

An Interventional Study of Health Education Related to Diarrhea, Personal Hygiene, and Environmental Hygiene among Municipal School Children in Navi Mumbai

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Abstract

Introduction: Among children, diarrhea continues to be a major cause of morbidity & mortality. High prevalence of this is closely linked with poverty and poor personal hygiene. An estimated 60-70% of diarrheal deaths are caused by dehydration. Improved hygienic practices are essential if transmission of routes of water and sanitation related diseases are to be cut. Child to child program based on the principle of children as agents of change is cost effective strategy to spread health messages and hygienic practices. *Hypothesis:* There is an improvement in knowledge, attitude and practices regarding personal hygiene, environmental hygiene, diarrhea and ORS among school children after health education. *Material and methods:* Community based interventional study was conducted including all 5th standard students. Following a pretest three interactive and participatory sessions were conducted. Sessions were focusing on imparting knowledge about personal hygiene, environmental hygiene, diarrhea and ORS and reinforcing correct hygienic practices. Post test was conducted at the end to compare the knowledge and practices for 152 students who participated throughout the program. Data analysis was done by SPSS version 20 & MS Office Excel 2010. *Results:* There was significant improvement in the knowledge and practices regarding personal and environmental hygiene among school children after intervention. The knowledge regarding use and preparation of ORS improved after intervention. *Conclusion:* Child to Child program is an effective activity based interactive approach for improvement in the knowledge, attitude and practices regarding personal hygiene, environmental hygiene, diarrhea and ORS.

Keywords: Child to Child; Environmental Hygiene; ORS; Personal Hygiene.

Introduction

It was David Morley and his colleagues at the institute of child health and education, University of

London who identified the entrapped resource "The child power" for spreading health messages. Children have a vitally important part to play in the health of the community, not merely by being 'kept healthy' by adults, but in passing on health messages to younger brothers, sisters and by jointly cooperating to become a positive force for health [4]. Child to Child program is based on the concept that children in schools & family members need to be considered as partners in spreading health messages as well as benefitting from them [1]. The children can be educated on simple but important health topics. This

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approach began in "The international year of the child 1978" at university of London [2].

Among children, diarrhea continues to be a major cause of morbidity and mortality especially in developing countries. More than one and half million under five children still continue to die each year due to acute diarrhea. WHO estimates that more than one billion people are chronically infected with soil transmitted worms [9]. High prevalence of these infections is closely linked with poverty, poor personal hygiene and environmental hygiene and health services with inadequate drug supplies. An estimated 60-70% of diarrheal deaths are caused by dehydration. Oral rehydration is safe, economic and effective therapy in preventing and correcting this dehydration and thus reduces diarrhea-associated deaths [10]. Improved hygienic practices are essential if transmission of routes of water and sanitation related diseases are to be cut. Health education by health workers to mothers has been attempted and has been found to be useful. In contrast with approaches that involve health workers or teachers, Child- to-Child approach encourages children to make their own observations, draw their own conclusions and take appropriate, self directed action. Health education to school children in their formative age is the most effective method for protection and promotion of health. Primary school children are more open minded and are likely to be receptive to changes in ideas and agreeable to modifications of their habits. Innovative approaches to education for health are essential to gain interest, support, involvement and commitment of students. When they learn in classroom is immediately applied to everyday life at school and home [5].

Child- to-Child program is cost effective strategy to approach every family. Through this method it is possible to improve the health and nutrition awareness of the people, change their attitudes and help them implement health principles in practices.

Aims and Objectives

1. To impart knowledge regarding prevention and control of diarrhea and on personal and environmental hygiene.
2. To reinforce correct hygienic practices and promote preventive health care for children.
3. To assess the change in knowledge, attitude and practices in children after activity based health education.

Material and Methods

Child-to-Child program was started as a part of existing preventive, promotive and curative school health services. Program was carried out in Navi Mumbai Municipal School, Turbhe by the Department of Community Medicine of Terna Medical College, Nerul. Lecturer and assistant lecturer under the guidance of Professor and Head and an Associate Professor with the help of public health nurse, medical social workers and interns were involved in the program.

Study site: Navi Mumbai municipal school, Turbhe.

Study design: Community based intervention study.

Sample size: There were total four morning and afternoon batches of 40 students each in fifth class. All 160 students of 5th standard both for the year 2012-13 & 2013-14 were included in the study.

Study period: September 2012- February 2014

Inclusion criteria: All 5th standard students from Marathi medium municipal school, Turbhe, who attended 3 or more sessions, were included in the study.

Exclusion criteria: Students not attending or attending only two sessions were excluded. Predesigned structured pretest and posttest questionnaire was used for data collection.

Five sessions each of one hour duration were conducted twice a week in each of morning and afternoon batch. The principal of the school and the respective class teachers were informed about the session in advance. The students were first introduced to the subject of study and its purpose. First session started with an icebreaker, followed by pretest. Pre-designed structured questionnaire was used to the students by face-to-face interview to assess the knowledge and practices of the students. The second session was on personal hygiene, making them aware of importance of correct hygienic practices and their relationship with various diseases through interactive teaching. Third session was on environmental hygiene and the prevention of mosquito, fly breeding and diseases transmitted by them and worm infestation. The last session was concentrating on etiology, symptoms, signs and home based management of diarrhea. During health education, an interactive method of health education was used consisting of icebreaker game, educational games, role plays, skit, drawing, demonstration of making oral rehydration solution and watering and non-watering of plants. At the end posttest was conducted to assess

the change in knowledge, attitude and practices in the students. During health education the students were trained to prepare skit and songs to be presented in an event session of their school at a later date. The final event was organized at hall in school building. The child educators performed role play, sang songs and drew pictures in a drawing competition all related to hygiene and diarrhea and thereby acted as agents of change for the audience which comprised of students of fifth to seventh class of the same school.

Results

There were total 160 students in fifth standard of the school. Total 152 students who attended 3 and

more sessions were included in final analysis. Pretest and posttest was compared by applying McNamara's test using SPSS 20 version.

Table 1 shows highly statistically significant improvement in the knowledge about diseases transmitted by poor personal hygiene and breeding sites for mosquitoes and flies ($p < 0.001$). In the pretest 29.6% students were aware of diseases transmitted by walking bare foot which is increased to 71.7% after intervention. This difference was highly statistically significant ($P < 0.001$).

In the pretest about diseases transmitted by mosquito bite 112 (73.68%) students were aware of only malaria which is increased to 127 (83.55%) in posttest. Students were able to answer more than one mosquito transmitted diseases in post-test.

Table 1: Comparison of knowledge about diseases transmitted before and after intervention

	Students with correct knowledge	
	Pre test No. (%)	Post test No. (%)
Hand washing	65 (42.76)	118 (77.63)
Nail cutting	90 (59.20)	121 (79.61)
Bare foot walking	45 (29.6)	109 (71.7)
Mosquitoes breeding sites	38 (25)	106 (69.7)
Flies breeding sites	91 (59.9)	130 (85.5)

Table 2 shows that almost all students were practicing hand washing with soap before food and after using toilet and disposal of garbage in dustbin. There was no statistically significant difference after intervention. Also 56.58% students used to buy food from vendors outside school premises which is reduced to 19.08% after intervention. This is statistically significant ($p < 0.001$).

Pretest showed that it was common practice to cover drinking water and food items at house. In the beginning of study drinking water was untreated in 23.03% of households which is reduced to 5.26% after intervention. There was increase in practice of boiling and filtering of drinking water. Water for drinking at house was boiled in 42.11% households which are increased to 65.13% after intervention.

Table 2: Comparison of hygienic practices at individual and household level before and after intervention

Hygienic practices	Students with correct practices	
	Pre test No. (%)	Post test No. (%)
Hand washing	151(99.34)	152 (100)
Disposal of garbage in dustbin	139 (91.45)	147 (96.71)
Buying food from vendors	86 (56.58)	29 (19.08)

Table 3 shows that in the pretest only 33 (21.71%) students had knowledge about use of ORS in diarrhea which increased to 118 (77.63%) after intervention. This difference was statistically significant ($P < 0.001$). The importance of use of ORS in preventing morbidity and mortality in diarrhea was understood

by most of the students.

In the pretest 57(37.5%) students were aware about diseases transmitted by drinking untreated water which is increased to 131 (86.18%) in the posttest. Students were able to answer more than one disease.

Table 3: Comparison of knowledge of ORS use in diarrhea before and after intervention

Use of ORS in diarrhea	Pre test	Post test
	No. (%)	No.(%)
Correct knowledge	33 (21.71%)	118 (77.63%)
Incorrect knowledge	119 (78.29%)	34 (22.37%)

Table 4 shows in study group only 8 (5.26%) students were aware of preparation of ORS in the beginning. After intervention 94 (61.84%) of them could describe how to prepare ORS. This improvement was statistically significant ($P < 0.001$).

In the pretest 64 (42.10%) students had knowledge about symptoms of diarrhea which is increased to 138 (90.78%) after the intervention. The students became aware about most of the symptoms of diarrhea.

Table 4: Comparison of knowledge of ORS preparation before and after intervention

ORS preparation	Pre test	Post test
	No. (%)	No.(%)
Correct knowledge	8 (5.26%)	94 (61.84%)
Incorrect knowledge	144 (94.74%)	58 (38.16%)

Table 5 shows that the percentage of clean and cut nails among the students increased from 24.34% to 86.84% after the intervention. This is statistically significant ($P < 0.001$). The importance of clean nails in preventing diarrhea was understood by majority of the students.

In the beginning of study 66.44% students had knowledge about practice of cutting nails at least once a week which is increased to 79.61% in the posttest.

Table 5: Comparison of students as per the hygiene of nails before and after intervention

Nail hygiene	Pre test	Post test
	No. (%)	No.(%)
Clean and cut	37 (24.34%)	132 (86.84%)
Uncut but clean	33 (21.71%)	16 (10.53%)
Uncut and not clean	82 (53.95%)	4 (2.63%)

Discussion

This study highlighted the fact that activities in child to child program give children new knowledge and skills and better understanding. Instead of teaching children health facts about their own health, it encourages them to take health action for themselves and others.

In this study there is statistically significant improvement in the knowledge about the diseases transmitted by poor personal and environmental hygiene. Majority of the students stopped buying food items from vendors outside school premises. 86.18% students became aware about diseases transmitted by drinking untreated water. Most of the households started practices of filtering and boiling of water for drinking at home.

In this study the nail hygiene was poor, hence monitors were appointed to observe nail hygiene of students sitting in that row, once a week and report to class teacher if any incorrect habit was noticed. This approach led to improvement (86.84%) in nail

hygiene. Students became aware about importance and practice of cutting nails at least once a week. In a similar study, done by Pingle A. et al [8], also observed a statistically significant increase in percentage of students with clean and cut nails.

Although hand washing practices were good in students the intervention shows improvement in personal and environmental hygiene. A study conducted by Gawde N. et al [3], found significant improvement in reported hygienic practices at individual level and at household level.

In the pretest only 21.71% students had knowledge about use of ORS in diarrhea which is significantly increased to 77.63% after intervention. Effect of health education on improvement in awareness and preparation of ORS has been documented by Walvekar P et al [11], Mishra CP et al [6] and Mangala S et al [7]. However these studies were focusing their attention on mothers. In this study knowledge about preparation of ORS was not common (5.26%) in the students in the beginning. The demonstration of preparation of ORS to students did make significant improvement (61.84%) in their knowledge regarding preparation of ORS.

The study concluded that Child to Child program is a right approach to children's participation in health promotion and development. This approach uses the school children as active health promoters and as messengers of health information. Through participating in Child to Child activities the personal, physical, social, emotional, moral and intellectual development of children is enhanced. The project had a positive impact on the children's knowledge, attitudes and behavior related to personal and environmental hygiene. Knowledge regarding preparation of ORS to control diarrhea also improved.

It was felt by the facilitators, the students and their teachers that the program be formally integrated into the school system with support from the government ministries. Such innovative approaches to education for health are essential to gain the interest, support, involvement and commitment of students. The Child to Child program is an educational process that links children's learning with taking action to promote the health, wellbeing and development of themselves, their families and their communities.

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