



THE EFFECT OF HEALTH EDUCATION IN THE PROMOTION OF KNOWLEDGE, ATTITUDE AND PRACTICE OF NURSES TOWARDS HEALTH CARE WASTE IN KHARTOUM NORTH TEACHING HOSPITAL

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ABSTRACT

The study was conducted as a quasi experimental design in Khartoum North teaching hospital to assess the role of health education in the promotion of knowledge, attitude and practice of nurses. Health care waste constitutes major health hazards to the handlers, particularly hepatitis B and human immunodeficiency virus. This emphasizes the role of awareness as a core element in the protection of the nurses. The study aimed at conducting and assessing health care waste awareness interventions, to train nurses to protect themselves from the hazards of health care waste. A sample size of 183 -targeted nurses was used in the investigation. The methods used in, training, group discussions, audiovisual aids (video tap and posters). In addition, to a comprehensive questionnaire pre and post to evaluate, the knowledge, attitude and practice of the nurses. Data collected was analyzed using T test and chi square test by computer using SPSS. Program. The results revealed remarkable improvement in the knowledge attitude and practice of the nurses. The study concluded that health education had remarkable improvement in knowledge, attitude and practice of nurses towards safety measures during handling. The study recommended producing of training program for all staff involved in health care waste management, to improve existing safety measures for the staff concerning protective cloth, immunization and periodic medical examination.

KEYWORDS: Quasi experimental, human immunodeficiency virus, handlers.

INTRODUCTION

Hazardous health care waste is classified to: Sharps, non-sharps blood, body parts, chemicals, pharmaceuticals, medicals, devices and radioactive materials.^[1]

Health care waste is a reservoir of potential harmful major organisms, which can infect hospital patients, visitors, health-care workers and the public particularly the rage pickers. Other potential infectious risks include the spread of sometime resistant microorganisms from health-care facilities into the environment. Waste and by-products can also cause injuries (e. g. radiation burns, sharps-inflicted), poisoning and pollution (release of pharmaceutical products through waste water, toxic elements mercury, dioxins) health care waste can cause short term, public health problem as well as long-term environmental pollution.^[2]

Poor management of health care waste causes serious diseases in health care personnel, waste workers, patients

and the general public. The main sources of illness from infectious waste is probably due to needle stick injuries, which can cause hepatitis B and C and an estimated 250000cases of HIV. There are, how ever numerous other diseases that could be transmitted by contact with infectious health care waste.^[3]

Health care waste management generated from health-care facilities is a relatively recent issue and there are a lot of gaps in information. The management of health care waste is still in its infancy all over the world. There is a lot of confusion and problem among the generators, operators, decision-makers and the general community about the safe management of health care waste. The reason my be lack of awareness. WHO stated that the main reasons for failure of waste management are absence of effective waste management, lack of awareness about the health hazards, insufficient financial and human resources, poor control of waste disposal, and

many countries do not have appropriate regulation or do not enforce them.^[2]

The developed countries are paying a serious attention to the health care waste. However in Sudan the health care waste is collected and disposed together with domestic waste.^[4]

Once the assessment is completed health staff should receive suitable training and increasing the awareness is indispensable in this program which could be achieved via information dissemination thus health promotion expected to play leading role in the protection of nurses.

The objective:- To raise the awareness of the nurses to words the hazards of the health care waste in Khartoum north teaching hospital.

MATERIALS AND METHODS

1- Study Area: Khartoum North Teaching hospital was founded 1965 and is located in central area of Khartoum north Khartoum North Teaching hospital consists of the following department Internal medicine, Surgery, Pediatrics, Obstetric gynecology. Intensive care unit, out patient clinic, Blood bank, Emergency unit, Eye unit, ENT unit, Chest, Dental, Laboratories

2- Study design: Quos experimental [interventional] hospital based study conducted in Khartoum North Teaching Hospital.

3- Study population: Nurses 461.

4- Sample size: The sample size was determined from Khartoum north teaching hospital nurses 491 by the formula:- $N = z^2 p q d^2 / d^2$ Sample size = 147.

5- Sample selection: The individual of the study population were selected using the systematic random sample.

Phases of the study

Phase One

Data collection:- Preliminary survey was conducted in order to assess the knowledge, attitude and practice of nurses.

1-Questionnaire:- The designed questionnaire is used to assess the knowledge attitude and practice of nurses, about the hazards of healthcare waste, segregation, protective cloth, needle stick injury and the recapping of the needle, infectious diseases immunization against hepatitis, regular examination and the training.

3- Reports:- Reports are collected on information of reported cases of infectious diseases, regular medical examination, immunization and needle stick injury among the nurses.

Phase two:- (intervention) Consisted of the following: Development of training curriculum.

1-Orientation work shop: One day orientation work shop was held for senior staff attended by 26 doctors from all departments.

2-Training courses:- Training courses was held for nurses.

Lecture 1- Health care waste management Lecture 2 – Health care waste hazards Lecture 3 –Health protection and healthy practice for nurses 4-Audiovisual aids:- Audiovisual aids eg. Video tape and posters reinforcing the lectures and papers, video tap+ was used on from World Health Organization from Al Basher hospital in Jordan.

Phase three: - Evaluation:-1- Evaluate knowledge, attitude and practice of the nurses through questionnaire Comparison between pre and post questionnaire to assess effect of health education. 2- Revising records of intervention phases to evaluate health education activities.

Data analysis: The data was analyzed by computer using SPSS. Program (statistical package for social science).

RESULTS

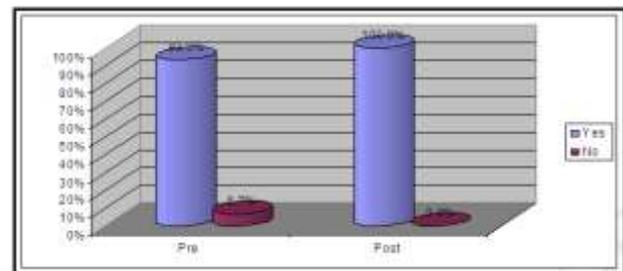


Figure 1: Knowledge of the nurses about the hazards of health care waste (N = 150). = 2. 299 df = 53 p. value (sig) = 0. 024.

Only (6. 7%) of the nurses had no knowledge about the hazards of the health care waste before intervention. After intervention all nurses (100%) have acquired full knowledge of the hazards of the health care wastes, T test =2. 299 p. value =0. 024 significant change.

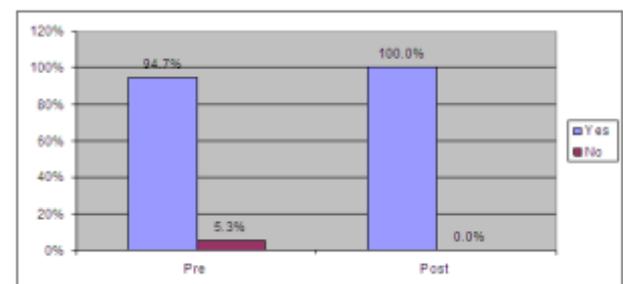


Figure 2: Usage of protective clothing. (N = 150) t =1. 136 df = 53 p. value (sig) = 0. 05.

Before the intervention only (5. 3%) of the nurses did not use the protective clothing. After intervention all nurses used protective clothing. T test =1. 136 p. value =0. 05 showing significant change.

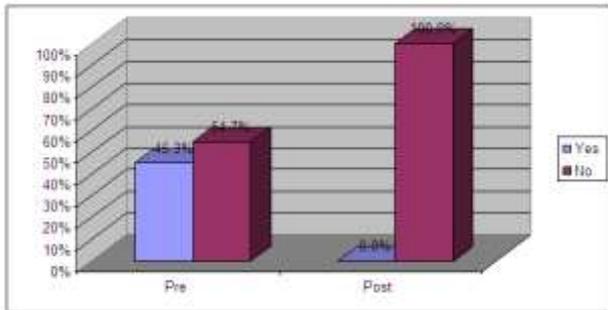


Figure 3: Exposure of the needle – stick injury. (N = 150) t =7. 834 df = 74 p. value (sig) = 0. 000

About the half (45. 3%) of the nurses were effected with needle – stick injury before and after the intervention there is no new cases of injury.

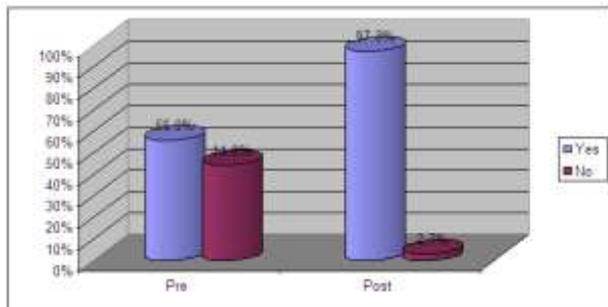


Figure 4: Immunization against hepatitis. (N = 150) t =3. 636 df = 53 p. value (sig) = 0. 718

Only one fifth (21. 3%) of the nurses were immunized against hepatitis before the intervention. After intervention half (48. 3%) of nurses were immunized which show that, there is increase awareness about the importance of immunization against hepatitis. T test =3. 636 p. value =0. 718 showing significant change.

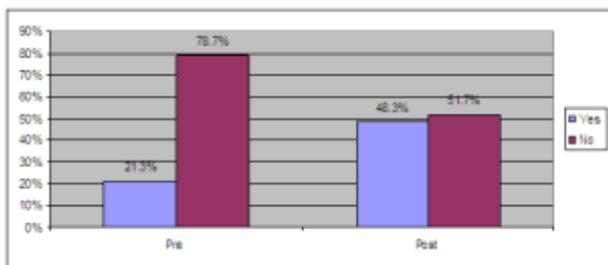


Figure 5: Training program in health care wastes. (N = 150) t =6. 854 df = 74 p. value (sig) = 0. 000.

More than half (56%) of nurses had got training in health care waste management before the intervention. After the intervention all (97. 3%) of nurses had got training in health care wastes. T test =6. 854 p. value =0. 000 showing highly significant change.

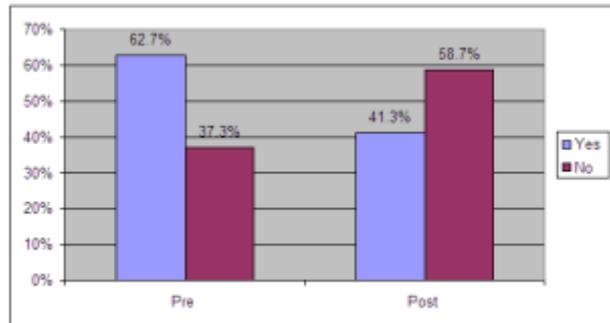


Figure 6: Recapping of syringes after use. (N =150) t =2. 784 df = 74 p. value (sig) = 0. 007

Before the intervention about two third (62. 7%) of the nurses were recapping the syringes. After the intervention less than half (41. 3%) were recapping the syringes due to the impact of health education. T test =2. 784 p. value =0. 007 showing highly significant change.

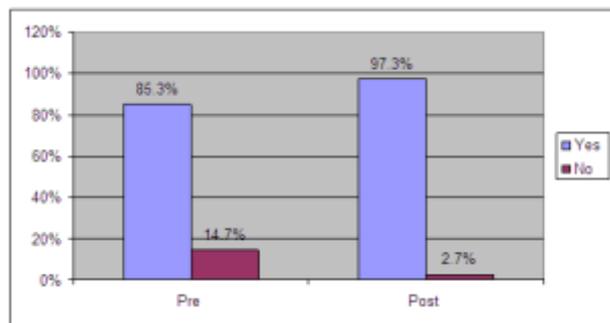


Figure 7: Knowledge of the importance of uncapping of the syringes after use. (N=150) t =2. 589 df = 74.

More than three quarters (85. 3%) of the nurses had the knowledge of recapping before the intervention. After the intervention all the nurses had the knowledge the importance of un recapping of the syringes after use it. T test =2. 589 p. value =0. 012 significant change.

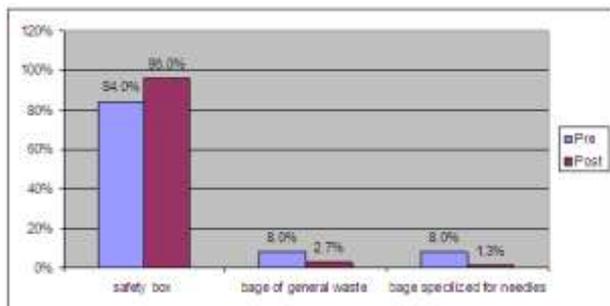


Figure 8: Sites of the collection of the used syringes. (N=150) t =2. 482 df = 74 p. value (sig) = 0. 015

More than four fifth (84%) of nurses disposed the syringes in the safety box before the intervention. After the intervention all (96%) of the nurses disposed the syringes in the safety box. T test =2. 482 p. value =0. 015 showing significant change.

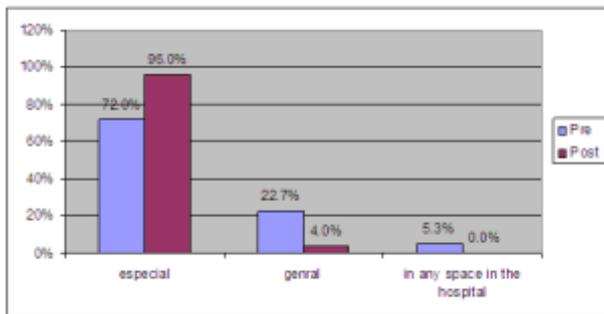


Figure 9: Storage of contaminated cotton and linen with blood and other body fluid of the patient and placenta. (N=150) $t=1.930$ $df = 74$ p . value (sig) = 0.05.

Less than three quarter (72%) of the nurses were put contaminated cotton and linen in specialized containers before the intervention. After the intervention all (96%) of the nurses put contaminated cotton and linen with the blood and other body fluid of the patient in the specialized containers. T test =1.930 p . value =0.05 significant change.

DISCUSSION

Only 6.7% of the nurses had no knowledge about the hazardous of the health care waste before the intervention. After the intervention all nurses 100% have acquired full knowledge of the hazards of health care waste showing highly significant change. Neverity h. Zaki and Manal. H. ahamed (2001) Alexandria illustrated that nurses had good level of knowledge regarding blood –born diseases and universal infection control precautions.^[5]

Before the intervention only 5.3% of the nurses did not use the protective clothing showing significant change. Khalid and Yousif (2010) in Sudan mention that the study population use personal prevention when attending to affected person in Khartoum teaching hospital 100% said wearing gloves and in Bahri teaching hospital 96% wear gloves.^[6] Hassant. H and others (2005) in Alexandria mention that most of nurses attributed their non compliance to protective measures for decreasing the efficiency in administering cytotoxic drugs, percent of nurse considered using protective measures as seeming in appropriate.^[7]

About the half (45.3) of the nurses were exposed to needle –stick injury before the intervention, After the intervention, indicate that there is no new cases of injury. A. A Mahfouz and others (2009 in Saudi Arabia reported that needle stick injury in previous years was reported by 16.5% of nurses and 0.38 injuries / person/year respectively.^[8] Neverity H. Zaki and Manaal H. Ahamed mention that sharps injuries have become one of the most important occupational injuries and routes of contagion among health care workers.^[5] Also Isam Elhktib (2006) mention that over 40% of the workers had been picked with needle while handling health care waste.^[9] Also Laymer U. B (1997) in Sweden stated that needle stick

injuries constitute the leading cause of job related injuries in hospitals.^[10] A. A Mahfouth and other (2009) illustrated that unsafe injections are responsible for million of cases of hepatitis Band C, and estimated 250,000 cases of HIV.^[8]

Only one fifth of the nurses were immunized against hepatitis before the intervention. After the intervention half of nurses were immunized which show that, there is increase awareness about the importance of the immunization against hepatitis showing significant change. A. A Mahfouz and others (2009) in Saudi Arabia stated that 82.4% of the nurses had received at least 3 doses of hepatitis b vaccine.^[8] Also Ezzadin A. A. Frank (2006) in Libia stated that more than three fourth (79%) of health care waste workers are not immunized against hepatitis B.^[11] Mustafa in Sudan (2009) mention that majority (91.6%) of study population don't receive any vaccination services against hepatitis B.^[12]

More than half of nurses had got training in health care waste management before the intervention. After the intervention all of nurses had got training in health care waste showing highly significant change. Hassanat. H and others (2005) reported that in service training programme of the nurses education is a potential means for implementing prevention strategies, as it attempts to alter perceptions and increase knowledge.^[13]

Before the intervention about two third of the nurses were recapping the syringes. After the intervention less than half were recapping the syringes due to the impact of health education showing highly significant change. A. A Mahafouz and others (2009) in Saudi Arabia mention that a significantly higher proportion of nurses were injured when recapping the needle usually before disposing 11.85%.^[8]

More than three quarters of the nurses had the knowledge of recapping before the intervention. After the intervention all the nurses had the knowledge of the importance of uncapping of the syringes after the using showing significant change. A. A Mahfouz and others (2009) in Saudi Arabia illustrated that using logistic regression analysis the following were identified risk factors for needle stick injury recapping the needle after use using two hands by nurses.^[8]

During the training the nurses have a knowledge about the risk of recapping of the syringes use using two hands and they were trained how to use one hand in recapping the used syringes to minimize the risk of the injuries.

More than four fifth of nurses disposed the syringes in the safety box before the intervention. After the intervention all of the nurses disposed the syringes in the safety box showing significant change. Mustafa (2009) in Sudan stated that the majority 88% of study population disposed sharps in safety boxes.^[12]

Less than three quarters of nurses put contaminated cotton and linen in specialized containers before the intervention. After the intervention all of the nurses put contaminated cotton and linen with the blood and other body fluid of the patient and placenta in the specialized containers showing significant change. Nevertity H Zaki and Manal H. Ahamed (2001) in Alexandria mention that nurses also revealed unsatisfactory performance regarding the care of contaminated wastages such as placenta and contaminated cotton and linen by blood or any other fluid of patient addressing out any disinfecting solution and then throw in an ordinary waste basket and not in resistant puncture container.^[5] Gihan. H. and Eman. A. Elzakaria (2005) in Alexandria mention that ensure worker safety through education and training to ensure under standing of the risks that wastes pose.^[14]

CONCLUSION

The intervention under taken achieved remarkable improvement in the knowledge, attitude and practice of the nurses as regards hazards of health care waste, and safety measures (immunization, wearing protective cloth, periodic examination, hand hygiene).

RECOMMENDATIONS

- 1- Continuous health education program for nurses on infection control measures including proper waste disposal.
- 2- Designate Training policy.
- 3- Establishment a comprehensive occupational health program.
- 4- Providing safety measures (immunization, wearing protective cloth, periodic examination, hand hygiene). and Medical surveillance

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