items after health education



Discussion

Baseline knowledge regarding ear health was low among school children with a mean pretest scores of 4.91. The knowledge was least in items pertaining to anatomy of the ear, detection of hearing impairment and management of bleeding from the ears. Following health education on ear health overall baseline mean scores significantly improved to 6.9. This shows health education regarding basic ear health can improve knowledge among school children. Since post test was conducted 2 weeks following intervention, mean scores have improved by 50%. Immediate posttest would have shown higher mean scores, but scores obtained at 2 weeks in better accepted. Improvement of knowledge regarding anatomy and measurement of hearing impairment did not improve mainly because of the terminologies involved. These need to be simplified and thought in local language while educating students. Though the World health organization recommendation is to wick the ear the intervention is of little benefit as most parents in desperation after repeated wicking resort to other means of treatment often worsening the condition [10].

Knowledge levels improved significantly among all children irrespective of the method of health education, gender of students or class of study. In this study there was no significant difference in improvement in knowledge of the two groups, Child to Child and Adult to Child, however a greater improvement in mean scores was observed in Child to Child approach in comparison to the Adult to Child approach. There was no significant difference in improvement of knowledge observed between boys and girls. An appropriate health education strategy can enhance conceptual development irrespective of age. In this study a greater improvement in the post test scores of the children was seen between the 2 classes, with the higher class scoring better. This may be due to the increased maturity of students towards understanding complicated health concepts like primary ear health. Child-to-Child ultimately contributes a new, effective, revolutionary idea to educate the people and the community to lead a better, healthier life through children.

There are several studies conducted worldwide to check the impact of Child to Child programme in imparting health education. But there are no studies on Child to Child approach used in learning about ear health. Walvekar et al in their study on impact of Child to Child programme on knowledge, attitude practice regarding diarrhoea among rural school children showed that Child to Child program had made significant improvement in the knowledge, change in the attitude and practice of study group students after the intervention when compared to control group students [8]. Similar significant improvement was observed in a study conducted by Bhalerao for slum children of Bombay [9]. The Child to Child approach has been applied and shown to be effective in school health education programs in many countries [6, 11-12].

The Child to Child approach described in this study involves children, particularly those of primary school age, with the provision of ear health in school and at home. It identifies many ways in which they can help themselves, help each other, help younger children and through individual and joint action even help their families and communities. It examines how the school can help children to gain knowledge, skills and understanding about ear health. It can discuss action children may take, and can share children's experience at home back in the classroom. In doing so, children learn to link knowledge gained at school with their experience at home, and learn to apply and test that knowledge through practice. Additionally both children and their teachers are reminded of the responsibilities which they already possess in the home and towards other younger children.

Child to Child programme, which is an original approach to education for health, applies to school age children. It makes children feel responsible for their own health. This approach uses active teaching methods in which learning takes place through the dynamics of investigations, group work and play. What they learn in classroom is immediately applied to everyday life at school and home. When children acquire health-related knowledge and skills, they become well placed to pursue a healthy life and to work for the improved health of their families and communities [11]. A broader view of

children as health change agents captures children as individuals who make things happen in different social environments [6]. Children's health and illness concepts can be re-organized and transformed through children's participation in action-oriented health education interventions. In developing countries, infants and young children spend much of their lives in the care of an older brother or sister. Child to Child approaches are not lessons learnt in one lesson and forgotten, they are learnt and developed over a longer time, and continue to apply for the rest of our lives [13]. Children are not only passive recipients of other people's care and interventions, but agents who can bring about positive change in family and community.

Conclusion

Health education improved the knowledge of children regarding ear health. Children were as effective as adults for the dissemination of knowledge to other children and can be effective change agents in ear health.

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