Original Research Article

A Comparative Study to Assess the Effectiveness of Planned Teaching Programme (PTP) on Knowledge Regarding Bio Medical Waste Management among the Nursing Student of Selected Nursing College at Pilkhuwa, Dist - Hapur (U.P).

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Abstract

Hospital is a place of almighty a place to serve the patient. The present study is assess the effectiveness of planned teaching programme (ptp) on knowledge regarding bio medical waste management among the nursing student of selected nursing college at pilkhuwa, dist - hapur (u.p**).** The research approach was comparative research approach & true experimental (Pre test -Post test) design used. A simple random sampling technique with lottery method was used. The sample include in G.N.M. & B.Sc Nursing Ist year student's & Total sample size is 60 (30 in each group). Self structured questionnaire was used to collect the data. Data was analyzed by using descriptive and inferential statistics. The experimental group in pre-test maximum nursing students i.e., 22(73.33%) having inadequate knowledge, 08(26.66%) having moderate knowledge & none of the student having adequate knowledge but Post test in experimental group maximum nursing students i.e., 28(93.33%) were having moderate knowledge, 02(06.66%) having adequate knowledge &none of the student having inadequate knowledge regarding the bio medical waste management. The test statistics value in paired "t" test was 7.62,df 29 & Standard error 0.887.The Paired "t" test value are statistically highly significant at (P<0.05) show the planed teaching programme was very effective. The control group in pre test maximum knowledge score in i.e. 24(80.00%) were having inadequate knowledge, 06(20.00%) having moderate knowledge & none of the student's have adequate knowledge but post test in this group 22(73.33%) were having inadequate knowledge & 08(26.66%) having moderate knowledge & none of the student's have adequate knowledge. The test statistics value in paired "t" test value 0.245, df 29, Standard error 0.979 (P<0.05). The paired "t" test is not significant (P<0.05). The association of knowledge score of the nursing students at the experimental group in pre test with their socio demographic variable age in years & course of the study are significant but control group in course of the study & Residence area are significant but other demographical variable are not significant in both group.

Keywords: Assess Knowledge, Effectiveness, Plan Teaching Programme, and Nursing Student.

1 Introduction

Hospitals are the centre of cure and also the important centres of infectious waste generation. Effective management of Biomedical Waste (BMW) is not only a legal necessity but also a social responsibility. Biomedical waste means any waste which is generated from biological, medical sources and activities, such as the diagnosis, treatment, prevention of diseases & research activities. The patient care activities are carried out in a healthcare setting certain waste is produced which has the potential to cause harm to human being and environment such waste includes soiled cotton, bandages, syringes, tubing and urinary catheters, vial etc.

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Such waste is commonly called as bio-medical waste (BMW) in India, though it is also known by various other names as clinical waste, medical waste and health - care waste in different parts of world [1].

On the basis of World health organization report in 2003 About 85% of the waste generated is known hazardous, other 10% is infectious, other 5% is non infectious but hazardous waste. Biomedical waste should me managed through a pathway that includes generation, storage, and segregation, collection, processing transport, treatment and disposal. Bio medical waste mentioned in the schedule one of the biomedical waste rule 2000 by Ministry of environment & forest notification under the environment protection act 1986 This gazette notification no.460 promulgation in India 27 july 1998 [2].

On 18th may 2010 European commission released a communication with reference to the council and the European parliament on biomedical waste management in European council. In Europe

138 million tons of biomedical waste is produced every year which about 88 million tones of municipal waste. It is projected to increase an average by 10% by 2020, the commission says. On the Europe average 40% of biomedical waste is still land filled up to in some states. However land filling involves major environmental risk such as emission of green house gases and pollution of soil ground water [3].

India has a big and complex health care system, mixed economy, private and Government hospitals working together, while providing services generate waste. It is estimated that the quantity of waste generated from hospitals in kilogram per bed per day were 2.5kg in UK, 4.5 kg in USA, 2.3kg in France, 3kg in Spain and 1.8kg in India and annually about 0.33 million tons of waste are generated in India . India the equinity of refuge varied from 0.06 to 0.48 Kg/Capital/day. (Acc.to WHO in 2010) [4].

Recently study conducted by the central pollution control board evaluated almost 56% biomedical waste is disposed with municipal waste. Recently in India 50 to 55% of biomedical waste is collected, segregated and treated as per the biomedical waste management rules. Rests are disposed with medical waste [5].

2 Objectives

1. To Assess The Knowledge Regarding Bio Medical Waste Management Among Experimental & Control Group
2. To Provide Planned Teaching Programme (PTP) On Bio Medical Waste Management Among Experimental Group.
3. To Reassess The Knowledge Regarding Bio Medical Waste Management Among Experimental Group And Control Group
4. To Find Out The Effectiveness Of Planned Teaching Programme (PTP) Regarding Bio Medical Waste Management Among Experimental Group.
5. To Compare Of The Knowledge Regarding Bio Medical Waste Management Among The Control Group In Pre Test & Post Test.
6. To Compare Of The Knowledge Regarding Bio Medical Waste Management Among The Pre Test In Both Group And Post Test In Both Group.
7. To find out the Association between the Knowledge Score in Pre Test with Selected Demographic Variables Among experimental group and control group

3 Hypothesis:

H1: There is a significant difference in level of knowledge between the nursing students in experimental group regarding biomedical waste management.

H2: There is a significant difference in level of knowledge between the nursing students in control group regarding biomedical waste management.

H3: There is a significant association between knowledge regarding biomedical waste management with selected demographic variables in experimental group.

H4: There is a significant association between knowledge regarding biomedical waste management with selected demographic variables in Control group.

4 Methodology

Research approach: Comparative Evaluative research

Research design: True experimental (Pre test Post test) designs are used.

Setting of the study: The present study was conducted in Saraswathi College of Nursing & G.S.College of Nursing, Dist. Hapur

Sample: G.N.M. & B.Sc Nursing Ist year student's

Sample size: Total sample size 60 (30 Nursing Student's in Experimental and 30 Nursing students in Control Group)

Sampling techniques: Simple random sampling techniques (Lottery method)

5 Variables

Independent variable: In this study the plan teaching programme on Bio Medical waste management is the independent variable.

Dependent variable: The dependent variable is the knowledge level of nursing students regarding Bio Medical waste management.

6 Sample criteria

Inclusion criteria:

The criteria inclusion for the nursing students in the study.

- Subject an include in only B.sc & GNM Ist year students.
- Subjects who are age group in 17-25 year.
- Who knows English is well.
- Students who were willing to participate in study.
- Students who were available at the time of the study.

Exclusion criteria:

- Nursing students who were not willing to participant in study.
- Nursing students were not available at the time

of the study.

7 Description of instrument:

The tool was prepared and validate by the expert.

Tools 1: Demographic data consist 10 items like age, gender , religion, course of the study, Types of family, Residence area, Monthly income of family member's, Education of father, Education of mother & Do you have previous knowledge regarding Biomedical waste management.

Tools 2: Self structured knowledge questionnaire Consist of 40 items.

8 Results

Demographical Description

- The age of nursing student at experimental group 14 (46.66%) were of age group 17-19 year's,16 (53.33%) were of age group 20-22 year's, and 0 (00.00%) were age group 23 -25 year's but in control group 16(53.33%) were age group in 17-19 year's,14(46.66%) were age group in 20-22 year's & 0 (00.00%) were age group 23 -25 year's.
- The Gender of nursing student at experimental group 16 (53.33%) was Male & 14 (46.33%) were Female but in control group 18 (60.00%) was male & 12 (40.00%) female.
- The religion of nursing student at experimental group was 20 (66.66%) Hindu, 10 (33.33%) were Muslim but in control group 18 (60.00%) was Hindu & 12 (40.00%) Muslim. Both group in 0 (00.00%) in Sikh & Christian.
- Course of the study in each group was 15 (50%) B.Sc (NSG) & 15 (50%) were G.N.M.
- Type of Family of nursing student at experimental group was 20 (66.66%) Nuclear, 10 (33 33%) were Joint but in control group 17 (56.46%) Nuclear & 13 (43.33%) were joint family. Both group 0 (00.00%) were Extended in family.
- Residence area of nursing student at experimental group was 16 (53.33%) Rural, 14 (46.33%) were Urban but respectively in control group 18 (60.00%) Rural, 12 (40.00%) Urban. Both group 0 (00.00%) Semi-Rural & Semi-Urban.
- Monthly income of family members of nursing student at experimental was in (RS) 21 (70%) less than 10,000, 09 (30%) were 10,001-15,000 but in control group 14 (46.66%) & 16 (53.33%). Both group in 0 (00.00%) were 1, 5001 to 20,000 & 0(00.00%) were above 20,000.
- Education of father of nursing student at experimental group was 15 (50%) below secondary class, 15 (50%) were below under graduation but control group in 22 (73.33%) below the secondary level, 08(33.33%) were below under graduation. Both group 0 (00.00%) below post graduate & 0 (00.00%) were above the post graduate level.
- Education of mother of nursing student at experimental group was 10 (33.33%) Below secondary class, 20 (66.66%) were below under graduation but in control group 20 (66.66%) Below secondary class, 10 (33.33%) Below under graduation. Both group in 0 (00.00%) Below Post graduation & above post-graduation.
- Any previous knowledge regarding biomedical waste management of nursing student at experimental group was 19 (63.33%) No and 11 (36.66%) were No but control group in 21(70.00%) Yes & 09(30.00%) No. if Yes, in experimental group 08(42.10%) Health care provider, 02(10.52%) Peer group, 07(36.84%) Mass media, 02(10.52%) Family member's, Relatives but in control group 12 (63.15%) Health care provider, 05(26.31%) Peer group, 0(00.00%) mass media & 04(21.05%) Family member's Relatives.

Knowledge Analysis

Table 1: Comparison of the level of knowledge in Experimental & Control Group N=30 in each group

S.N	Level of knowledge	Experimental Group				Control Group			
		Pre-test		Post-test		Pre-test		Post- test	
		F	%	F	%	F	%	F	%
1	**Inadequate Knowledge (0-13)**	22	**73.3**	00	00.0	24	**80.0**	22	**73.3**
2	**Moderate knowledge (14-26)**	08	**26.7**	28	93.3	06	**20.0**	08	**26.7**
3	**Adequate knowledge (27-40)**	00	**00.0**	02	06.7	00	**00.0**	00	**00.0**

Max.Score =40

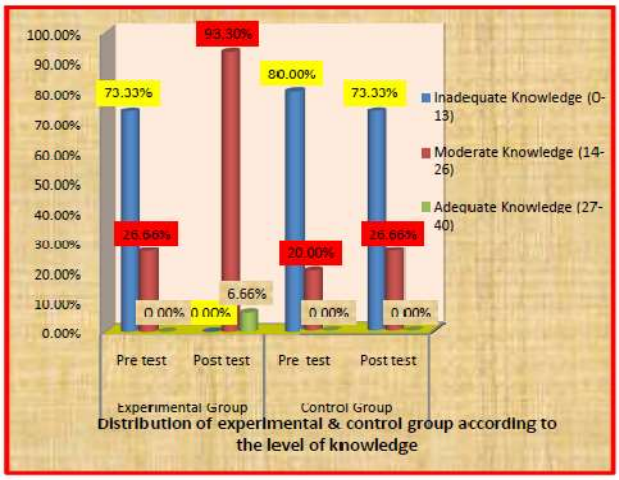

Figure: 1 show distribution of experimental & control group according to level of knowledge

Data presented in the table 1 & fig.1 showed that in experimental group in pre test maximum i.e. 22(73.33%) were having inadequate knowledge, were as 08(26.66%) having moderate knowledge & no one was having adequate knowledge but in post test in experimental group the maximum i.e. 28(93.33%) were having moderate knowledge were as 02(06.66%) were having adequate knowledge & no one was having inadequate knowledge regarding Bio Medical Waste Management. Whereas that in maximum control group in pre test i.e. 24(80%) were having inadequate knowledge, were as 06(20%) having moderate knowledge & no one was having adequate knowledge but in post test in control group the maximum i.e. 22 (73.33%) were having inadequate knowledge were as 08 (26.66%) were having moderate knowledge & no one was having adequate knowledge regarding Bio Medical Waste Management.

Table 2: Comparison of the Mean ±S.D. Mean score%, Range & Mean deviation in Experimental & Control group.

Data presented in the table 2 and fig.2 Showed that knowledge score of the experimental group in pre test Mean ± S.D. 11.53 ± 4.04 & Mean score % 28.82%,Range 21-04,Mean deviation 3.008 but in knowledge score of the experimental group in post test are Mean ± S.D. 21.83 ± 2.70 & Mean score % 54.57% Range 28-16, Mean deviation 1.988. The Knowledge score of the experimental group in post test are increase then the pre test. The difference between pre-test & post test in Mean±S.D. 10.3±1.34 & mean score % 25.75%%. The paired "t"test value 7.62, standard error 0.887 & df=29.The Paired "t" test value are highly significant (P<0.01).So, the plan teaching programme was very effective.

The knowledge score of the control group in pre test Mean ± S.D. 11.76 ± 3.881 & Mean score % 29.40%, Range 20-04, Mean deviation 2.60 but in knowledge score of the control group in post test are Mean ± S.D. 12 ± 3.71 & Mean score % 30% , Range 22-05, Mean deviation 2.42. The Knowledge score of the control group in post test are slightly increase then the pre test. The difference between in pre test & post test in Mean ±S.D. 0.24±0.17 & mean score % 0.60%. The paired "t" test value 0.245, standard error 0.979 & df=29.The Paired "t" test value are not significant (P<0.05).

N=30 in each group

S.N	Area	"T" Test	Difference In "T" Test	Standard Error	Df
1	**Experimental Group**	**7.62*** Hs**	**7.375**	0.887	29
2	**Control Group**	**0.245**		0.979	

Max.Score =40

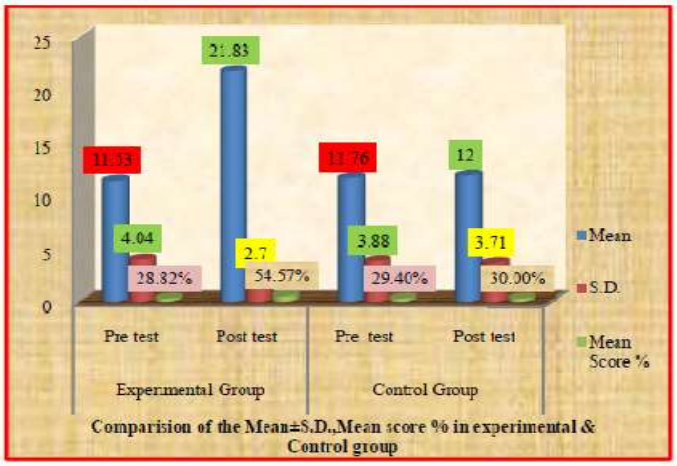

Figure 2: Mean±S.D. Mean score % in Experimental & Control group.

The comparison of the experimental group in pre test & control group in pre test are mean±S.D are ~equal & inadequate knowledge but after the post-test in experimental group knowledge are higher than the control group. The difference

between experimental & control group the "t" test 7.375.

The association of pre-test knowledge score of the nursing students at the experimental group with their socio demographic variable age in years & course of the study are significant but control group in course of the study & Residence area significant. Other demographical variables such as gender, religion, types of family, monthly income of family member, education of father, education of mother are not significant in experimental & control group.

9 Implication

There are several implications for using administration, nursing education, nursing practice, research and school health.

Nursing administration

1. Nursing administration should formulate policies that include all nursing students, nursing staff as well as sanitary staff etc. to active in Bio Medical Waste Management.
2. Nursing administered should concentrate on workshop and in services education of nurses, who play a vital role in presentation and education of Bio Medical Management.
3. There should be provision of reading material like journals, If knowledge of nursing personal.

Nursing education

1. There should be provision for in service education to update the knowledge of nursing personnel keeping in view current trends & practice of Bio Medical Waste Management.
2. Different type of education material on Bio Medical Waste Management such material pamphlets, chart, taps & graphic aids may be prepared for the client use.

Nursing practice

1. Bio Medical Waste Management is one of the greater challenges the health care system is facing. The Nursing student plays a vital role to prevent the Bio Medical Waste Management. Equipment those with the right knowledge and attitude will lead them to adopt and Bio Medical Management control police.
2. Since education is one of the powerful mean for developing awareness and improving the development the knowledge ,& clinical teaching being a integral part of the nursing practice ,it should be develop systematically and scientifically based on the need of the target population .Nursing personnel should teaching program for Nursing student to enhance their knowledge regarding the Bio Medical Waste Management .
3. The study finding revealed that most of the nursing student were not having adequate knowledge .This indicated that there is greatest scope for nurse clinical teaching activity in this area by the clinical instruction.

Nursing research

1. No profession can exist without research. So research should be directing for exploring and updating the student and nursing personnel .It will help to discover the appropriate method and media for effective teaching regarding Bio Medical Waste Management.
2. The nursing personnel should conduct more experimental studies on the learning needs of the various health personnel to update the learning method and material on regular basis
3. The finding of the study can be used for the further justify the needs for education of people in the awareness and preventive aspect of health.

10 Limitation

1. The present study was a knowledge assessing. Which limit the study finding to generalize?
2. The study was conducted on the small sample of nursing student i.e.30-30 which limits the generalization of the study.
3. The study was confined to selected nursing college of Dist.Hapur.
4. The tools used for eliciting knowledge were structured, thus free response were restricted.
5. The standardized tool could not be located by the investigator, so the tools were developed by the researcher for the study.
6. Items were modified after try out but second tryout was not done due to time constrain.
7. This study include in B.Sc (Nursing) & G.N.M Ist year student's.

11 Recommendations

On the basis of finding of the study, following recommendation is made:

- A similar study can be replicated on a large sample, there by finding can be generalized for a large population.
- A comparative study can be done to see the different in the knowledge of the nursing student, nursing staff & Health care team member in the studying based.
- This study can be done to be assessing the practice and attitude towards Bio Medical Waste Management in nursing student & Health care team member's.
- A study can be conducted to find out the knowledge and attitude of other health care

provider regarding Bio Medical Waste Management.

12 Conclusion

The present study in overall in in experimental group of post test are Mean ± S.D. 21.83 ± 2.70 & Mean score % 54.57%, Range 28-16, Mean deviation 1.988. are higher than the pre-test Mean± S.D. 11.53+4.04, Mean score% 28.82%, Range 21-04 , Mean deviation 3.008 & The paired "t"test value 7.62,standard error 0.887 & df=29.The Paired "t" test value are highly significant (P<0.01).So,the plan teaching programme was very effective. The control group in post test mean S.D. 12+3.71, range 22-05, mean score%30.00%, Mean deviation 2.42 are slightly increase the pre-test mean S.D. 11.76+3.88,range 20-04, mean score % 29.40%., Mean deviation 2.60. The paired "t" test value 0.245, standard error 0.979, df 29 & p value 0.05.

The association of knowledge score of the nursing students at the experimental group in pre test with their socio demographic variable age in years & course of the study are significant but control group in course of the study & Residence area significant. Other demographical variables are not significant in both group.

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