



# **Effectiveness of Near Peer Learning on Knowledge and Habit Making Regarding Prevention of Water Borne Diseases among Primary School Children – A Pilot Study**

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## **Authors' contributions**

*This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.*

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## **ABSTRACT**

Near peer learning is an educational practice in which children interact with their peers or friends to attain educational objectives. In simpler terms children involved in this type of learning are seniors and juniors of the same school or college. Learners are more comfortable and relaxed, and ready to learn when teacher is their peer, whom they know and understand. At the same time, it develops communication skill, leadership skills and confidence of public dealings in the teacher peer. In recent days, near peer teaching and learning becoming popular as learning methodology in schools and colleges. It involves students exposed to similar circumstances, from same educational programme, but at different levels. Research question of the study is 'Is Near Peer learning effective on improving knowledge and habit making regarding prevention of waterborne diseases among primary school children?'

This study was carried out systematically to assess the effectiveness of structured Near Peer learning, where a senior student teaches regarding prevention of waterborne diseases to junior students. Here the subject selected for structured near peer learning is "prevention of waterborne

diseases". Elder children of age group 13-14 years taught their near peers of age group 9-10 years, regarding prevention of waterborne diseases with special attention on improving personal hygiene and hand hygiene. The researcher assessed the effectiveness of structured Near peer learning regarding prevention of water borne diseases, in increasing the knowledge and improving the habits related to Personal hygiene and Hand washing, among primary school children. An evaluative research approach with one group pre test post test design was adopted. In the study, 4 students of 13-14 years age group were selected and researcher taught them regarding prevention of waterborne diseases. 40 primary school children of age group 9-12 years, constituting both boys and girls were also selected through convenient sampling technique. Then one elder child taught 10 younger children regarding same. Pretest and post test done. The questionnaire used were, demographic proforma, knowledge questionnaire, and checklist. Mean pretest was 9.925 and mean post test knowledge was 15.6 Mean pretest for practice was 33.5 and mean post test for practice was 42.07. Hand washing mean pretest practice score was 7.075 and post test was 10.095. There was significant association between pre test scores regarding knowledge and practice and education of child, occupation of father and age of child.  $P\_value < 0.005$ .

*Keywords: Near peer learning; waterborne diseases; hand washing; personal hygiene.*

## 1. INTRODUCTION

Near peer learning is an educational practice in which students interact with other students to attain educational objectives. It involves students exposed to similar circumstances, from same educational programme, but at different levels. In simpler terms students involved in this type of learning Seniors and juniors of the same school or college. Near Peer learning can be considered as mode of learning for everyone, by everyone, and about any selected topic. The near peer learning can take place in a formal or informal teaching learning environment. It can take place in small groups or even online [1].

A near peer role model is one who inspire us, and whose behavior and actions are appealing to us, often we try to imitate them. Children learn a lot many of things from their friends or peers in their daily life. Near peers are of near equal or similar age, social and cultural background [2]. They also share similar educational and professional backgrounds and a shared interest or goal. In quite simpler terms, when we see people who are similar to us succeed makes it reasonable for us to believe that we too may get success. Near peer learning is a two-way, reciprocal teaching learning activity. This method of learning should be mutually beneficial and involve the sharing of experiences, knowledge, ideas and belief between the near peers [3]. It can be explained as moving from independent towards interdependent or reciprocal learning. Near peer teaching, is educational strategy where senior students, or those in advance

years, take on a limited role of a teacher or instructor [4].

**Near Peer health education** is an approach to health promotion, where more experienced children are supported to promote health-enhancing change among their near peers. It involves teaching or sharing of health information, values and behavior in educating others who may share similar social backgrounds or life experiences [5].

This study was carried out to systematically assess the effectiveness of structured Near Peer learning, where a senior student teaches regarding prevention of waterborne diseases to junior students. Here the subject selected for structured near peer learning is "prevention of waterborne diseases". Elder children of age group 13-14 years taught their near peers of age group 9-10 years, regarding prevention of waterborne diseases with special attention on improving personal hygiene and hand hygiene. The researcher assessed the effectiveness of structured Near peer learning regarding prevention of water borne diseases, in increasing the knowledge and improving the habits related to Personal hygiene and Hand washing, among primary school children.

## 2. RESEARCH QUESTION

Is Near Peer learning effective on improving knowledge and habit making regarding prevention of waterborne diseases among primary school children?

## 2.1 Statement of Problem

A study to assess the effectiveness of Near Peer learning on knowledge and habit making on prevention of water borne diseases among primary school children.

## 2.2 Objectives of Study

1. To assess the existing knowledge regarding prevention of water borne diseases among primary school children.
2. To assess the existing practices regarding prevention of water borne diseases among primary school children.
3. To assess the effectiveness of Near-peer learning on knowledge regarding prevention of water borne diseases among primary school children.
4. To assess the effectiveness of near-peer learning on practices related to prevention of water borne diseases, among primary school children.

## 2.3 Hypothesis

H<sub>1</sub>- There is a significant difference in pretest and post test knowledge scores of children receiving Near-Peer learning.

H<sub>0</sub> – There is no significant difference in pretest and post test scores of children receiving Near-Peer learning.

H<sub>2</sub>- There is significant difference in pretest and post test practice scores of children receiving Near-Peer learning.

H<sub>01</sub> – There is no significant difference between pre test and post test practice scores of children receiving Near-Peer learning.

## 3. CONCEPTUAL FRAMEWORK

The CIPP model was created in the 1960s by Daniel Stufflebeam. The conceptual model for this study is built on modified Stufflebeam's evaluation model. According to "CIPP model" any programme has four types of evaluation, namely Context evaluation, Input evaluation, process evaluation, and lastly product evaluation. This model is a comprehensive and systematic. It is continuous ongoing cyclic process. This model is modified and adopted for present study. Here, content means discrepancies noticed in planned and actual programme outcome.

Investigators may develop rationale for the discrepancies. The core value for present study is to improve knowledge and habit making in context to prevention of waterborne diseases among primary school children.

The first step of CIPP model is termed as context evaluation. Investigator evaluates requirements, issues, assets and opportunities to help decision makers. Here goals are defined and priorities are chalked out. This is done to extend help the user group.

The aim of this investigation is to improve habit making as well as knowledge of school children in context to prevention of waterborne diseases, using near peer learning approach. This objective is readily defined and stated in the study.

This is second step in CIPP model is named as input evaluation. Here we require resources to meet study aim and objectives. It involves identification of successful similar kind of programmes. Related information gathered in this phase. This phase of evaluation determine alternative approaches, chalking out plan of action, working on cost and feasibility. All this are done to meet planned needs and achieve the target.

Here researcher Planned for developing material for near peer learning regarding prevention of waterborne diseases. The input evaluation is determined by demographic variables like age of children, sex of participants, their religion, type of family they belongs to, the educational, occupational and financial status of parents etc. Selecting elder children as change agents based on their academic performance, and interest to teach younger children, teaching them regarding prevention of waterborne diseases, is a part of planning.

Process evaluation is third stage of the said model. It evaluates how investigator is putting his/her plans into action. It help the researcher to execute planned activities. It also help to interpret outcomes in later phase.

In this study Actions referred to Near peer learning programme to train elder children. further elder children's knowledge and practice assessed by the researcher. For assessment of knowledge questionnaire was developed and practice is assessed using checklist and rating scale. Rehearsal done until they score excellent score on selected topic. Then this change agents

will teach younger students and researcher will administer pre and post test.

The final phase of CIPP model is product evaluation. In this stage researcher identifies and evaluate the expected outcomes are achieved or not. The focus is on both short term as well as long term expected outcomes. These outcomes may be intended or unintended. It help the researcher to be focused on achieving targeted outcomes. Ultimately this will help broader groups in achieving targeted goals. Outcome is assessment of post knowledge and practice scores regarding prevention of water borne diseases through near peer learning programme.

## 4. MATERIALS AND METHODS

### 4.1 Research Approach

Evaluative research approach will be used in this study

### 4.2 Research Design

one group pretest posttest design will be used in this study.

### 4.3 Near Peer Learning

It will be composed of two phases.

- **Phase 1 – (selection and training of elder children who will act as inducing agents in the study)**

\*Selection of 13-14 years children via purposive sampling, who are attending the school at rural community, according to their academic abilities, group activities, and communication as reported by their teacher.

\*Prevention of selected water borne diseases will be taught to them by researcher, (with the help of pictorial booklet, stories, songs and demonstration). The teaching will be repeated till they learn properly. (I.e. till they score adequate knowledge and practice scores).

\* inducing agents assessed by making them do rehearsals to the investigator and the same questionnaire was given to them to determine their adequate level of knowledge on the next day. If the knowledge and demonstration score

were moderate or inadequate, inducing agents encouraged to do the rehearsals again until they score adequate. Once they score adequate, they were ready to teach younger children.

One selected topic at a time was taught to inducing agents, after which they will teach the same to younger children.

- **Phase 2 (trained elder children taught younger children, pretest and post test done by researcher)**

#### O1 X O2

O1— pretest regarding knowledge and practice of prevention of selected water borne diseases among primary school children. (One topic at a time)

X- Near – peer learning. (As per plan given below)

(Elder child will teach younger children, with the help of charts, flash cards, songs and demonstrations.)

One elder student will teach 10 younger students about one selected topic at a time for 30 minutes a day for 3 alternate days a week.

O2 – post test to assess the effectiveness of Near-peer learning.

It will be done on 7<sup>th</sup> day after completion of teaching of one selected topic

### 4.4 Detailed Methodology

**First step** -Training of inducing agents (elder children) regarding prevention of diarrhea.

**Second step** - These inducing agents will teach primary school children regarding prevention of diarrhea.

**Third step** - Training of inducing agents (elder children) regarding prevention of worm Infestations.

**Fourth step** -- These inducing agents will teach primary school children regarding prevention of worm Infestations.

**Fifth step** - - Training of inducing agents (elder children) regarding personal hygiene and Hand washing technique.

**Sixth step** – Inducing agents will teach primary school children regarding personal hygiene and Hand washing technique.

**Seventh step -- Training of inducing agents (elder children) regarding personal hygiene and sanitation**

**Eighth step-- inducing agents will teach primary school children regarding personal hygiene and sanitation**

Pre test done prior to start the teaching of primary school children regarding each selected topic and Post test done on 7<sup>th</sup> day after completion of teaching of the selected topic.

Observation of study participants done 6 times at an interval of 15 days to evaluate whether they are practicing correct hand washing technique and maintaining personal hygiene.

#### 4.5 Sample

Students of age group 9-12 years, studying in primary school at rural areas of Wardha district, in state of Maharashtra, India.

##### 4.5.1 Sample selection criteria

- **Inclusion Criteria**

Both male and female students of age group 9-12 years at selected school.

- **Exclusion Criteria**

Students who were absent on the day of data collection.

Students who attended similar type of health education program.

- **Sampling technique-** Non probability convenience sampling technique used to select samples.
- **Sample size-** 40

#### 4.6 Data collection tool

Structured questionnaire to assess demographic variables of samples.

Structured questionnaire will be used to assess knowledge and practices related to prevention of childhood diseases i.e. Diarrhea, and worm infestation, Structured observational checklist will be used to assess the practice of Hand washing and personal Hygiene.

Concealed observation technique with observational checklist as a tool will be used to do follow up observation

### 5. RESULTS

The study findings reveals that majority ,52.50% were of 10 to 11 years of age group.

Most of the children, 55% were male. 52.50% children in this study were studying in 4th standard. Educational status of participant's mother was 50% each in primary and higher secondary category. In this study 60% participant's father were educated up to higher secondary level. The study finding Shows that 42.50% participants father were working on daily wages whereas 52.50% mothers were home maker. Family income of majority of participants i.e. 55% was less than Rs.10,000 per month. Majority of participants, i.e. 62.50% were staying in nuclear families. 52.50% Children were having no idea about prevention of water borne diseases.

Mean pre test was 33.50 and mean post test was 42.075 were minimum score for pre test practice score was 27 and maximum was 37. Minimum post test practice score was 36 and maximum was 46. It shows that near peer learning was effective in improving practices related to prevention of waterborne diseases, among primary school children.

**Table 1. Demographic data**  
N=40

Age of Child	Frequency	Percentage
9-10 years	8	20%
10-11 years	21	52.50%
11-12 years	11	27.50%

<b>Sex of Child</b>	<b>Frequency</b>	<b>Percentage</b>
Male	22	55%
Female	18	45%

  

<b>Education of Child</b>	<b>Frequency</b>	<b>Percentage</b>
3 <sup>rd</sup> std	9	22.50%
4 <sup>th</sup> std	21	52.50%
5 <sup>th</sup> std	10	25%

  

<b>Education of Mother</b>	<b>Frequency</b>	<b>Percentage</b>
Illiterate	0	0
Primary	20	50%
Higher secondary	20	50%
Graduate or above	0	0

  

<b>Education of Father</b>	<b>Frequency</b>	<b>Percentage</b>
Illiterate	1	2.50%
Primary	10	25%
Higher secondary	24	60%
Graduate or above	5	12.50%

  

<b>Occupation of Mother</b>	<b>Frequency</b>	<b>Percentage</b>
Home maker	12	30%
Daily wages	17	42.50%
Self employed	0	0
Private employed	11	27.50%
Government employed	0	0

  

<b>Occupation of Father</b>	<b>Frequency</b>	<b>Percentage</b>
Home maker	21	52.50%
Daily wages	6	15%
Self employed	10	25%
Private employed	3	7.50%
Government employed	0	0

  

<b>Family Income</b>	<b>Frequency</b>	<b>Percentage</b>
< Rs. 10,000	22	55%
Rs 10,001 to 20000	10	25%
Rs 20,001 to 30,000	20	20%
Above Rs 30,000	0	0

  

<b>Type of Family</b>	<b>Frequency</b>	<b>Percentage</b>
Nuclear	25	62.50%
Joint	15	37.50%
Extended	0	0

  

<b>Waterborne diseases</b>	<b>Frequency</b>	<b>Percentage</b>
Yes	8	20%
No	21	52.50%

  

<b>Source of water borne diseases</b>	<b>Frequency</b>	<b>Percentage</b>
Book and Media	3	7.50%
Parents	0	0
Teacher	6	15%
Friends	0	0

**Table 2. Data statistics**

Variable	Obs	Mean	Std. Dev.	Min	Max
practice_pretest	40	33.5	2.331501	27	37
Practice assessment 1	40	43.35	2.225148	38	48
Practice assessment 2	40	43.6	2.06062	38	47
Practice assessment 3	40	44.1	2.06062	41	49
Practice assessment 4	40	44.8	2.077967	40	50
Practice assessment 5	40	46	1.664101	43	49
practice_posttest	40	42.075	2.268937	36	46

**Table 3. Observational data of knowledge**

Variable	Obs	Mean	Std. Dev.	Min	Max
knowledge_pretest	40	9.925	3.066674	0	17
knowledge_posttest	40	15.6	2.239505	10	21

**Table 4. Observational data of handwash pretest**

Variable	Obs	Mean	Std. Dev.	Min	Max
handwash_pretest	40	7.025	1.593054	4	11
Observation 1	40	11.475	1.320208	8	14
Observation 2	40	12.65	1.051251	10	14
Observation 3	40	12.35	1.251666	9	14
Observation 4	40	13.3	0.992278	10	14
Observation 5	40	13.675	0.525625	12	14
handwash_posttest	40	10.95	1.449138	8	14

Minimum pretest knowledge score was 0 and maximum was 17, with a mean of 9.925. Minimum post test knowledge score was 15.6 and maximum was 21, with mean value of 15.6. It shows that near peer learning was significantly effective in improving knowledge regarding water borne diseases, among primary school children.

Minimum pretest hand washing score was 4 whereas 11 was maximum score with a mean of 7.025. minimum post test hand washing score was 8 whereas 14 was maximum score, with mean value of 10.95.

**6. DISCUSSION**

The study show that near peer learning is effective in improving knowledge and habit making regarding prevention of waterborne diseases among primary school children. The above findings are supported by a study conducted by Walvekar et al. their study was to determine effectiveness of child to approach. The topic selected for teaching using this approach was diarrhea. Study participants were school children at rural area. Effect of child to child approach was seen on knowledge attitude and practice as well. study findings shows, study group children started adopting to healthy

practices to contain diarrhea, such as washing hands before meals, as well as after using the toilet, cutting nails, washing fruits with clean water before eating etc. pretest score was 1.24+- i.36 to 2.96=- o.27. (p<0.000) [6].

**7. CONCLUSION**

The study findings revealed that both elder and younger children were interested and excited to be a part of Near Peer learning.

Proctored model of Near peer learning which is used in this study shows significant improvement in knowledge and practice scores related to prevention of waterborne diseases, in experimental group.

Observations also reveal that habit formation related to practicing personal hygiene and hand washing has taken place in significant number of children, in experimental group.

Study findings show that Near peer learning is effective in improving knowledge and habit making among primary school children

The research findings are encouraging and show hat near peer learning model can be used in

school settings for younger children, especially for giving health related education and life skills education.

Similar initiatives can be taken for other health awareness programmes at school or community settings.

## 8. RECOMMENDATIONS

- a. Similar studies can be initiated in middle and high school children.
- b. Similar studies can be taken to compare other teaching methods with near peer learning.
- c. A longitudinal study can be conducted to assess the changes on knowledge and practice/habit formation of siblings, parents, and other family members as a result of near peer learning.
- d. Effect of Near peer learning can be tested on adolescent, young adults, and adult age groups.
- e. Other methods of near peer learning model can also be tested, in school or community settings.

## EXTENT OF RESEARCH GAP FILLED

This study shows that structured Near peer learning is effective among school students. This can be used as a boon for creating awareness related to health and hygiene related practices among school students.

The study findings show that near peer learning is effective in habit formation among primary school children.

## LIMITATION OF THE PRESENT STUDY

The study was limited to primary school children at rural schools of wardha district.

## CONSENT AND ETHICAL APPROVAL

The research study was approved from the Ethical Committee of DMIMS (DU), Wardha, Maharashtra, India. Formal permission taken from the selected school's headmaster/principal. An informed consent obtained by parents of children who were participants of this study. Researcher assured the participants that information provided by them will be kept confidential.

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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