Original Research Article

The effectiveness of structure teaching programme (STP) on knowledge regarding Bio Medical Waste Management among B.SC nursing students

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ABSTRACT

Introduction: Biomedical Waste Management has recently emerged as an issue of major concern not only to hospital nursing home authorities but also to the environment. The Biomedical Waste generated from healthcare units depends upon a number of factor such as waste management method. Types of health care unit occupancy of health care units specialization of health care units ratio of reusable items in use availability of infrastructure and resources etc.

Materials and Methods: Research approach:- the research approach is an umbrella that cover the basic procedure for conducting research." The present study is aimed to assess the effectiveness of structured teaching module on the knowledge of bio-medical waste management of b.sc. nursing 2nd year and 3rd year students at the government college of nursing durg. Research design:"research design is the researcher's over are plan for answering the research question or testing used in pre-experimental research hypothesis." this study is to evaluate the effectiveness of structured teaching programme on knowledge of bio-medical waste management among b.sc. nursing 2nd year and 3rd year in govt. college of nursing durg setting of the study:- the study was conducted in government college of nursing durg. (c.g) sample:- The sample present study students of Govt. College of Nursing Durg.

Result: The result of the B.Sc. Nursing student revealed that maximum B.Sc. Nursing Student 74% were in age group of 21-24 year minimum 22% were the age group 18-20 year. As regards to gender 100% all female in B.Sc. Nursing students. As regard source of knowledge in B.Sc. Nursing students maximum 78% in hospital and minimum 14% book or 8% conference, workshop. As regard to living pattern in B.Sc. Nursing student maximum 80% are hosteller minimum 14% on house and 6% paying. As regard training practice in B.Sc Nursing Students 100% all students training practice is govt. District Hospital Durg. As regards name of the hospital that work on B.Sc. Nursing Student all 100% student work on Pandurang Ramarow Dongaukar Dist. Hospital Durg. There is significance association of knowledge level of B.Sc. Nursing Students at $P \geq 0.05$ level was significant the gender of the students at $P \geq 0.05$ not significant the source of knowledge of students at $P \geq 0.05$ level was not significant the living pattern of student at $P \geq 0.05$ not significant the training practice of B.Sc. Nursing students at $P \geq 0.05$ not significant the name of hospital work of B.Sc. Nursing student at $P \geq 0.05$ level was not significant.

Summary: An experimental research approach was used to determine the knowledge regarding Bio-Medical Waste Management B.SC Nursing 2nd year and 3rd year students. Review of literature was done. The tools was developed to assess the knowledge regarding Bio Medical Waste Management B.sc Nursing 2nd year & 3rd year students.

Conclusion: According to our study we found that maximum no of B.Sc. Nursing students have good knowledge and positive attitude toward Bio medical waste management since the improve quality of care and student one more aware of Bio Medical waste management.

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1. Introduction

The basic principle of good practice Biomedical Waste Management is based on concept of 3 R's namely reduced, recycle and reuse. The best Bio-Medical Waste Management (BMWM) method aim ad avoiding generation of waste or recovering as much as waste possible, rather than disposing.[1] Therefore the various method of Biomedical Waste Management disposal, according to their desirability are prevent, reduce, reuse, recycle, recover, treatand lastly dispose. Hence, the waste should be tackled at source rather than "end of pipe approach.[2]

Biomedical Waste Management treatment and disposal facility means any facility were in treatment disposal of or process Biomedical Waste Management incidental to such treatment and disposal is carried out. Only about 10% - 20%Biomedical Waste Management is hazardous and the remaining 75% -95% is non-hazardous.[3] The hazardous part the waste present physical, chemical and the micro-biological risk to the general population and health care workers associated with handling treatment and the disposal of waste.[4]

In India the ministry of environment and forests has promulgated the BMW (Management and handling) Rules 1998 for proper management of BMW. These rules are made to into the overall waste management of health care facilities in India.[5] The absence of proper waste management, lack of awareness about the health hazardous from Bio-Medical Waste Management, insufficient financial and human resource and proper control of waste disposal are the most critical problem connected with health care waste.[6]

2. Need of Study

The reason due to which there is great need of management of hospital waste medical care is vital for our life and health but the waste generated from medical activities represents a real problem of living nature and human world[7] Improper management of waste generated in health facilities causes a direct health impact on the community, the health care workers and on the environment every day potentially infectious & hazardous waste are generated in health care hospitals and facilities around the world. Indiscriminate disposal of Bio-Medical Waste Management or hospital waste and exposure to such waste possess serious threat to environment and to human health that require specific treatment and management prior to its final disposal the present review article deal with the basic issue as different categories' problem relating to Bio-Medical Waste and procedure of handling and disposal method of Bio-Medical Waste Management it also intends to create awareness among the personnel involved in health care unit.[8]

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Segregation system is up to the mark than this has been observed that the 85 to 90% of the total waste become non infected only 10 to 15% are infected waste which need special disposal system. Incineration\deep burial. Per day in house patient generate 1.5kg of waste only 10 to 15% of which is infected waste. Handling of radioactive waste requires special attention and skill.[7] Creating a system for segregation of waste is the first step. Segregation at source of different type of Bio-Medical Waste and there appropriate storage and \or disinfection sterilization etc. Would ensure that infectious waste do not get mixed with non-infectious waste as these would infect the entire waste. Only a small fraction of waste generated by health care institution is actually infectious or hazardous. It is estimated that 80 to 85% is non- infectious and 10% infectious and 5% hazardous.[7] Segregation of waste into infected or contaminated waste and non- infected waste is mandatory and is a pre-requisite for safe and hygienic waste management. Segregation at source makes it easier to prevent spread of infection.[9]

3. Statement of Problem

A Study to assess the effectiveness of structure teaching programme on knowledge regarding, *Bio-Medical Waste Management* among B.SC Nursing students in Government College of Nursing Durg (C. G)

4. Objectives

1. To assess the pre-test & post-test knowledge regarding Bio-Medical Waste Management among the B.SC Nursing 2nd & 3rd year students in Government College of Nursing Durg (C. G)
2. To assess the effectiveness of structure teaching programme on Bio-Medical Waste Management among B.SC Nursing 2nd & 3rd year Students in Government College of Nursing Durg (C. G)
3. To find out the association of pre-test knowledge score regarding Bio-Medical Waste Management among B.SC Nursing students in Government College of Nursing Durg with the selected demographic variables.

4.1. Hypothesis

1. **H** $_0$: - There will be no significant difference between pre and post-test knowledge regarding Bio Medical Waste Management among B.SC Nursing Students.
2. **H** $_1$:- There will be significant difference between pre and post-test knowledge regarding Bio-Medical Waste Management among B.SC Nursing Students.
3. **H**$_2$:-There will be no significant association between pre test knowledge regarding Bio-Medical Waste management with the selected socio demographic variables among B.Sc. Nursing student.

4. **H**$_3$:- There will be significant association betweenpre-test knowledge regarding Bio-Medical Waste Management with the selected socio demographic variables among B.SC Nursing Students.

4.2. Delimitation

1. The study is limited to only B.Sc. Nursing students.
2. Setting selected in Government College of Nursing Durg (C.G.)
3. Studentsare willing to participated in study.

4.3. The review of literature divided into two sections

1. Studies related to knowledge regarding Biomedical Waste Management.
2. Studies related to self-instructional modules on Biomedical Waste Management.

5. Materials and Methods

5.1. Research approach

The Research approach is an umbrella that cover the basic procedure for conducting research." The present study is aimed to assess the effectiveness of structured teaching module on the knowledge of Bio-Medical Waste Management of B.Sc. Nursing 2^{nd}year and 3rd year students at the Government College of Nursing Durg.

5.2. Research design

Research design is the researcher's over are plan for answering the research question or testing used in pre-experimental research hypothesis."This study is to evaluate the effectiveness of structured teaching programme on knowledge of Bio-Medical Waste Management among B.Sc. Nursing 2nd year and 3rd year in Govt. College of Nursing Durg.

5.3. Variable under study

5.3.1. Variables under the study divided into 3 category are

1. Socio demographic variable:- Age, gender, education, marital status, occupational status, family, sources, living pattern training practice, work.
2. Independent variable:- Structure teaching programme.
3. Dependent variable:- Knowledge regarding Biomedical Waste Management.

5.4. Setting of the study

The study was conducted in Government College of Nursing Durg. (C. G)

5.5. Population

5.5.1. Target population

In the present study the target population includes B.Sc. Nursing 2nd& 3rd year students.

5.5.2. Accessible population

It refers to aggregate of cases which confirm to the designed criteria and which accessible to the researcher as the tool of subject or object. In this research the accessible population are the students are B.Sc. Nursing 2nd& 3^{rd}year Govt. College of Nursing Durg.

5.5.3. Sample

The sample present study students of Govt. College of Nursing Durg**.**

5.5.4. Criteria for selection of setting

1. Availability.
2. Feasibility of conducting study.
3. Geographical proximity and ethical clearance.
4. Economy of time.

5.5.5. Sample teachnique

It is a process of selecting a subject a subset of a population in order to obtain information regarding a phenomenon in a way that represents the entire population.

In the research in this research non –probability purposive sampling teaching was used.

5.6. Sampling Criteria

The sample were selected on the basis of following criteria

1. Inclusion criteria.
2. Exclusion criteria.

5.6.1. Inclusion criteria

1. Who are available at the time of data collection.
2. Who are regular to college.

5.6.2. Exclusion criteria

1. Who are not willing to participate in the study.
2. Who are irregular to the college.
3. B.Sc. Nursing 1st year and 4th year students.

5.7. Pilot study

The pilot study was conducted in Shankracharya College of Nursing Hudco, Bhilai Durg (C.G.) from Govt. College of Nursing Durg(C.G.) to find out the effectiveness of the tool and study. In term of enhancement of knowledge regarding Bio-Medical Waste Management of so as to decide about the suitability for final study. The investigator used the sample from the population 10 sample were selected o the study. These 50 we excluded for final study.

The Pre-test was administered by using the questionnaire schedule followed by Structured teaching programme after 7 days the post test was administered by using the some questionnaire of structure teaching programme on the Bio-Medical Waste Management related to knowledge.

5.8. Reliability of the Tool

Reliability of the tool was established by using " karl-pearson's"co-relation co-efficient method. The reliability co-efficient 0.99 was founded.

Fig. 3: Percentage distribution of samle according to sourses of knowledge about BMW
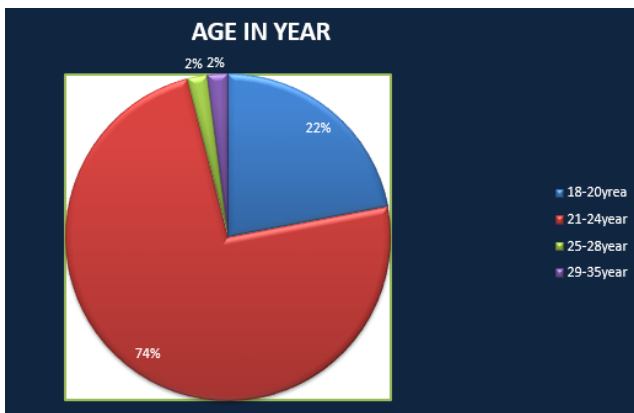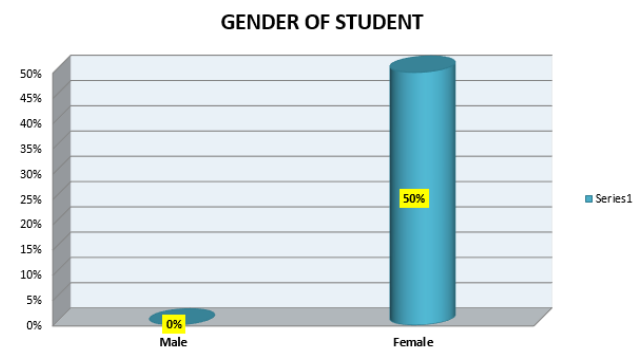
6. Result

Fig. 1: Percentage distribution of sample according to age

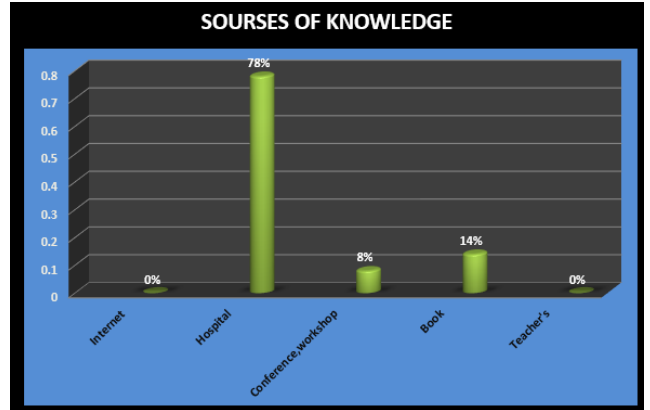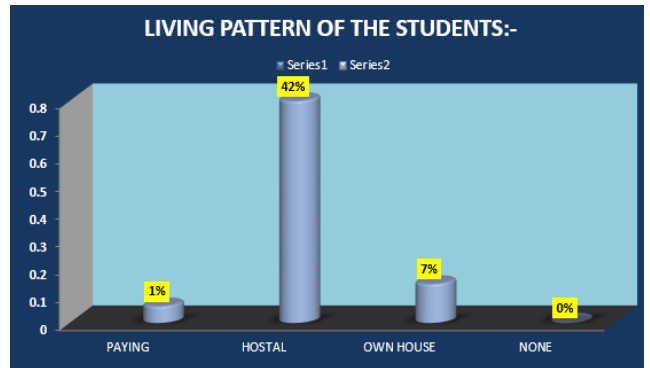**Fig. 2:** Percentage distribution of sample accordiong to gender

Fig. 4: Percentage distribution of sample according to living pattern of the students

Fig. 5: Percentage distribution of sample according to training practice.

Research design
Pre-experimental research design

One group pre-test & post- test research design

Target Population
25 students B.Sc. Nursing 2nd year
25 students B.Sc. Nursing 3rd year

Accessible Population
B.Sc. Nursing 2nd & 3rd year student
Govt. College of Nursing Durg(C.G.)

In-depended variables
Age, Sex, Area, Religion, Sources of knowledge

Variables

Dependent variable
Knowledge regarding BMW Management Among student of B.Sc.Nursing 2nd & 3rd year

Setting of study
Govt. College of Nursing Durg

Sampling technique
Non-probability purposive sampling techniques

Sample size
50 Students B.Sc. Nursing 2nd & 3rd year

Tool self -Structured questionnaire

Pre – Test
Assessment the knowledge level regarding BMW Management

Intervention
Structured teaching programme BMW Management

Post - Test
Assessment of level of knowledge on BMW Management

Analysis & interpretation Data
Descriptive study & inferential statics
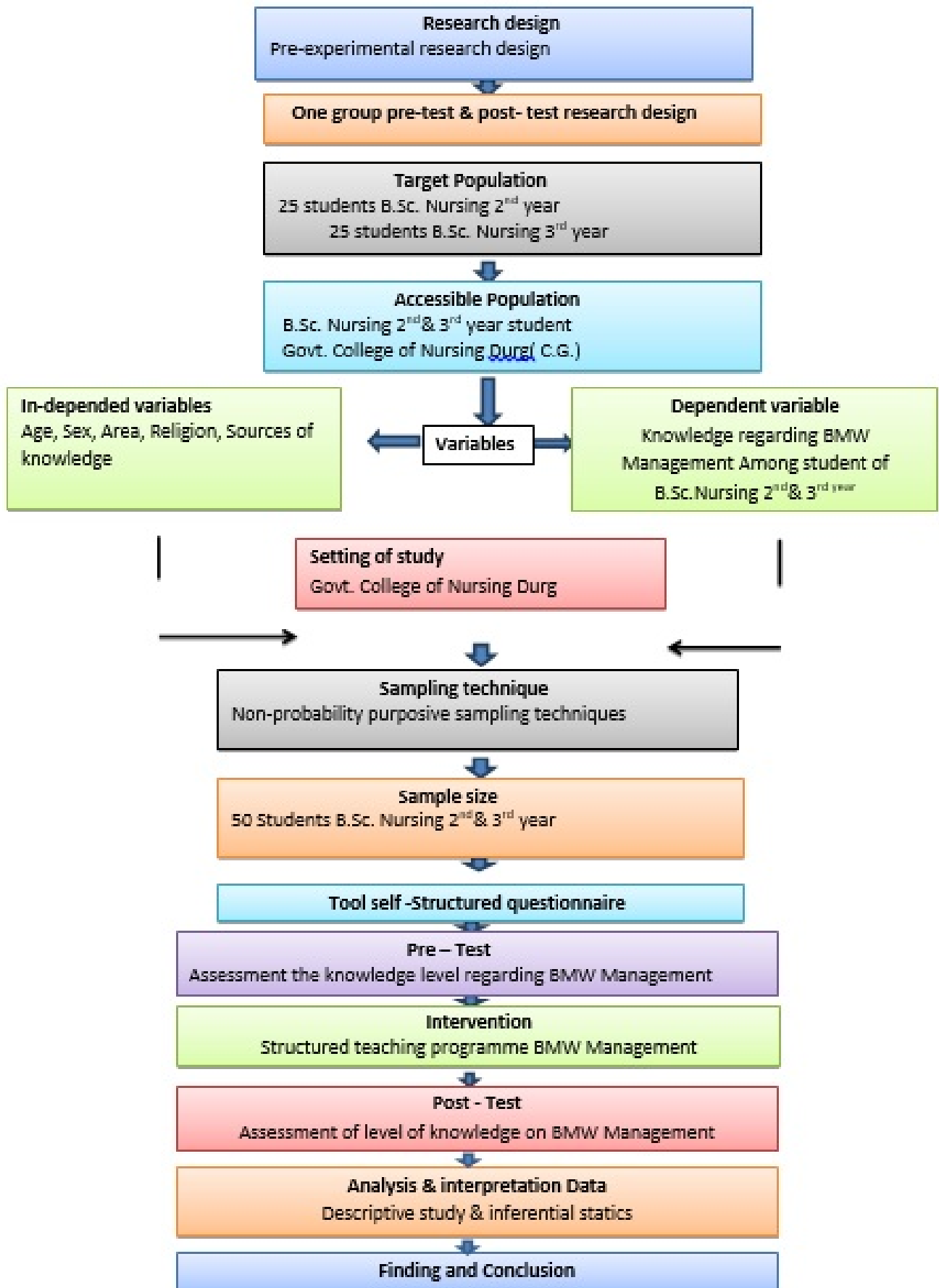
Finding and Conclusion

Diagram 1: Schematic representation of research design

Table 1: Frequency and percentage distribution of sample characteristics.N =50

S.NO.	Demographic variables	Frequency (n)	Percentage (%)
1.	**Age in years**		
1.1	18-20 year	11	22%
1.2	21-24 year	37	74%
1.3	25-28 year	01	02%
1.4	29-35 year	01	02%
2.	**Gender of students**		
2.1	Male	0	0%
2.2	Female	50	50%
3.	**Source of knowledge about BMW as**		
3.1	Internet	0	0%
3.2	Hospital	39	78%
3.3	Conference , workshop	04	08%
3.4	Book	07	14%
3.5	Teacher's	0	0%
4.	**Living pattern of the students**		
4.1	Paying	03	06%
4.2	Hostel	40	80%
4.3	Own House	07	14%
4.4	None	0	0%
5.	**Training practice in**		
5.1	Govt.Dist.Hospital	50	50%
5.2	PHC	0	0%
5.3	Private Hospital	0	0%
5.4	CHC	0	0%
6.	**Name of the hospital that work on**		
6.1	B.S.R. Apollo, Bhilai	0	0%
6.2	P. R. Don .Dist . Hospital Durg	50	50%
6.3	Shan. Medical Hospital Bhilai	0	0%
6.4	Dr.B.A. Memo. Dist. Hospital Raipur	0	0%

Table 2: Frequency and percentage level of knowledge regarding Bio-Medical Waste Management. N=50
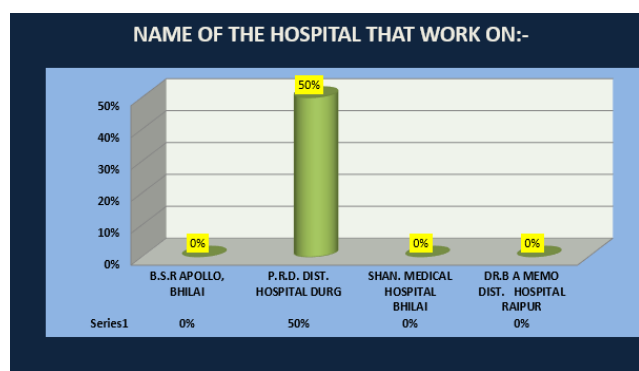
Level of knowledge	Knowledge score (n)	Percentage (%)
Excellent (21-30)	04	8%
Good (11-20)	46	92%
Average (0-10)	0	0%
	50	100 %

Table 3:

| S. No.	Area	Mean	'r' value
1.	Knowledge	37.32	0.99

Table 4: Association between Pre-test knowledge scoreregarding Bio-Medical Waste Management with the selected Demographic variables

S.NO.	Demographic Variables	Frequeny (n)	Percentage (%)	Df	Significance Value
1.	Age in years				X2= 53.3
1.1	18-20 year	11	22%		(p ≥ 0.05)
1.2	21-24 year	37	74%	6	Significant
1.3	25-28 year	01	02%		
1.4	29-35 year	01	02%		
2.	Gender of students				X2= 0
2.1	Male	0	0%	2	(p ≤ 0.05)
2.2	Female	50	50%		Not Significant
3.	Source of knowledge about BMW as				X2 =15.13
3.1	Internet	0	0%		(p ≤ 0.05) Not
3.2	Hospital	39	78%	8	Significant
3.3	Conference , workshop	04	8%		
3.4	Book	7	14%		
3.5	Teacher's	0	0%		
4.	Living pattern of the students				X2 =2.34
4.1	Paying	03	06%		(p≤ 0.05)
4.2	Hostel	40	80%	6	Not
4.3	Own House	07	14%		Significant
4.4	None	0	0%		
5.	Training practice in				X2=0
5.1	Govt. Dist. Hospital	50	50%		(p ≤ 0.05)
5.2	PHC	0	0%	6	Not
5.3	Private Hospital	0	0%		Significant
5.4	CHC	0	0%		
6.	Name of the hospital that work on				X2 = 4.0
6.1	B.S.R. Apollo, Bhilai	0	0%		(p ≤0.05)
6.2	P. R. Dong.Dist . Hospital Durg	50	50%	6	Not Significant
6.3	Shan. Medical Hospital Bhilai	0	0%		
6.4	Dr.B.A. Memo. Dist. Hospital Raipur	0	0%		

Fig. 6: Percentage disribution of sample according to name of the hospital that work.
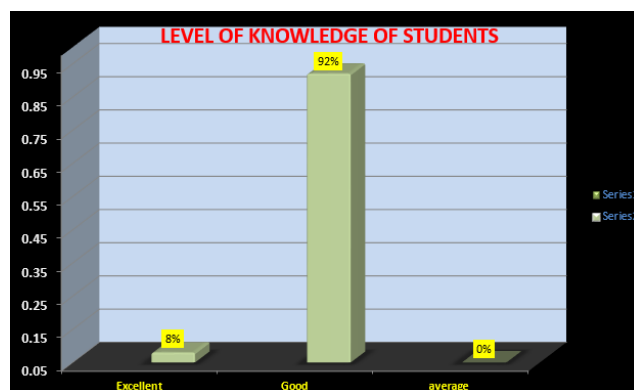
Fig. 7: Percentage distribution level of knowledge according students.
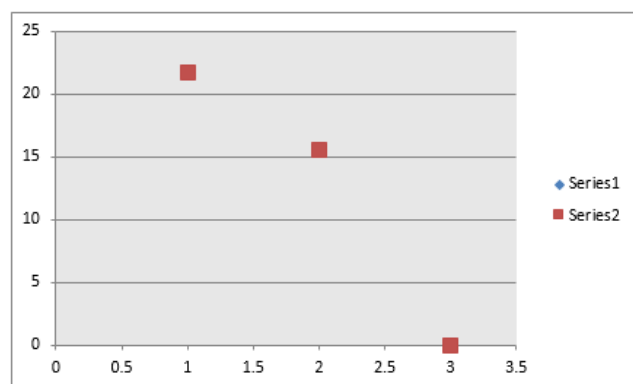
Fig. 8: Depicts the effectiveness of structure teaching programme.

7. Descriptions

Majority of age group in maximum is 37 (74%) and minimum02(4%). As regard to gender female maximum 50 (100%) male minimum 0(0%).as regard to Source of knowledge about Bio-Medical Waste Management maximum 37(74%)and minimum 3(6%). As regard to Living pattern of the students maximum 42(84%) and minimum 01(2%). As regard to Training practice in maximum 50(100%) minimum 0(0%).as regard to Name of the Hospital that works on maximum 50(100%) and minimum 0(0%).

Table 2 Represented that 50% of students of B.Sc. Nursing had excellent knowledge 8% of B.Sc. Nursing students had good knowledge 92% and 0% average knowledge of B.Sc. Nursing students regarding Bio-Medical Waste Management.

It indicates that majority of B.Sc. Nursing Students had good knowledge regarding Bio-Medical Waste Management.

Table 3 Depicts the effectiveness of structure teaching programme mean score was 37.32 and Karl pearson coefficient correlation was r = 0.99

Table 4 Depicts the Association between Pre-test knowledge score regarding Bio-Medical Waste Management with the selected Demographic variables such as Age, Gender, Source Of Knowledge, Training Practice, Living Pattern And Name Of The Hospital Works.The calculated value of chi-square test of age of studentsX^2= 53.3 ($p \geq 0.05$) and df= 6is Significant. The calculated value of chi- square test of Gender of students isX^2= 0($p \leq 0.05$) and df=2 is Not Significant. The calculated value of chi-square test of Source Of Knowledge of student isX^2 =15.13 ($p \leq 0.05$) and df= 8 is Not Significant. The calculated value of chi- square test of Living pattern of the students isX^2 =2.34($p\leq 0.05$) and df= 6 and is Not Significant.The calculated value of chi- square test of Training practice of students isX^2=0 ($p \leq 0.05$) and df= 6 is Not Significant.The calculated value of chi- square test of Name of the hospital

that work onX^2 = 4.0($p \leq 0.05$) and df= 6 is Not Significant.

8. Discussion

In this chapter an attempt has been made to discuss the findings of the study, in accordance with the objective of the research as per the socio-demographic variables.

The analysis of data in description of socio demographic characteristic had shown that in the majority of age group in maximum is 37 (74%) and minimum is 01(02%) and in gender female maximum is 50 (100%) and male minimum 0 (0%) in Source of knowledge maximum is 39(78%) and minimum 04 (8%) in Living pattern maximum 40 (80%) and minimum 03(06%) and Training practice maximum is 50 (100%) minimum 0(0%) and Name of the Hospital that work is maximum is50 (100%) and minimum 0(0%).

The first objectives of the study were to "Assess the knowledge regarding *Bio-Medical Waste Management.* The findings of knowledge revealed that majority of (92%) of students had Good knowledge and (8%) had excellent knowledge and (0%) had average knowledge.

The second objectives of theto find out the "To assess the effectiveness Structure teaching programme on *Bio-Medical Waste Management"* The findings revealed that there was a positive effectiveness (0.99) of the B.Sc. Nursing 2nd & 3rd year students.

The third objective of the study was to see" Association of Pre-test knowledge score regarding Bio-Medical Waste Management among the B.Sc. Nursing students in Government College of Nursing Durg with the selected Demographic Variables such as Age, Gender, Source of knowledge, Living pattern, Training practice, Name of the Hospital that work. The significant value of knowledge X^2 = 53.32 in age.

9. Summary

This chapter deal with the analysis and interpretation and discussion of data from 50 student regarding bio-medical waste management in selected government college of nursing Durg (cg) this chapter was organized under four section, frequency and percentage distribution of sample characteristics of socio demographic variables assess the knowledge. Find out the coefficient and correlation between assess the level of knowledge. Find out the association between the pre-test knowledge and demographic variables by using chi-squire test. The graphs were used to clarify table content.

10. Limitation

The limitation recognized in the study were.

1. The size of sample was 50, hence it is difficult to make broad generalization

2. Purposive sampling technique was done from Government College of Nursing Durg

3. The data collecting was based on choose answer (objective type question) and checklist question for observation of knowledge of B.Sc. Students.

4. The study was limited to only Bio medical waste management.

5. The study was limited to B.Sc. Nursing students of age group 18-35 years in Government college of Nursing Durg.

11. Source of Funding

None.

12. Conflict of Interest

None.

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