

A Study to Assess the Effectiveness of Child-To-Child Approach On Knowledge and Practice Regarding Environmental Health Problems Among Children in Selected School at Coimbatore.

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Abstract

Environmental health problems remain a major concern among school children, highlighting the need for effective school-based health education. This quasi-experimental study evaluated the effectiveness of the Child-to-Child approach among 60 school children in Coimbatore, Tamil Nadu. The findings demonstrated significant improvements in knowledge and environmental health practices among the experimental group compared with the control group, indicating that the Child-to-Child approach is an effective strategy for promoting environmental health awareness in schools. **Keywords:** Child-to-Child approach, Environmental health, School children, Health education, Peer learning, Environmental sanitation.

1. INTRODUCTION

Children are the foundation of a healthy society, and school age is a crucial period for developing healthy behaviours and life skills. However, inadequate knowledge of health and hygiene increases children's susceptibility to environmental health problems (P. Sharma, 2022). Environmental factors significantly influence children's health, contributing to preventable conditions such as dental caries, scabies, intestinal parasitic infections, and respiratory illnesses (Sherman J. Alter et al., 2011). The World Health Organization (2011) reports that millions of children are exposed to environmental health hazards worldwide, while the National Family Health Survey-5 (2019–2021) highlights the continued burden of these problems among Indian school children. The Child-to-Child approach is an effective participatory health education strategy that promotes peer learning, improves environmental health knowledge and practices, and encourages healthy behaviours among primary school children.

2. AIM OF THE STUDY

The present study was undertaken to assess the effectiveness of the Child-to-Child approach in improving knowledge and practices regarding environmental health problems among school children.

The study specifically sought to answer the following research objectives:

- To assess the knowledge and practice regarding environmental health problem among children in experimental and control group.
- To evaluate the effectiveness of child to child approach on knowledge and practice regarding environmental health problems among children in experimental group.
- To correlate the post-test of knowledge and practice regarding environmental health problems among children in experimental and control group.
- To associate the Post-test knowledge and practice regarding environmental health problems among children in experimental and control group with their selected demographic variables.

3. HYPOTHESIS

- **H1:** There is a significant difference between mean pretest and post-test of knowledge score regarding environmental health problems among children.
- **H2:** There is a significant difference between mean pretest and post-test of practice regarding environmental health among children
- **H3:** There is a significant correlation between post-test knowledge and practice regarding environmental health problems among children in the experimental and control group.
- **H4:** There is a significant association between post-test of knowledge regarding environmental health among children with their selected demographic variables
- **H5:** There is a significant association between pretest of practice regarding environmental health among children with their selected demographic variables

4. LITERATURE REVIEW

REVIEWS OF LITERATURE RELATED TO ENVIRONMENTAL HEALTH PROBLEMS

A study on common health issues among school-age children in a central Indian city used a simple random sample of 1,000 students, with data imported into Microsoft Excel. Of the students, 40.8% were female and 59.2% male. Most lived in nuclear families (62.2%), while 14.8% lived in three-generational households. Health problems were more common among female students (39.3%). Common morbidities included nutritional deficiencies (29.5%), dental issues (28.1%), and refractive errors (23.4%). Overall, 64% of children were unwell. The study concluded that factors such as nutrition, family history, religion, socioeconomic status, and hygiene influenced health. Despite school midday meals, malnutrition remains prevalent. (Swapnil Jain ,2024). An investigation to evaluate children's environmental health in India's northeastern states. For this investigation, a pre-experimental design was used. The National Family Health Survey (NFHS-IV, 2015–2016) gathered the data. The study found that in order to achieve the goal of reducing child mortality, policies should focus on improving the socioeconomic and/or environmental conditions of the home. India has to evaluate the results and consider the implications in order to meet the targets for child survival set forth in the Sustainable Development Goals (Atanu Ghosh et al., 2023).

5. REVIEWS OF LITERATURE RELATED TO KNOWLEDGE REGARDING ENVIRONMENTAL HEALTH PROBLEMS

This study evaluated the effectiveness of planned instruction on primary school teachers' knowledge of student health and its management, using a one group quasi-experimental pre- and post-test design. Fifty teachers were selected through purposive sampling, and data were collected using a self-administered knowledge questionnaire. Results showed a significant improvement in post-test knowledge scores compared to pre-test scores ($p < 0.001$). Before the intervention, 67.5% had moderate knowledge and 32.5% had inadequate knowledge. The average knowledge score increased from 8.53 to 19.54, showing a significant gain of 11.01 points. The study concluded that enhancing teachers' knowledge can help protect children's health more effectively. (Babu Dharmarajan et al.,2022).

6. REVIEWS OF LITERATURE RELATED TO PRACTICE REGARDING ENVIRONMENTAL HEALTH PROBLEMS

A cross-sectional study at Tikur Anbessa Specialized Hospital in Ethiopia assessed infection prevention and control (IPC) practices among 284 pediatric healthcare professionals using WHO's IPCAF tool. Only 50.4% (95% CI: 44.3–56.5) followed proper IPC procedures. The average IPCAF score was 247.5 out of 800, indicating suboptimal IPC practices. Nurses and healthcare workers with IPC training were significantly more likely to follow proper procedures, with AORs of 2.84 and 2.48, respectively. The study highlights the need to improve IPC practices, particularly through targeted training. (Mengistu Yilma et al.,2024).

7. REVIEWS OF LITERATURE RELATED TO CHILD-TO-CHILD APPROACH ON ENVIRONMENTAL HEALTH PROBLEMS

A 2004 survey of 1,500 randomly selected New York paediatricians examined their attitudes and practices regarding children's environmental health. Respondents strongly agreed that the environment significantly affects child health (mean 4.44 ± 0.72). They felt confident managing lead exposure (mean $4.16-4.24 \pm 0.90-1.05$) but were less confident handling mould, pesticides, and mercury (means $2.51-3.21 \pm 0.90-1.23$; $p < 0.001$). The study highlighted a clear need for more education and specialized centres to support paediatricians in addressing environmental health issues. (Lora Sofia, 2024).

8. RESEARCH METHODOLOGY

A quantitative evaluative research approach was adopted to assess the effectiveness of the Child-to-Child approach on knowledge and practices regarding environmental health problems among school children. The study employed a quasi-experimental pre-test–post-test control group design, with the experimental group receiving the Child-to-Child intervention and the control group receiving no intervention. Pre-test and post-test assessments were conducted in both groups to evaluate changes in knowledge and practices related to environmental health problems. The independent variable was the Child-to-Child approach, while the dependent variables were the children's knowledge and practices regarding environmental health. Demographic variables included age, gender, religion, place of residence, socioeconomic status, family type, number of siblings, parents' educational and occupational status, monthly family income, dietary habits, source of drinking water, household waste disposal method, and source of health information on environmental problems. The study was conducted at Keartiman Academy Matriculation Higher Secondary School, Coimbatore, selected based on feasibility and availability of participants. The

target population comprised school children studying at the institution, while the accessible population included students aged 11–14 years studying in classes VI to IX. The sample consisted of 60 school children who met the inclusion criteria, with 30 participants each in the experimental and control groups. Participants were selected using a simple random sampling technique through the lottery method.

9. CRITERIA FOR SAMPLE SELECTION

Inclusion Criteria

School children who

- Were in the age group of 11-14years.
- Were both male and female.
- Were available at the time of data collection.
- Were willing to participate in the study.

Exclusion Criteria

School children who

- Were refused to participate in this study
- Were sick during the time of data collection
- Had chronic illness

10. DISCUSSION AND FINDINGS

The findings of the present study are discussed according to the research objectives. The effectiveness of the Child-to-Child approach was assessed by comparing pre-test and post-test knowledge and practice scores between the experimental and control groups. The results demonstrate that peer-assisted environmental health education significantly improved children's knowledge and preventive practices.

Distribution of Demographic Variables

The demographic characteristics of participants in the experimental and control groups were comparable. Most participants were aged 12–13 years, with 13 years being the predominant age in the experimental group (33.3%) and 12 years in the control group (30%). Gender distribution was nearly equal in both groups. The majority of participants were Hindus and belonged to nuclear families. Approximately half of the participants resided in rural areas, and most belonged to the middle socioeconomic class with two siblings. Regarding parental education, higher secondary education was the most common qualification among both fathers and mothers. Most fathers were self-employed, whereas the majority of mothers were homemakers. Family income was predominantly below ₹15,000 per month. Most participants followed a vegetarian diet and had access to drinking water within their homes. Household waste was mainly disposed of in corporation bins. Health care team members were the primary source of health information for most participants, followed by mass media. Overall, the demographic variables were similarly distributed between the experimental and control groups, indicating baseline comparability.

Knowledge	Experimental group (n=30)				Control group (n=30)			
	Pre test		Post test		Pre test		Post test	
	f	%	f	%	f	%	f	%
Inadequate knowledge	12	40	0	0	13	43.3	12	40

Moderately adequate knowledge	18	60	7	23.3	17	56.7	18	60
Adequate knowledge	0	0	23	76.7	0	0	0	0

Research Objective 1: To assess the knowledge and practice regarding environmental health problems among children in experimental and control group.

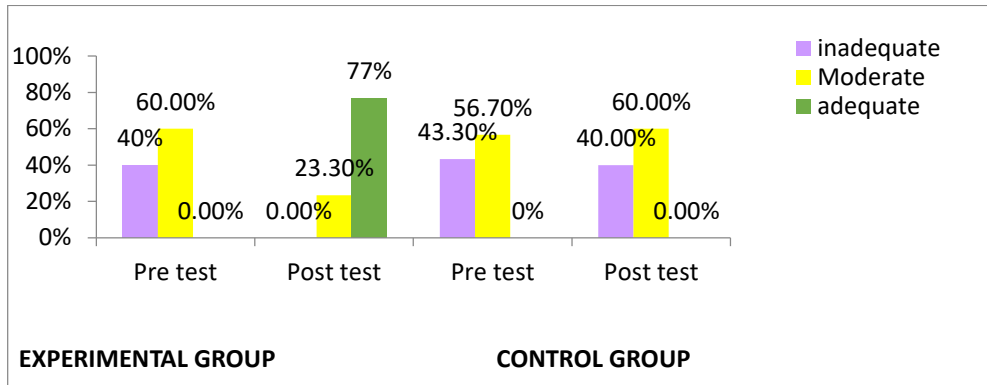
In the experimental group, the pre-test showed that most children had moderately adequate knowledge (60%), while the remaining had inadequate knowledge (40%). Following the intervention, the majority (76.7%) achieved adequate knowledge, and the remaining (23.3%) had moderately adequate knowledge, with no participants exhibiting inadequate knowledge. In contrast, the control group showed little change, with most participants maintaining moderately adequate knowledge (63.3% pre-test; 60% post-test), while the remainder had inadequate knowledge.

Similarly, for practice, most children in the experimental group demonstrated moderately adequate practice (63.3%) during the pre-test, whereas after the intervention, the majority (73.3%) attained adequate practice and the remaining (26.7%) had moderately adequate practice, with no inadequate practice observed. In the control group, only minimal changes were noted, with approximately half of the participants continuing to exhibit moderately adequate practice and the remaining showing inadequate practice during both pre-test and post-test assessments.

Research Objective 2 To evaluate the effectiveness of Child-to-Child approach on knowledge and practice regarding environmental health problems among children in experimental group.

The experimental group demonstrated a statistically significant improvement in knowledge and practice following the Child-to-Child intervention. The paired *t*-test revealed a highly significant increase in both knowledge ($t=21.60$, $p<0.001$) and practice ($t=11.64$, $p<0.001$), whereas no significant changes were observed in the control group (knowledge: $t=0.64$, $p>0.05$; practice: $t=1.48$, $p>0.05$). Baseline comparison between the experimental and control groups showed no significant differences in pre-test knowledge ($t=0.92$, $p>0.05$) and practice ($t=1.32$, $p>0.05$). However, post-test comparisons demonstrated highly significant differences in favour of the experimental group for both knowledge ($t=11.97$, $p<0.001$) and practice ($t=13.04$, $p<0.001$). Therefore, hypotheses H_1 and H_2 were accepted.

These findings are consistent with previous studies. Babu Dharmarajan et al. (2022) reported a significant improvement in teachers' knowledge following a planned instructional programme ($p<0.001$). Similarly, Leonardo Trasande et al. (2022) found that although paediatricians recognized the importance of environmental health, additional education was needed to improve their confidence in managing environmental health issues, supporting the need for effective educational interventions.



Research Objective 3: To correlate the post-test of knowledge and practice regarding environmental health problems among children in experimental and control group.

The comparison of pre-test scores showed no statistically significant difference between the experimental and control groups for either practice ($t=0.92, p>0.05$) or knowledge ($t=1.32, p>0.05$), indicating that both groups were comparable at baseline. However, post-test analysis demonstrated highly significant differences in favour of the experimental group for practice ($t=11.97, p<0.001$) and knowledge ($t=13.04, p<0.001$), confirming the effectiveness of the Child-to-Child educational intervention. Hence, hypothesis H_2 was accepted.

These findings are consistent with the study by Leonardo Trasande et al. (2022), which reported that healthcare professionals recognized the substantial impact of environmental factors on children's health but had limited confidence in managing several environmental hazards. The authors emphasized the need for specialized training and educational programmes to strengthen environmental health knowledge and practices, supporting the effectiveness of structured educational interventions.

Research Objective 4: To associate the Post-test knowledge and practice regarding environmental health problems among children in experimental and control group with their selected demographic variables

Analysis of the association between demographic variables and post-test outcomes revealed that age was significantly associated with post-test knowledge in both the experimental ($\chi^2=10.1, p<0.05$) and control groups ($\chi^2=23.5, p<0.05$), while no other demographic variables showed significant associations. For post-test practice, age ($\chi^2=12.15$) and religion ($\chi^2=8.97$) were significantly associated in the experimental group, whereas only age ($\chi^2=16.5, p<0.05$) showed a significant association in the control group. Thus, hypotheses H_3 and H_4 were accepted. These findings are consistent with the study by Ram Sagar Reddy Moola (2019), which reported that demographic and socioeconomic factors, particularly poor living conditions and low socioeconomic status, were closely associated with health problems among rural primary school children, emphasizing the influence of demographic characteristics on children's health outcomes.

11. NURSING IMPLICATIONS

The findings of the study have implications in various areas of nursing profession that nursing services (nursing education, nursing administration, and nursing research).

LIMITATION:

Sometimes the researcher had difficult to gather children at a time individual due to negligence, which was managed by rescheduling the intervention

12. CONCLUSION

The present study demonstrated that the Child-to-Child approach is an effective participatory learning strategy for improving environmental health knowledge and practices among school children. The intervention produced significant improvements in both cognitive and behavioural outcomes, highlighting the value of active learning, peer interaction, and collaborative participation over conventional teaching methods. In addition to enhancing environmental health awareness, the approach fostered leadership, communication, responsibility, and community participation, enabling children to extend health messages to their families and communities. The findings suggest that the Child-to-Child approach can be successfully integrated into school health programmes across diverse settings. However, the study was limited by its small sample size, single-school setting, and lack of long-term follow-up, which may affect the generalisability of the results. Future studies involving larger samples, multiple schools, and longitudinal evaluation are recommended. Overall, the Child-to-Child approach is a practical, innovative, and cost-effective strategy for promoting environmental health awareness and sustainable healthy practices among school children.

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