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KNOWLEDGE AND ATTITUDE OF NURSING STAFFS ABOUT MEDICAL WASTE MANAGEMENT IN PRIMARY HEALTH CARE CENTRES IN ERBIL CITY, IRAQ

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ABSTRACT

Knowledge and attitude of nursing staffs about medical waste management show an essential role to decrease contagious diseases. This study aims to assess knowledge and attitude of nursing staffs about medical waste management in primary health care canters. Quantitative design, descriptive study was conducted in 23 primary health care canters in Erbil /City in the Kurdistan region of Iraq from September 2014 to August 2015. All nursing staffs were selected. Data were collected through the use of interview questionnaire forms. Results showed that majority of the nursing staffs' age were between 40-49 years old, female, Secondary school nurses, most of them had 20-29 years of experience, working unit, most of them were minor surgery nurses and did not have training courses about medical waste management. The study showed that most of the nursing staffs had a medium level of knowledge about medical waste management. The study also showed that the majority of nursing staffs had high (positive) attitude regarding medical waste management. There was statistically significant association between level of education and nurses' knowledge about medical waste management. Conducting training courses about medical waste management are necessary for all nursing staffs and preparation of educational programs to be implemented for developed knowledge and attitude of nursing staffs about medical waste management.

Keyword: Knowledge, Attitude, Nursing Staff, Medical Waste Management, Erbil

INTRODUCTION

Medical waste denotes to hazardous waste materials produced by healthcare events, including a board range of materials, from used stickers and syringes to dirty dressing, body parts, diagnostic samples, blood, chemicals pharmaceuticals, medical procedures and radioactivity materials (Nie *et al.,* 2014).

Healthcare activities like vaccination, diagnostic tests, medical treatments, and laboratory examinations protect and restore health and save lives (WHO, 2005).

Medical wastes are of considerable importance due to their possible as environmental threats and their dangers to human health. This kind of waste comprises infectious waste, toxic chemicals and heavy metals, and may have materials that are genotoxic or radioactive (Mbarki *et al.,* 2013).

Medical and health-care wastes have suddenly enlarged in modern eras due to the enlarged population, number, and size of health care facilities, as well as the use of disposable medical products (Sarsour *et al.,* 2014).

The data available from industrialized countries recommend that nearly 1-5 kg of discards are produced per bed per day, with significant inter country and inter specialty differences (Ajai and Nath, 2013).

World Health Organization (WHO) in 2002 carried out a survey on management of medical waste in 22 unindustrialized countries. Findings showed that the ratio of healthcare facilities that did not use appropriate waste disposal methods ranged from 18% to 64% (WHO 2004).

The several causes towards the poor waste management practices around the globe are: the lack of waste management, lack of consciousness about the health hazards, inadequate financial and human

possessions and poor control of waste disposal, lack of strict and suitable rules, the clear attribution of accountability of appropriate management and disposal of waste and according to the 'polluter pays' principle, this responsibility lies with the waste producer, usually being the health-care provider, or the establishing involved in related activities (WHO, 2007).

There is great need to carry out a study that can evaluate the knowledge and attitude of medical waste management among the nursing staffs in Primary Health Care Centres (PHCC) .The current status of nursing staffs awareness regarding medical waste management will help the concerned authorities to manage medical waste effectively and to build up the plan for improving the condition in future.

METHODOLOGY

A cross-sectional study was conducted during the period 1st September 2014 to1st August 2015. Data was collected during the period 1st February 2015 to 1st of April 2015. The study was conducted in all (24) primary health care centres in Erbil city, but one of them (Azadi primary health care centers) was under the rebuilding status. The city is located in the North part of the Iraqi country. It has a population of over one million people. According to the lists obtained from the General Directorate of Health/Erbil a total of 215 nurses were present in primary health care centres. The entire population of the nursing staffs working in primary health care centres in Erbil city was considered for the study. The total numbers of nurses during data collection were 215 but 20 nurses excluded because of their participation in pilot study and 3 nurses refused to participate in the study and also 12 nurses were unavailable during data collection because of their obstetrical and sick leaves. Finally the sample size of the study became 180 nurses. A self-administered questionnaire was used for the data collection from nursing staffs in primary health care centres. The questionnaire has been validated through panel of 12 experts in different fields to investigate the content of the questionnaire for its clarity, relevancy and adequacy. The feasibility of the final study was determined by conducting a pilot study. Internal consistency reliability of the nursing staff's knowledge and attitude questionnaire were examined through a pilot study with 20 nurses from Kurdistan and Sarwaran primary health care centres who had similar characteristics to the subjects in this current study. Determination of reliability was based on the test-retest method. Correlation coefficient was computed which revealed that the correlation coefficient was 0.80,so the tools used in assessing knowledge and attitude of nursing staffs were clear and comprehensive. The data were analyzed by using the Statistical Package for Social Sciences (SPSS, Version 19). Chi square test of association was used to compare between proportions. When the expected count of more than 20% of the cells of the table was less than 5, Fisher's exact test was used. Pearson correlation was applied to test for the strong point of correlation between two numerical variables. A p value for ≤ 0.05 was considered as statistically significant.

RESULTS

Table 1 shows the following characteristics of the samples regarding to the demographic data. Regarding the age of the samples, majority of the nursing staffs (51.7%) were in the age group 40-49 years. The mean age (M ± SD) of the nurses was 44.05 years (SD = ±7.9%). Concerning to the nursing staffs' gender, the majority of the nursing staffs were females (61.1%). Regarding to nursing staffs' educational levels, majority of them were secondary school nurses (42.2%).

Table 1: Frequency and percentage of the study samples regarding their age, gender and level of education (N=180)

Items	Frequency	Percentage
Agegroup/Years		
≤ 30	4	2.2
30-39	43	23.9
40-49	93	51.7
50-59	30	16.7
≤ 60	10	5.6
Gender		
Male	70	38.9
Female	110	61.1
Level of education		
Intermediate school nurses	33	18.3
Secondary school nurses	76	42.3
Technical institution nurses	68	37.8
Graduated of college of nursing	3	1.7
Total	**180**	**100**

Table 2 shows that more than half of the nursing staffs (51.67%) had a working experience between 20-29 years. The average working experience of the nurses was 20.61 (SD = ± 9.06). This table also shows that majority (33.3%) of the nurses was working in minor surgery units. Majority of the study samples were not trained regarding medical waste management which represents (92.8 %), while only 7.2% of them were trained.

Table 2: Frequency and percentage of the study samples regarding their years of working experience, working unit and training (N=180)

Items	Frequency	Percentage
Years of working experience		
< 10	4	2.22
10-19	43	23.88
20-29	93	51.67
30-39	30	16.67
40+	10	5.56
Items	**Frequency**	**Percentage**
Working unit		
Dental health care	22	12.2
Minor surgery	60	33.3
Family planning	4	2.2
Vaccination unit	41	22.8
Laboratory	6	3.3
Maternal and child care	19	10.6
Pharmacy	15	8.3
School health services	10	5.6
Training		
have trained	13	7.2
have not trained	167	92.8
Total	**180**	**100**

Figure 1 shows that there was significant association between nursing staff's knowledge and attitude (P=0.001).

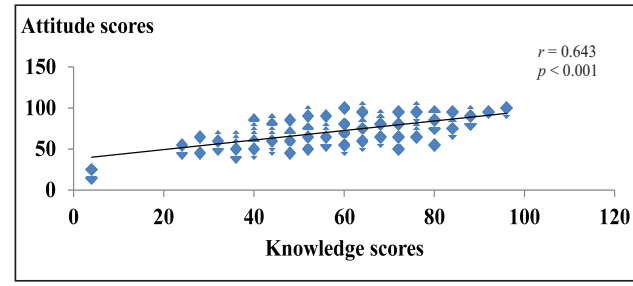

Figure 1: Relationship between knowledge and attitude scores

Table 3 shows the frequency and percentage of nurses who were in each category of knowledge level. It was found that more than half (65.6%) of nursing staffs possessed medium levels of knowledge. Very few nurses (5.6%) had low levels of knowledge. Nearly one third of nurses (28.9%) had high levels of knowledge regarding medical waste management.

Table 3: Distribution of nursing staffs according to their knowledge level regarding medical waste management (N=180)

Knowledge level	Frequency	Percentage
Low	10	5.6
Medium	118	65.6
High	52	28.9
Total	**180**	**100**

Table 4 shows that 56.7% of the samples had positive attitude, while less than 42.2% of them had neutral attitude and only (1.1%) of the samples had negative attitudes regarding medical waste management.

Table 4: Distribution of nursing staffs according to their attitude levels regarding medical waste management (N=180)

Nurse's attitude	Frequency	Percentage
Low (Negative)	2	1.1
Medium (Neutral)	76	42.2
High (Positive)	102	56.7
Total	**180**	**100**

Table 5 A significant difference was found between nurses' knowledge and their formal educational background at p value of <0.001. Graduated nurses were more knowledgeable (100%) as compared to other educational background such as institutional graduated nurses, secondary school nurses and intermediate school nurses 48.5%, 17.1% and 9.1% respectively.

Table 5: Association between nursing staff's knowledge and their levels of education (N=180)

Level of education	No.	Low Knowledge		Medium Knowledge		High Knowledge		*P
		No.	%	No.	%	No.	%	
Intermediate school nurses	33	3	9.1	27	81.8	3	9.1	
Secondary school nurses	76	6	7.9	57	75.0	13	17.1	
Institutional graduated nurses	68	1	1.5	34	50.0	33	48.5	< 0.001
College of nursing graduated nurses	3	0	0.0	0	0.0	3	100.0	
Total	180							

** This p- value was obtained by Fisher's exact Test*

Table 6 shows that there was significant association between nursing staff's attitude and levels of education (*P*=0.014).

Table 6: Association between nursing staff's attitude and levels of education (N=180)

Working unit	No.	Low or medium attitude		High attitude		
		No.	%	No.	%	
Intermediate school nurses	33	17	51.5	16	48.5	0.014
Secondary school nurses	76	40	52.6	36	47.4	
Institutional graduated nurses	68	21	30.9	47	69.1	
College of nursing graduated nurses	3	0	0.0	3	100.	

** This p- value was obtained by Fisher's exact Test*

DISCUSSION

Results from the study showed that more than half 51.7 percent of respondents were of age group 40-49 years old. The participated nurses were in higher age groups, due to starting their carrier at the public hospitals for many years, and then they were transferred to the primary health care centres. There is a study done by Uddine *et al.*, (2014) on the topic of knowledge on hospital waste management among senior staff nurses working in a selected medical college hospital of Bangladesh demonstrated that 45.6 percent of staff nurses were 35-40 years old.

Results from the present study indicated that the majority of the nursing staffs were females (61.1%). Results of a study done by Nazli (2014) on the topic of knowledge and awareness of clinical waste management among medical practitioners in hospital Batu Pahat, Johor showed those females' respondents were 81%.

Large proportion of the respondents are secondary school nurses 76 (42.3%) and the graduated of college of nursing is very low 3 (1.7), also in a study conducted by Uddine *et al.*, (2014) showed that only 3.2 percent of subjects has Bachelor of Science of nursing qualification.

The recent study found that more than half of the nursing staffs (51.67%) had a working experience between 20-29 years, but there is a study carried out by Uddine *et al.*, (2014) found that majority 31.2 percent of nurses have the length of services 10-15 years. The recent study also shows that majority (33.3%) of the nurses was working in minor surgery units, and the least (1.7%) were working in drug storage. Really, the nursing staffs are selecting the setting of their working according to his/her interests without any health care system regulation or health care needs.

In the recent study, the majority of the study samples were not trained regarding medical waste management which represents (92.8 %), while only 7.2% of them were trained. Our study also contrasts with the results of a study in 2014 from Cairo, Egypt; in which around (67.5%) of participants were received training and 32.5 of them were not received training (Hakim *et al.*, 2014).

Proper training must be given to primary health care centre nurses to develop an awareness and knowledge of health, safety and environmental issue and also it is important to know and understand the potential risks associated with the health care wastes, and the importance of the consistent use of personnel protection equipment (Manowan, 2009).

According to the knowledge and attitude of nursing staffs regarding medical waste management there was a very high significant association between knowledge levels affected on attitude of nursing staffs (*P*=0.001). Knowledge regarding medical waste management was adequate across all the medical waste nursing staffs. Most of the nursing staffs were aware of the medical waste management rules that governs proper disposal of medical waste. This was unlike the findings of a study done by (Mathur *et al.*, 2006).

Current study findings revealed that the percentage of knowledge level of nursing staffs was as following: High knowledge 28.9%, medium knowledge 65.6 %, and low knowledge 5.6%.The Medical waste is

the second most hazardous waste after radioactive waste.The inappropriate management of medical wastes (MW) reasons serious environmental harms in terms of air, water and land pollution (Manyele and Anicetus 2007).

Concerning attitude levels of nursing staffs the study was showed that 56.7% of the samples had positive attitude, while less than have (42.2%) of them had neutral attitude and only (1.1%) of the samples had negative attitudes regarding medical waste management.

A significant difference was found between nurses' knowledge and their formal educational background at *p* value of <0.001. Graduated nurses were more knowledgeable (100%) as compared to other educational background such as institutional graduated nurses, secondary school nurses and intermediate school nurses (48.5%), (17.1%) and (9.1%) respectively. However, there is no significant difference between nurses' knowledge and their age, knowledge and gender, knowledge and working units, knowledge and working experience and knowledge and training (*P*>0.001). That's compatible with the study done by Kumar (2013).

There is no significant difference between participated nurses' attitudes and other socio-demographic characteristics such as age, gender, working experience, working units and training because *P*> 0.001.That is inhospitable with the study done by (Ismail *et al*., 2013).

CONCLUSIONS

The knowledge and attitude of nursing staffs regarding medical waste management was varied and was not found to be satisfactory. There was a significant relationship between level of education and nurses' knowledge about medical waste management, and significant relationship between nurses' knowledge and attitude. Knowledge regarding medical waste management was that more than half (65.6%) of nursing staffs possessed medium levels of knowledge. Nearly one third of nurses (28.9%) had high levels of knowledge. Attitude regarding medical waste management was 56.7% among the samples who had positive attitude.

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