STUDY ON KNOWLEDGE ATTITUDE AND PRACTICE OF BIOMEDICAL WASTE MANAGEMENT AMONG GOVERNMENT PHC NURSES VS VILLAGE HEALTH NURSES IN TRICHY

CHITRA R
Department of PUBLIC HEALTH,MADRAS MEDICAL COLLEGE AND GOVERNMENT GENERAL HOSPITAL

Abstract : BACKGROUND - It is considered that about one fourth of biomedical waste is hazardous and may affect the health of both the medical personnel and general community. Persons who are constantly exposed to these wastes especially waste sharps that are infectious at clinical settings are the hospital workers, nurses ,bag pickers, cleaners and laundry staff who are always at a risk of getting fatal diseases like Hepatitis B and HIV. AIM - This study was to analyze the knowledge, attitude and practice (KAP) of biomedical waste management among PHC staff nurses and village health nurses.
MATERIALS AND METHODS - Study was conducted among 90 health care professionals who were PHC staff nurses and village health nurses in Trichy HUD. The results were tabulated and evaluated.
RESULTS - In this study most of the participants belong to the age group of 25-30 yrs in both groups. From this study the village health nurses were having better KAP than the PHC staff nurses. There was a statistically significant difference among the two groups in terms of their age and their experience level.
CONCLUSION - We concluded that the village health nurses have the better knowledge, attitude and behaviour than the PHC nurses which implied that the PHC nurses need further orientation training and practice for bio medical waste management.
Keyword : Bio Medical Waste Management, Knowledge, Attitude, Practice, PHC Staff Nurses, Village Health Nurses

INTRODUCTION

"Clean House, Clean City, Clean Environment And Clean India Starts From You. Because you
are the society"
It is considered that about one fourth of biomedical waste is hazardous and may affect the health of both the medical personnel and general community. Any waste generated during diagnosis, treatment, immunisation of human beings or animals or in research activities pertaining to production or testing of biological. It also poses a major public health hazard by causing pollution of air, water and soil. Persons who are constantly exposed to these wastes especially waste sharps mainly infectious waste at clinical settings are the hospital workers, nurses ,bag pickers, cleaners and laundry staff, who are always at a risk of getting fatal diseases like Hepatitis B, HIV, etc. In addition, the sharps such as the needles do cause physical damage. Hence the safe handling

and disposal of biomedical waste is gaining attention not only among health care providers but also among public health administrators in order to have healthier societies. As primary health care nurses are one of the important components of health care system, they should have proper and sufficient knowledge on biomedical waste management. So awareness about various aspects of biomedical waste management has to be assessed frequently.

OBJECTIVES:
To assess knowledge, attitude and practice among PHC staff nurses and village health nurses. To compare the knowledge, attitude and practice among PHC staff nurses and village health nurses.

MATERIALS AND METHODS:
Study design: A cross-sectional study Study place: Rural Primary health centers in Trichy HUD. Study group consists of a total of 45 Village health Nurses and 45 Staff nurses. Sampling technique: Non probability Purposive sampling. In this study, knowledge is assessed with the written response of the health care professionals on the structured questionnaire prepared by the investigators on biomeical waste management. Attitude of the health care professionals is assessed on their opinion towards bio medical waste management. Practice is defined as the identification, segregation and packing for internal transportation of biomedical waste in the hospital by these nurses.

Inclusion Criteria:
Selected PHC staff nurses and VHNs who gave informed consent were included

Exclusion Criteria:
Medical college hospitals and Government general hospital are excluded due to the better adherence to biomedical waste disposal law.

Method of Collection of Data:
A questionnaire for KAP study was prepared and tested for appropriateness among the various levels of PH nurses. The purpose of the study was explained and cooperation was requested to conduct the study in their health care centers.

Statistical methods:
The data were tabulated and then the analysis was done by SPSS 20.

RESULTS:
Demographic variable

Table 1.1 : Distribution of Age

Age	PHC Nurses		Village Health Nurses	
	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)
20-25	3	6.7	1	2.2
25-30	23	52.1	22	48.9
30-35	16	35.6	18	40.0
35-40	0	0	1	2.2
40-45	1	2.2	1	2.2
45-50	2	4.4	2	4.4

The above table shows the age wise distribution. In this study most of the participants belong to the age group of 25-30 yrs in both groups.

Table 1.2 : Educational status distribution:

Place of Education	PHC nurses		Village health nurses	
	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)
Government colleges	39	86.7	35	77.8

Table 1.3 : Distribution Of post

Type of post	PHC nurses		Village health nurses	
	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)
Permanent	32	72.1	32	72.1
Temporary	13	28.9	13	28.9

Most of the participants were posted as a permanent employee in the both groups

Table 1.4 : Distribution Of experience

Experience	PHC nurses		Village health nurses	
	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)
0-5 yrs	3	6.7	1	2.2
5-10 yrs	26	57.8	28	62.2
10-15 yrs	6	13.3	3	6.7
15-20yrs	10	22.2	13	28.9

2. Distribution of knowledge, attitude and behavior Table 2.1 : Frequency of knowledge, among the PHC nurses vs village health nurses

Variable		PHC nurses		Village health Nurses	
		Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)
Definition of biomedical waste management	Correct	17	37.8	17	37.8
	Incorrect	28	62.2	28	62.2
	Total	45	100	45	100
No. of categories	Correct	28	62.2	31	68.9
	Incorrect	17	37.8	14	32.1
	Total	45	100	45	100
Symbol of biomedical waste management	Correct	25	55.6	21	46.7
	Incorrect	20	44.4	24	53.3
	Total	45	100	45	100
Bio medical waste segregated at:	Correct	27	60	21	46.7
	Incorrect	18	40	24	53.3
	Total	45	100	45	100

Variable		PHC nurses		Village health Nurses	
		Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)
Color codes	Correct	17	37.8	24	53.3
	Incorrect	28	62.2	21	46.7
	Total	45	100	45	100
Liquid waste management	Correct	18	40	24	53.3
	Incorrect	27	60	21	46.7
	Total	45	100	45	100
Disinfectant in bio medical waste	Correct	19	42.2	22	48.9
	Incorrect	26	57.8	23	52.1
	Total	45	100	45	100
Waste Not	Correct	23	52.1	13	28.9
	Incorrect	22	48.9	32	72.1
	Total	45	100	45	100

Table 2.1 shows the knowledge level among the PHC nurses and village health nurses. This table interprets most of the knowledge questions are correctly answered by village health nurses. This shows that village health nurses have a better knowledge than the PHC nurses.

**Frequency of attitude among the PHC nurses vs village health nurses**

64.4 % of staff nurses and 46.7% of village health nurses had the opinion that mixing of bio medical waste with general waste does not matter. All of the staff nurses and village health nurses (100%) had the right attitude about acquiring HIV and HEP-B infection with improper disposal of contaminated waste and also of the opinion that bio medical waste is a health hazard. All of them also felt that proper bio medical waste management requires team effort. 32.1% of staff nurses and 33.3% of village health nurses are of the opinion that microwave oven is very essential in every hospital. All of them (100%) agreed that need for proper disposal of infected Waste is the most important priority and also agreed that the nurses have the main role in bio medical waste management.

Table 2.2 : Frequency of practice among the rural PHC nurses vs village health nurses
Incorrect 22 48.9 32 72.1 Total 45

Variable		PHC nurses		Village health Nurses	
		Frequency (n)	Percentage (%)	Frequency (n	Percentage (%)
Disposal of surgical blade	Correct	31	68.9	31	68.9
	Incorrect	14	32.1	14	32.1
	Total	45	100	45	100
Disposal of out-dated medicine	Correct	34	75.6	29	64.4
	Incorrect	11	24.4	16	35.6
	Total	45	100	45	100
Disposal of placenta	Correct	32	72.1	32	72.1
	Incorrect	13	28.9	13	28.9
	Total	45	100	45	100
Disposal of IV sets	Correct	23	52.1	24	53.3
	Incorrect	22	48.9	21	46.7
	Total	45	100	45	100
Disposal of incinerated ash	Correct	34	75.6	33	73.3
	Incorrect	11	24.4	12	26.7
	Total	45	100	45	100
Material disposed in Black color bag	Correct	33	73.3	33	73.3
	Incorrect	12	26.7	12	26.7
	Total	45	100	45	100
Sharps are disposed in:	Correct	25	55.6	44	97.8
	Incorrect	20	44.4	1	2.2
	Total	45	100	45	100
Disposal of Chemical substances	Correct	16	35.6	35	77.8
	Incorrect	29	64.4	10	22.2
	Total	45	100	45	100

Table 2.2 shows the behaviour level among the PHC nurses and village health nurses. This table interprets most of all behaviour questions are correctly answered by village health nurses which \shows that village health nurses have a better practice than the PHC nurses.
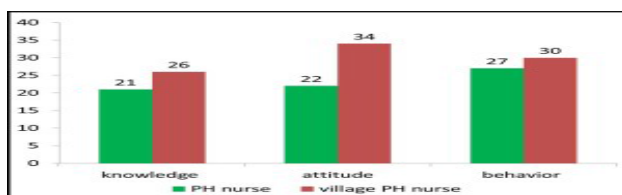
The above diagram shows the village health nurses have the good knowledge, attitude and behavior than the PHC staff nurses

3. Kruskallwallis test:

Table 3.1 : Association of knowledge, attitude, behaviour and age among both the groups

	Group	Mean rank	Chisquare	Df	Sig
Knowledge	Phc nurse	48	1.01	1	0.02*
	Village health nurse	43			
Attitude	PH nurse	51.50	6.71	1	0.009*
	Village PH nurse	39.50			
Behavior	PH nurse	47	0.42	1	0.003*
	Village PH nurse	44			

From the table it is seen that age is associated with knowledge, attitude, and practice and the mean rank is high in the PHC nurses which was statistically significant with 95% confidence interval p value <0.05 It is therefore interpreted that the age group affects the level of knowledge, attitude and practice.

Table 3.2 : Association of knowledge, attitude, behaviour and experience among the both

Table 3.2 : Association of knowledge, attitude, behaviour and experience among the both groups

	Group	Mean rank	Chisquare	Df	Sig
Knowledge	PH nurse	24.36	1.58	1	0.001*
	Village PH nurse	23.34			
Attitude	PH nurse	24.86	2.96	1	0.03*
	Village PH nurse	22.42			
Behaviour	PH nurse	22.44	0.28	1	0.04*
	Village PH nurse	21.83			

From the table 3.2, years of experience is associated with knowledge, attitude and behaviour. The experience mean rank is high in he PHC nurses which was statistically significant with 95% confidence interval p value <0.05 It is therefore interpreted that the years of experience affect s the level of knowledge, attitude and behaviour.

DISCUSSION

In this study, Village Health nurses had a statistically significantly better knowledge than the PHC Nurses (P<0.001, $x2$=30.9). The study conducted by Saini S et al on the KAP in a tertiary hospital, showed that 85% nurses, 14% housekeeping and 12% technical staff had knowledge about BMW.(1) Studies done in Rajkot, Jaipur and Karnataka(2,3,4) revealed that the technicians and nursing staff were not aware about the reporting of needle stick injury and neither were practicing needle destruction or avoiding recapping of used needles. This was similar to the findings of study done by Malini.A et al(5). In my study, both the groups (100%) had the knowledge about risk of needle stick injuries and the practice of needle destruction. According to Malini.A and Bala Eshwar(5) KAP study of Bio Medical Waste Management, colour coding for segregation of waste at the point of generation had shown poor knowledge and practice among health care personals was 50% and MPW's 80%. Whereas in my study the PHC staff nurses have 62.2% and VHN's have 46.7% poor knowledge regarding the colour coding. Poor knowledge about the segregation of the bio medical waste at the point of generation is 40% among PH nurses and 53.3% among the VHNs. According to Yadhavannavar MC, majority of health care personnel had actually received training for bio medical waste management and rules, yet only 40.4% of study participants knew correct categories of bio medical waste management(6). In our

study 62.2 % of staff nurses and 68.9% ofVHNs know about the correct categories of bio medical waste management. The limitation of the study was that since it was based on semi-structured questionnaire, every aspect of KAP was not assessed.

CONCLUSION

From this study we conclude the village health nurses have the better knowledge, attitude and behaviour than the PHC nurses which implied that the PHC nurses need further orientation training and practice for bio medical waste management .

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University Journal of Medicine and Medical Specialities