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*RESEARCH ARTICLE*

# A STUDY TO ASSESS THE EFFECTIVENESS OF STRUCTURED TEACHING PROGRAMME ON BIO-DEGRADABLE AND NON-BIO-DEGRADABLE WASTE DISPOSAL MANAGEMENT AMONG SCHOOL STUDENT AT SELECTED SCHOOL PUDUCHERRY.

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## *Abstract*

Waste is any substance which is discarded after primary use, or is worthless,defective and of no use. The objective of the study is to assess the pre-test knowledge on Bio-Degrada bleand Non-Bio-degradable wastedisposalmanagement and to evaluate the structured teaching programmere garding Bio-Degradable and Non-Bio-degradabl ewaste disposal management and also tofind out association between knowledge on Bio-Degradable and Non-Bio-degradable waste disposal management with selected demographic variables. A quantitative research approach used in this study. Apre-experimental research design(one group pre-test post test design) was adopted in this study.Total 100 samples of both ma leand female were selected in Government High S chool.Thirub huvani,Puducherry.The Period of data collection was six weeks. The purposes and benefits of the study wase xplained to school students. After obtaining or al consent primarily the demographic data was obtained from the sample.Investigator a ssessed the level of knowledge using the questionnaires. The data was collected and were analyzed in terms of both descriptive and inferential statistics. Finding srevealed t hat knowledge inpre-test of out of 100school students,10(10%) had inadequate level of knowledge it shows the school students lack in the awareness regarding the bio Degradable and Non-Bio-degradable waste disposal management, 90% ofstudents are having a moderate level of knowledge after giving structured teaching programme out of 100 studentsin level of knowledge, none of them were inadequate knowledge, 85% were moderately adequate knowledge, 15%were in adequate knowledge. The paired‘t’t est over all value is 31.01for knowledge whichare statistically highly significant at the level of $p<0.001$. This shows the effectiveness ofstructured teaching programme on Bio-Degradableand Non-Bio-degradable waste disposal management,knowledgehad improved.In conclusion it was evident that on evaluate the effectiveness of Structured teaching programme on Bio-Degradable and Non-Bio-degradable waste disposal management amongschool students was very effective. The teaching regarding Bio-Degradable and Non-Bio-degradablewastedisposal management wil limprove the knowledge among school students.



## Introduction:-

Waste is any substance which is discarded after primary use, or is worthless,defective and of no use. Arising the quality of life and high rates of resource consumptionpatterns have had a unintended and negative impact on the urban environment generationwastes far beyond the handling capacities of urban government agencies. In India we produce300 to 400 gms of solid waste per person per day in town of Normal size but

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exceptionallyabout 500 to 800gms of solid waste is generated per capita per day in metro cities like Delhiand Bombay. If waste is left untreated and disposed of improperly, it can deeply affect theenvironment.

**Statement of the problem:**

"AstudytoassesstheeffectivenessofStructuredteachingprogrammeonBio-Degradable and Non-Bio-degradable waste disposal management among school students atselected school, Puducherry."

## Objectives:

- Toassessthepre-testknowledgeonBio-DegradableandNon-Bio-degradablewastedisposal management
- ToevaluatethestructuredteachingprogrammeregardingBio-DegradableandNon-Bio-degradablewaste disposal management.
- TofindoutassociationbetweenknowledgeonBio-DegradableandNon-Bio-degradablewaste disposal managementwith selected demographic variables.

**Researchhypothesis**:

- H1:Thereissignificantdifferencebetweenpre-testandposttestknowledgeregardingBio-Degradable and Non-Bio-degradable waste disposal management.
- H2:ThereisasignificantassociationbetweenknowledgeregardingBio-DegradableandNon-Bio-degradable waste disposal managementwith selected demographic variables

Assumptions

**Researcher assumes that:**

- School students have inadequate knowledge on Bio-Degradable and Non-Bio-degradable waste disposal management
- Structured teaching programme will enhance the knowledge regarding waste disposal management.
-

**II.REVIEW OF LITERATURE:**

In 2021 RiteshJethi et.al., conducted study to evaluate the effectiveness of structured teaching programme on knowledge regarding plastic waste disposal and its environmental hazards among adolescent of selected higher secondary schools in Ahmedabad city. Quantitative research approach was used with pre-experimental (one group pre-test and post- test) research design. With Nonprobability convenient sampling technique 60 samples selected. Plastic waste disposal and it's environmental hazards objective and selected demographic variables were assessed by modified structured knowledge programme. Afterward structured knowledge programme was administrated. Post test was carried after 7 days. Result revealed in pre-test and post test average knowledge score was 15.08 and 23.65 With standard deviation of 5.03 and 23.65.. significance of the difference between pre-test and post-test knowledge score was statistically tested using paired 't' test and it was found significant at 0.05 level. There was significant increase in the knowledge score of plastic waste disposal and its environmental hazards among adolescents after administration of the structured teaching programme.

**III. CONCEPTUALFRAMEWORK:**

TheconceptualframeworkforthestudywasbasedonJ.W.Kenny'sopensystemtheory

## Iv.Materials and Methods:

Research approach:

- A quantitative researchapproachwas adopted for this present study

**Research Design:**

- Apre-experimentalresearchdesign(onegrouppre-testposttestdesign) was adopted in this study.

**Setting of the study:**

- Thestudy was conducted atthe Government High School at Thirubhuvani,Puducherry.

Sample:

- ThestudysampleconsistsofVItoVIIIstandardschoolstudentsinGovernmentHighSchoolatThirubhuvani, Puducherry who will meet the inclusion criteriaduring the period of study.

**Sample Size:**

- Thesamplesizeofthestudyconsistsof100schoolstudentsinGovernmentHighSchool.Thirubhuvanai.

Sampling Technique:

- Samples forthis study is selected by Simplerandom Sampling.

**Criteria for sample selection:**

- InclusionCriteria:All IV to VII school studentsBothgenders(maleandfemale).
- ExclusionCriteria: Student who are not available at time of data collectionStudentswhoalreadyexposureregardingawarenessprogram

Description of tools:
**SECTION** A: Demographic data consist of 12 items seeking information about such as Age, Gender, Educationalstatus, Educational status of Father, Educational status of Mother, Occupation of father, Occupation of motherIncomeoffamilypermonth,Religion,Typeoffamily,Residency,PreviousknowledgeregardingWastedisposalmanagement.
**SECTION**:B
Self-administeredquestionnairetoassesstheknowledgeregarding Bio-DegradableandNon-Bio-degradablewastedisposalmanagement.Ithas30questions.Itispreparedbytheinvestigatorafterreferringmanyliteraturesandthenthequestionnairewasvalidatedbyexpertsfromnursing.
Scoring interpretation:

| SCORE | KNOWLEDGE |
|---|---|
| 1-10 | InadequateKnowledge |
| 11-20 | ModeratelyAdequateKnowledge |
| 21-30 | AdequateKnowledge |

**V.Majorfindingsin Thestudy:**
Out of the 100 school students who were interviewed, Majority of school students 44(44%) were in the age group 11 years, 61(61%) were female, 44(44%) were VI standard studying, Educational status of Father 43(43%) were Secondary and Degree and above, Educational status of Mother 50(50%) were Secondary, Occupation 53(53%) were Private, Family monthly income 12(40%) were Rs. 7001 - 15,000 /Month, 96(96%) were Hindu, 94(94%) were Nuclear family, 100(100%) were Rural and 90(90%) were not had knowledge regarding Waste disposal management. The analysis of the data were organized and presented under the following aspect.Findingsrevealedthatknowledgeinpre-testofoutof100schoolstudents,10(10%)had inadequate level of knowledge it shows the school students lack in the awarenessregarding the bio Degradable and Non-Bio-degradable waste disposal management, 90% ofstudents are having a moderate level of knowledge, it shows that they are having some ideaabout Bio-Degradable and Non-Bio-degradable waste disposal management. None of thestudents had adequate knowledge regarding Bio-Degradable and Non-Bio-degradable wastedisposal management among school students. Finding revealed that after giving structured teaching programme out of 100 studentsin level of knowledge, none of them were inadequate knowledge, 85% were moderately adequate knowledge, 15%were in adequate knowledge. Finding revealed that in the aspect of their post-test level of the mean and standard deviation in the level of knowledge on Bio-Degradable and Non-Bio-degradable waste disposal management is 12.79± 1.811. Finding revealed that in the aspect ofknowledge their post-test level the mean and standard deviation of the level of knowledge onBio-Degradableand Non-Bio-degradable waste disposal management is 19.32 ± 1.517.
Thepaired‘t’testoverallvalueis -31.01forknowledgewhicharestatisticallyhighly significant at the level of $p<0.001$. This shows the effectiveness of structured teachingprogrammeonBio-DegradableandNon-Bio-degradablewastedisposalmanagement,knowledgehad improved.

Table1:-Frequencyandpercentagewisedistributionofdemographicvariablesamong schoolstudents.

*a)* (N=100)

| SL.NO | DEMOGRAPHICVARIABLES | FREQUENCY (N) | PERCENTAGE (%) |
|---|---|---|---|
| 1 | Agein years | | |
| | a)11years | 44 | 44 |
| | b)12years | 35 | 35 |
| | c)13years | 21 | 21 |
| | d)14years | 0 | 0 |

| | | | |
|---|---|---|---|
| 2 | Gender | | |
| | a)Male | 39 | 39 |
| | b)Female | 61 | 61 |
| | c)Others | 0 | 0 |
| 3 | Class of studying | | |
| | a)VIstandard | 44 | 44 |
| | b)VIIStandard | 35 | 35 |
| | c)VIIIStandard | 21 | 21 |
| 4 | EducationalstatusofFather | | |
| | a)Illiterate | 0 | 0 |
| | b)Primary | 14 | 14 |
| | c)Secondary | 43 | 43 |
| | d)Degreeandabove | 43 | 43 |
| 5 | EducationalstatusofMother | | |
| | a)Illiterate | 2 | 2 |
| | b)Primary | 11 | 11 |
| | c)Secondary | 50 | 50 |
| | d)Degreeandabove | 37 | 37 |

| | | | |
|---|---|---|---|
| 6 | Occupation | | |
| | a)Agriculture | 40 | 40 |
| | b)Unemployed | 0 | 0 |
| | c)Private | 53 | 53 |
| | d)Government | 7 | 7 |
| 7 | Incomeofthefamilyper month | | |

| | | | |
|---|---|---|---|
| | a)Below Rs.7000 | 29 | 29 |
| | b) Rs.7001 -15,000 | 46 | 46 |
| | c)Rs. 15,001 -30,000 | 23 | 23 |
| | d)AboveRs.30,000 | 2 | 2 |
| 8 | Religion | | |
| | a)Hindu | 96 | 96 |
| | b)Muslim | 2 | 2 |
| | C)Christian | 2 | 2 |
| | d)Others | 0 | 0 |
| 9 | Typeof Family | | |
| | a)Nuclearfamily | 94 | 94 |
| | B)Jointfamily | 6 | 6 |
| 10 | Residency | | |
| | a)Urban | 0 | 0 |
| | b)Rural | 100 | 100 |
| 11 | PreviousknowledgeregardingWastedisposalmanagement | | |
| | a)Yes | 10 | 10 |
| | b)No | 90 | 90 |

Table2:-Frequencyandpercentagewisedistributionofpretestandpost-testofthelevelofknowledgeonBio-DegradableandNon-Bio-degradable wastedisposalmanagement

(N=100)

| LEVELOFKNOWLEDGE | PRETEST | | POSTTEST | |
|---|---|---|---|---|
| | N | % | N | % |
| INADEQUATE | 10 | 10 | 0 | 0 |

| | | | | |
|---|---|---|---|---|
| MODERATELY ADEQUATE | 90 | 90 | 85 | 85 |
| ADEQUATE | 0 | 0 | 15 | 15 |
| Mean<br><br>Standarddeviation | 12.79± 1.811 | | 19.32 ± 1.517 | |

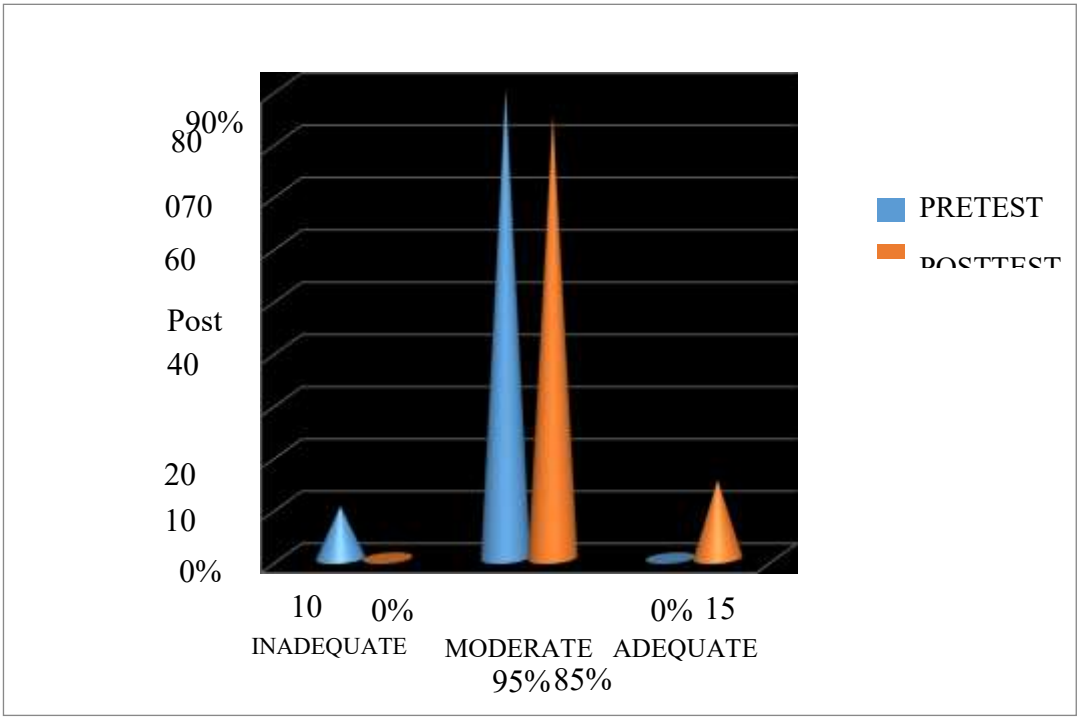



FIG 5.1 :Frequency and percentage wise distribution of pretest and post -test of the level of knowledge

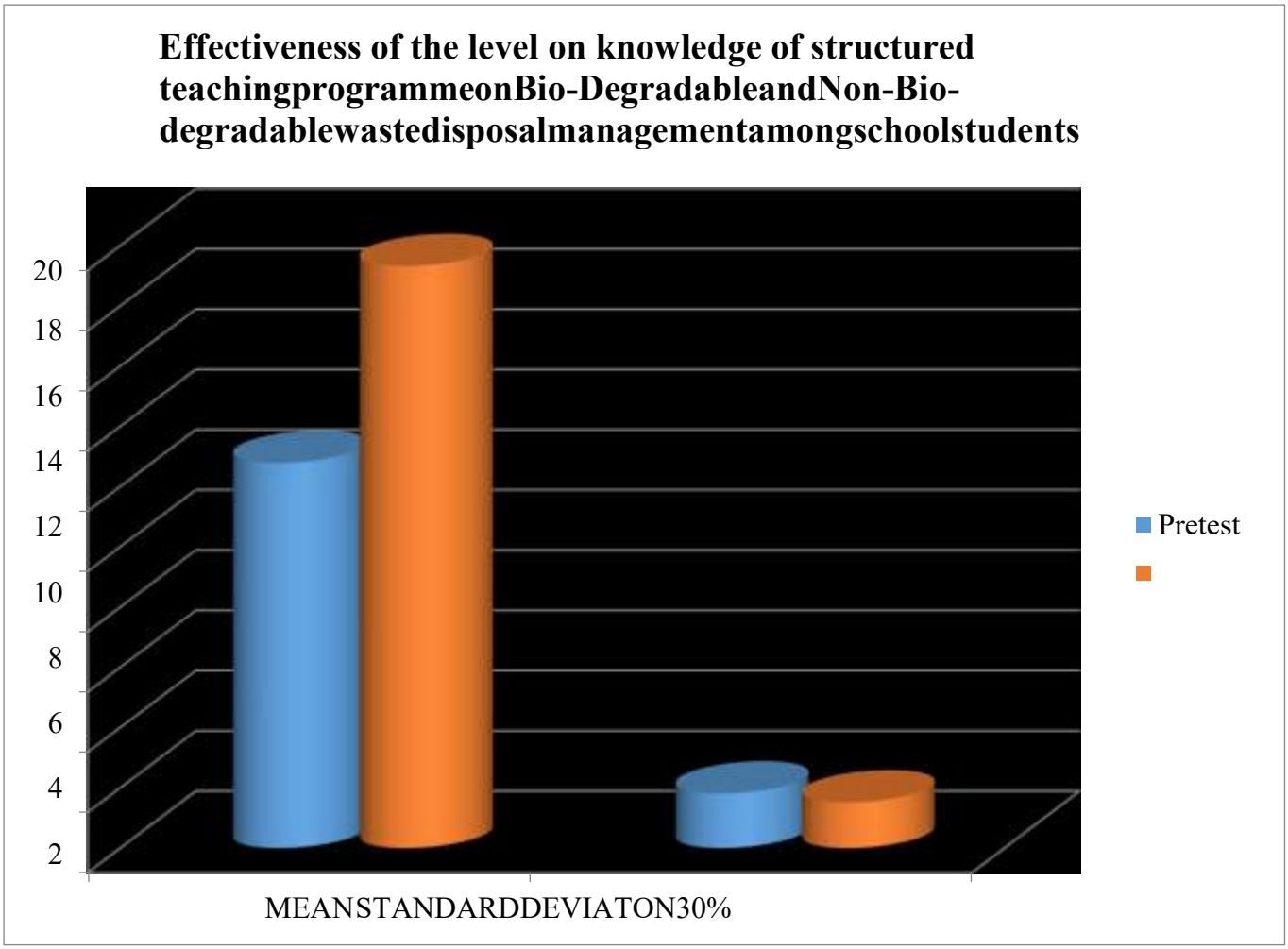
Table–3EffectivenessofthelevelofknowledgeofstructuredteachingprogrammeonBio-DegradableandNon-Bio-degradablewastedisposal management amongschool students.

(N=100)

| GROUP | TEST | MEAN | STANDARDDEVIATON | MEANDIFFERENCE | 't'VALUE Paired - ttest | df | 'p'VALUE |
|---|---|---|---|---|---|---|---|
| Level of knowledge ofstructured teachingprogramme on Bio-Degradable and Non-Bio- | Pretest | 12.79 | 1.811 | -6.53 | -31.01 | 99 | 0.000**HS |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| degradable wastedisposalmanagement | Posttest | 19.32 | 1.517 | | | | |

**-p<0.001highlysignificant,NS-NonSignificant.




Table–4:Associationbetweenthepre-testknowledgeonBio-DegradableandNon-Bio-degradablewastedisposalmanagementwith selected demographic variables.

| SL.NO | DEMOGRAPHICVARIABLES | PRE-TEST LEVELOFKNOWLEDGE | | | | Chi-squareX$^2$andP-Value |
|---|---|---|---|---|---|---|
| | | INADEQUATE | | MODERATE | | |
| | | N | % | N | % | |
| 1 | Agein years | | | | | $X^2$=3.44D f=2 p =0.197 |
| | a)11years | 2 | 20 | 42 | 46.7 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | b)12years | 6 | 60 | 29 | 32.2 | |
| | c)13years | 2 | 20 | 19 | 21.1 | |
| | d)14years | 0 | 0 | 0 | 0 | |
| 2 | Gender | | | | | $X^2$=1.68Df=1 p =0.194 |
| | a)Male | 2 | 20 | 37 | 41.1 | |
| | b)Female | 8 | 80 | 53 | 58.9 | |
| | c)Others | 0 | 0 | 0 | 0 | |
| 3 | Class of studying | | | | | $X^2$=3.44Df=2 p =0.179 |
| | a)VIstandard | 2 | 20 | 42 | 46.7 | |
| | b)VIIStandard | 6 | 60 | 29 | 32.2 | |
| | c)VIIIStandard | 2 | 20 | 19 | 21.1 | |
| 4 | EducationalstatusofFather | | | | | $X^2$=6.46 Df=2p= 0.040 *S |
| | a)Illiterate | 0 | 0 | 0 | 0 | |
| | b)Primary | 0 | 0 | 14 | 15.6 | |
| | c)Secondary | 2 | 20 | 41 | 45.6 | |
| | d)Degreeandabove | 8 | 80 | 35 | 38.8 | |

(N=100)

*-p<0.05 significant,*-p< 0.001highlysignificant,NS-Non significant

The table 4 depicts that thedemographic variable, Educational status of Fatherhad shown statisticallysignificantassociationbetweenthepre-testknowledgeonBio-DegradableandNon-Bio-degradablewastedisposal managementwith selected demographic variables.

Theotherdemographicvariablehadnotshownstatisticallysignificantassociationbetweenthepre-testknowledge on Bio-Degradable and Non-Bio-degradable waste disposal management with selected demographicvariables respectively.

Table –5: Association between the post-test knowledge on Bio-Degradable and Non-Bio-degradable wastedisposalmanagementwithselecteddemographicvariables. (N=100)

| SL. NO | DEMOGRAPHICVARIABLES | POST-TESTLEVELOFKNOWLEDGE | | | | Chi-square $X^2$ andP-Value |
|---|---|---|---|---|---|---|
| | | MODERATE | | ADEQUATE | | |
| | | N | % | N | % | |
| 1 | Agein years | | | | | $X^2$=2.9 Df=2 p=0.234 |
| | a)11years | 40 | 47.1 | 4 | 26.7 | |
| | b)12years | 27 | 31.8 | 8 | 53.3 | |
| | c)13years | 18 | 21.2 | 3 | 20 | |
| | d)14years | 0 | 0 | 0 | 0 | |
| 2 | Gender | | | | | $X^2$=0.436Df=1 p=0.509 |
| | a)Male | 32 | 37.6 | 7 | 46.7 | |
| | b)Female | 53 | 62.4 | 8 | 53.3 | |
| | c)Others | 0 | 0 | 0 | 0 | |
| 3 | Class of studying | | | | | $X^2$=8.9Df=2 p=0.034 *S |
| | a)VIstandard | 40 | 47.1 | 4 | 26.7 | |
| | b)VIIStandard | 27 | 31.8 | 8 | 53.3 | |
| | c)VIIIStandard | 18 | 21.2 | 3 | 20 | |
| 4 | EducationalstatusofFather | | | | | $X^2$=2.44Df=2 p=0.295 |
| | a)Illiterate | 0 | 0 | 0 | 0 | |
| | b)Primary | 10 | 11.8 | 4 | 26.7 | |
| | c)Secondary | 37 | 43.5 | 6 | 40 | |

| | | | | | |
|---|---|---|---|---|---|
| | d)Degreeandabove | 38 | 44.7 | 5 | 33.3 |

| | | | | | |
|---|---|---|---|---|---|
| EducationalstatusofMother | | | | | $X^2$=1.3 Df=3 p=0.729 |
| a)Illiterate | 2 | 2.4 | 0 | 0 | |
| b)Primary | 9 | 10.6 | 2 | 13.3 | |
| c)Secondary | 41 | 48.2 | 9 | 60 | |
| d)Degreeandabove | 33 | 38.8 | 4 | 26.7 | |
| Occupation | | | | | $X^2$=3.56D f=2 p=0.168 |
| a)Agriculture | 31 | 36.5 | 9 | 60 | |
| b)Unemployed | 0 | 0 | 0 | 0 | |
| c)Private | 47 | 55.3 | 6 | 40 | |
| d)Government | 7 | 8.2 | 0 | 0 | |
| Incomeofthefamilypermonth | | | | | $X^2$=2.937D f=3 p=0.401 |
| a)Below Rs.7000 | 22 | 25.9 | 7 | 46.7 | |
| b) Rs.7001 -15,000 | 41 | 48.2 | 5 | 33.3 | |
| c)Rs. 15,001 -30,000 | 20 | 23.5 | 3 | 20 | |
| d)AboveRs.30,000 | 2 | 2.4 | 0 | 0 | |
| Religion | | | | | $X^2$=0.735D f=2 p=0.692 |
| a)Hindu | 81 | 95.3 | 15 | 100 | |
| b)Muslim | 2 | 2.4 | 0 | 0 | |

| | | | | | |
|---|---|---|---|---|---|
| C)Christian | 2 | 2.4 | 0 | 0 | |
| d)Others | 0 | 0 | 0 | 0 | |
| Typeof Family | | | | | $X^2$=0.014D<br>f=1<br>p=0.906 |
| a)Nuclearfamily | 80 | 94.1 | 14 | 93.3 | |
| B)Jointfamily | 5 | 5.9 | 1 | 6.7 | |

The demographic variable of Educational status of Father had shown statistically significant association between the level of pre-test knowledge on Bio-Degradable and Non-Bio-degradable waste disposal management with chi square value of X2=6.46 , p value = 0.040* at p>0.05 level.
The demographic variable of class of studying had shown statistically significant association between the level of pre-test knowledge on Bio-Degradable and Non-Bio-degradable waste disposal management with chi square value of X2= 8.9 , p value = 0.034 *at p>0.05 level.
Hence the hypothesis was accepted.

## Vi.Conculsion:

The study result shown that the paired 't' test value of knowledge among students was 't' =-31.01 and 0.000**. Hence it is highly significant.The higher mean difference shows positive outcome among students, therefore the education regarding Bio-Degradable and Non-Bio-degradable waste disposal management by using knowledge questionnaire among school students can increase the knowledge.In conclusion it was evident that on evaluate the effectiveness of Structured teaching programme on Bio-Degradable and Non-Bio-degradable waste disposal management among school students was very effective.

**Implication Of Yhe Study:**

**Nursing practice:**

The nurse working in community setting should practice health education as an integrated part of nursingprofession.The planned health teaching programmes have to be scheduled in the community setup in the fixed date wit:h time for individual ,the family members and others in the community.

**Nursing education:**

The study emphasis the need of educating the nursing personal, non nursing personal and the public through in service or continuing Programme to update their knowledge and skills in educating waste disposal management

Nursing research:

The generalization of the study result can be made by further replication of the study. This study help to nurse research to develop the guidelines regarding the management of waste . This study helps in nursing research in depth into the better development of the nursing care regarding disposal of waste among adults in prevention of health hazards.

**Nurse administrators:**

The administrators should initiate health education in the community by utilizing the staff, preparing them through adequate training and encouragement to conduct such activity.The good administrator's role involves the effective communication and updating knowledge.

**Recommendations :**

The following recommendations were made by the investigator after the study:

- Structured teaching Programme can be improved by self help group and can be motivated by nursing personnel as part of the health care service.
- Coverage by mass media like doordharshan and newspaper regarding disposal of waste to the general public.
- 'Health education model related to importance of waste disposal and prevention of health hazards can be imparted to all the school students and to the public.
- The same study can be conducted in different settings

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