

# Knowledge, Attitude and Practice of Nurses toward COVID-19 Related Medical Waste Management

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## Abstract

**Background:** Medical waste is a source of generation of hazardous biomedical waste and its generation and disposal is an important aspect. With the rapid rise in the number of confirmed cases, the amount of COVID-19 related medical waste also increased significantly. **Aim:** To assess knowledge, attitude, and practice of nurses toward covid-19 related medical waste management, in hospitals of Arar, Northern Saudi Arabia. **Method:** This was a descriptive cross-sectional study. A pilot study was carried out on a sample of 10% of sample to test the feasibility of the study and clarity and applicability of the tool. A constructed questionnaire was used to collect the data. The collected data was analyzed using statistical package for social studies (SPSS) version 20. **Result:** Most (86.2%) of the participants had guidelines in hospital regarding medical waste during the Covid-19 period. More than third (35.2%) had a high Knowledge rate of hospital waste disposal (5<sup>th</sup> levels), 30.3% had 4<sup>th</sup> level, 24.8% had 3<sup>rd</sup> level of knowledge rate of hospital waste disposal. Regarding the attitude of participants toward hospital waste disposal during covid-19 outbreak, 71.0 %strongly agree and 22.8% agree that gloves are necessary for handling medical wastes, 69.0% strongly agree 23.4% agree that wearing PPE decreases the risk of contracting infection at the hospital. There was a significant relation between years of experience and frequency of separation of medical waste from general waste, cleaning the spills of liquid Medical waste immediately with proper procedure and sorting the medical waste during collection. **Conclusions:** Most of the hospital had guidelines regarding medical waste disposal during the Covid-19 period. Nurses have a good level of knowledge, a good attitude, a good practice regarding the medical waste disposal during the Covid-19 period.

**Keywords:** Knowledge, attitude, practice, nurses toward covid-19, medical waste management.

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## INTRODUCTION

Medical waste is a source of generation of hazardous biomedical waste and its generation and disposal is an important aspect, especially in countries with poor hygiene and high population [1]. It is defined as all types of waste generated by healthcare facilities including hospitals, clinics, and places where investigations, diagnosis and treatment are conducted, whether it is infectious or noninfectious in nature, chemicals, and hazardous as well as nonhazardous materials. Healthcare waste (HCW) includes infectious, chemical, expired pharmaceutical and radioactive items and sharps [2].

Health care waste (HCW) poses a serious threat due to its potential for causing environmental and public health hazards. A lack of awareness among health professionals as well as general population regarding improper handling of HCW, the absence of an effective regulatory framework and national policy, and financial strains are the major barriers of adequate HCW management, and all increase the potential risk of environment and public health hazards. Selecting a suitable technology as well as an effective waste management approach for the treatment of HCW is still a challenging task for the municipal authorities [3, 4].

With the rapid rise in the number of confirmed cases, the amount of COVID-19 related medical waste also increased significantly. The daily COVID-19 related medical waste in China is about 468.9 tons according to the press conference for the joint prevention and control mechanism of China's State Council [5].

It is currently a critical period for the prevention and control of the COVID-19 pandemic. The virus is thought to spread mainly from person-to-person through respiratory droplets and close contact, and the aerosol may be a potential transmission channel. Studies have shown that SARS-CoV-2 can survive on plastic and metal objects for up to 2-3 days, and there was extensive environmental contamination by confirmed patient [6].

During the pandemic, there is a extreme change in the nature of waste generated. PPE, masks, hand sanitizers are now part of daily lives, and the waste generated from it has added a voluminous load to waste treatment systems [7]. Ensuring that COVID-19 related medical waste is timely, orderly, efficiently, and harmlessly disposed has also become an important part of the battle against the pandemic [8].

The management of medical waste involves many departments and a large number of individuals which required of interdepartmental collaboration. During the initial epidemic period, a special multisectoral teams and subsequent management frame were established in hospitals. This frame united and coordinated the COVID-19 related training, supervision, safety management, material supply, and medical waste disposal [9].

The SARS-CoV-2 is a newly discovered, highly pathogenic, and infectious virus, all aspects of prevention and control shall be highly valued. Standardization and strict implementation of the management of COVID-19 related medical waste should be with careful consideration to reduce the risk of epidemic within hospitals [10].

The appropriate handling and disposal of clinical waste generated from hospitals and other healthcare institutions and facilities are essential. This will avoid any unwanted infection and adverse health and environmental consequences as the CW possibly contains infectious and contaminated human tissues, blood, body fluids, excretions drugs, needles, and other related materials. The practice is the same for COVID-19 related waste whereby with a proper management and disposal system any unwanted infection or spreading of the virus can be avoided [5].

Some governments have existing legislation and regulations in place for the disposal of infectious medical waste from hospitals and households. Continue

to follow these and consider if additional capacity and resources are needed to maintain compliance. Others that need assistance in operationalizing international regulations may seek guidance from the World Health Organization (WHO) [6].

There are no specific practices that are being implemented for COVID-19 waste management but a previous study in Seberang Jaya Hospital [11] reported the following practices for safe handling of COVID-19 waste: Only specific staff are handling COVID-19 waste: all the COVID-19 waste collection bags are being properly labelled, all the COVID-19 waste collection bags are being placed into the collection bin which is properly labelled and locked, only those assigned staff who are handling COVID-19 waste are allowed to use the access key to open the COVID-19 waste collection bin and on top of the usual PPE that the staff are wearing (surgical masks, disposable gloves, and disposable gowns) those who handle COVID-19 waste have to put on additional PPE such as caps, face shields and shoe covers.

COVID-19 has had a serious impact on all parts of our society, and waste management is no exception. Waste management in developing countries is usually not operated in accordance with international standards, and so there have been additional difficulties with an increased amount of potentially infected waste which requires additional, careful handling and treatment processes [12].

### **The Aim of Study**

To assess knowledge, attitude, and practice of nurses toward covid-19 related medical waste management, in hospitals of Arar, Northern Saudi Arabia.

### **Research Question**

To fulfill the aim of study, the following research questions were formulated:

- What is the overall knowledge of nurses in hospitals of Arar, KSA about covid-19 related medical waste management?
- What is the attitude, of nurses n hospitals of Arar, Northern Saudi Arabia toward covid-19 related medical waste management?
- What is the practice of nurses n hospitals of Arar, Northern Saudi Arabia toward covid-19 related medical waste management?

## **METHODOLOGY**

### **Study Design:**

A cross sectional study design was adopted.

### **Study Area and Setting:**

The study was carried out in hospitals of Arar, KSA. Arar is the capital of the Northern region of Saudi Arabia

**Study Period:**

The data was collected during a period of two months from January 1<sup>st</sup> 2023 to February 28<sup>th</sup> 2023.

**Study Population:**

All nurses in healthcare facilities in Arar, provided they fulfill the inclusion criteria.

**Inclusion Criteria**

- Nurses.
- Working in healthcare facilities.
- In Arar.

**Exclusion criteria**

- Not working in healthcare facilities.
- Non-nurses.
- Not in Arar region.

**Sample size:**

The minimum sample size for this study has been decided according to Swinscow, as follows:

$$n = \frac{Z^2 \times P \times Q}{D^2}$$

Where:

n: Calculated sample size

Z: The z-value for the selected level of confidence (1- $\alpha$ ) = 1.96.

P: An estimated prevalence of having positive attitude towards blood/organ donation as 50% since there is no specific figure for that

Q: (1 - 0.50) = 50%, i.e., 0.50

D: The maximum acceptable error = 0.05.

So, the calculated minimum sample size was:  $n = (1.96)^2 \times 0.50 \times 0.50 / (0.05)^2 = 384$

So, the minimum sample size was 384 participants. By adding 10% to compensate missing and incomplete questionnaires it reaches 420 participants.

**Data Collection Tool**

A self-administered online disseminated questionnaire was used for data collection. It composed of three main sections. Section 1 includes age, gender, marital status, years of experience and academic degree. The second section asked about knowledge of nurses regarding hospital waste. The third section assessed the nurses' practice towards hospital wastes during COVID-19 pandemic.

**Data Collection Technique**

The researcher distributed the questionnaire online on social media sites to nurses (WhatsApp - Facebook- Twitter ... etc) to be filled out personally. The questionnaire have a brief introduction explaining

the nature of the research and confidentiality of the information that given to participants.

**Data Management and Analysis Plan**

All data was entered and analyzed using SPSS 23 with using appropriate statistical methods for description and analysis. P-value less than 0.05 were considered for statistical significance .

**Ethical Considerations**

The research proposal was approved by the Regional Research and Ethics committee in the Maternity and children Hospital of Arar, Saudi Arabia. The purpose and intent of the questionnaire was briefly explained at the outset of the survey, and participants were reminded that their participation is completely voluntary. No names, dates of birth, or addresses were gathered for the surveys. All responses have been secure and kept secret.

**RESULTS**

**Table 1: Age and gender of participants (n=145), Age and Gender**

Parameter	No.	Percent
Age	• 18 – 30	42 29.0%
	• 31 – 40	61 42.1%
	• 41– 50	42 29.0%
Gender	• Male	48 33.1%
	• Female	97 66.9%

Table (1) illustrates the age and gender of participants. It is clear from the table (1) that the majority (42.1%) aged between 31-40 years and equal percentage (29%) aged 18-30 and 41-50 years. About two thirds (66.9%) of the participants were females.

**Table 2: Specialty and experience of participants**

Specialty	• Clinics	42	29.0%
	• Emergency	19	13.1%
	• Intensive care unit	19	13.1%
	• Isolation ward	6	4.1%
	• Operation room	15	10.3%
	• Others	44	30.3%
Experience	• < 10 years	77	53.1%
	• > 10 years	68	46.9%

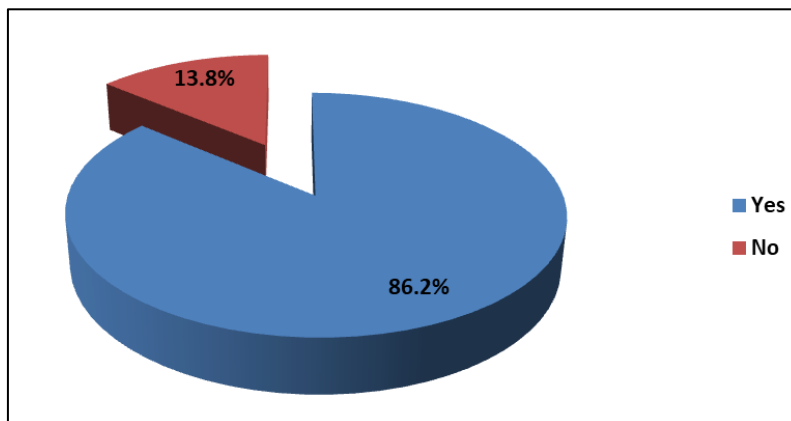
Table (2) shows the specialty and experience of participants. It is clear from the table 2 that 29.0% were working in the clinics, 13.1% in the emergency room, the same percentage in the intensive care unit, 10.3% in the operation room, and 4.1% were working in the isolation ward. The table (3) show that 46.9% had > 10 years of experience.

**Table 3: Guidelines for waste management during COVID-19 and participants knowledge of waste disposal**

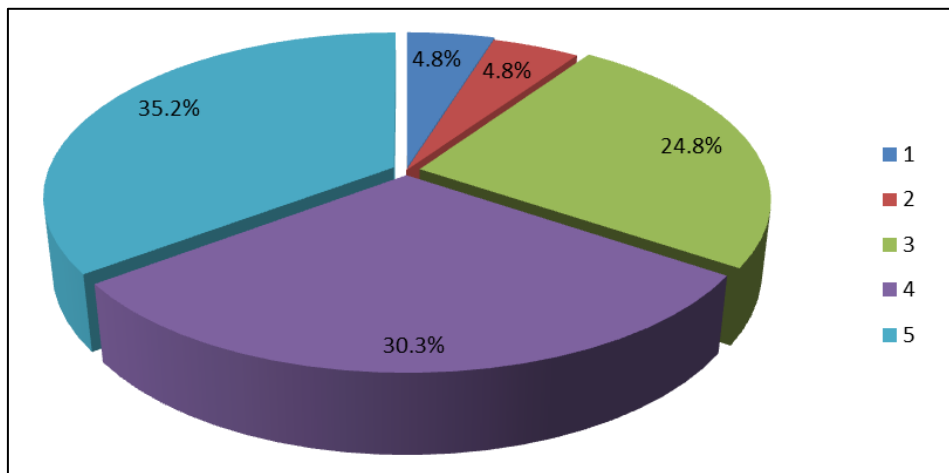
Presence of guidelines in hospital regarding medical waste during the Covid-19 period	• Yes	125	86.2%
	• No	20	13.8%
Knowledge rate of hospital waste disposal (5 levels)	• 1	7	4.8%
	• 2	7	4.8%
	• 3	36	24.8%
	• 4	44	30.3%
	• 5	51	35.2%

Table (3) and figure (1 & 2) shows the presence of guidelines for waste management during COVID-19 and participants knowledge of waste disposal. Most (86.2%) of the participants had guidelines in hospital regarding medical waste during

the Covid-19 period. More than third (35.2%) had a high Knowledge rate of hospital waste disposal (5<sup>th</sup> levels), 30.3% had 4<sup>th</sup> level, 24.8% had 3<sup>rd</sup> level of knowledge rate of hospital waste disposal.



**Figure 1: Presence of guidelines in hospital regarding medical waste during the Covid-19 period**



**Figure 2: Knowledge rate of hospital waste disposal**

**Table 4: Purpose of medical waste management**

Purpose of medical waste management	All the above	81	55.8%
	Reducing the risk of harm to healthcare workers, residents and the environment	43	29.6%
	Reducing the amount of waste	25	17.2%
	Ensure the collection and separation of waste	40	27.6%
	Establish suitable waste collection sites in medical facilities and hospitals	36	24.8%
	Establishing a proper waste transportation pathway on site	35	24.1%

Table (4) illustrates the purpose of medical waste management. 29.6% reported reducing the risk of harm to healthcare workers, residents and the environment, 27.6% reported that the purpose is ensure the collection and separation of waste, 24.8% establish

suitable waste collection sites in medical facilities and hospitals, 24.1% establishing a proper waste transportation pathway on site and 55.8% reported all the above.

**Table 5: Knowledge about the first stages of medical waste disposal (n=145)**

First stages of medical waste disposal	• Storage	26	17.9%
	• Transport	15	10.3%
	• Waste separation	90	62.1%
	• Waste treatment	14	9.7%

Table (5) shows the knowledge about the first stages of medical waste disposal. The answers were waste separation in 62.1%, Storage in17.9%, transport

in 10.3% and 9.7% of the participants reported that the first stages of medical waste disposal is waste treatment.

**Table 6: Knowledge of methods of separation, storage and treatment medical waste during COVID-19 pandemic**

Methods of separating medical waste in the hospital in which you work during COVID-19 pandemic	• Separation of infectious, non-infectious, acute, fluid and general waste	79	54.5%
	• Separation using color-coded boxes	43	29.7%
	• Use separate boxes with correct stickers	23	15.9%
Methods of storing medical waste in the hospital where you work during COVID-19 pandemic	• Storage for at least 3 days prior to collection	19	13.1%
	• Storage is in rooms dedicated to each type	71	49.0%
	• Store in leak-proof containers	55	37.9%
Methods of treating waste in the hospital in which you work during COVID-19 pandemic	• It is sent to specific places for processing	117	80.7%
	• It is treated in the hospital	28	19.3%

Table (6) shows the knowledge of methods of separation, storage and treatment medical waste during covid-19 pandemic. Regarding methods of separating medical waste in the hospital in which you work during covid-19 pandemic.54.5 % reported separation of infectious, non-infectious, acute, fluid and general waste,29.7 % reported separation using color-coded boxes and 15.9%use separate boxes with correct stickers. As regards methods of storing medical waste in

the hospital where you work during covid-19 pandemic, 49.0% of the participants reported storage is in rooms dedicated to each type 37.9%store in leak-proof containers. Regarding methods of treating waste in the hospital in which you work during covid-19 pandemic, 80.7% reported it is sent to specific places for processing and 19.3% reported it is treated in the hospital.

**Table 7: Attitude of participants toward hospital waste disposal during COVID-19 outbreak**

Gloves are necessary for handling medical wastes	• Agree	33	22.8%
	• Strongly agree	103	71.0%
	• Disagree	5	3.5%
	• Strongly disagree	4	2.8%
Wearing PPE decreases the risk of contracting infection at the hospital	• Agree	34	23.4%
	• Strongly agree	100	69.0%
	• Disagree	6	4.5%
	• Strongly disagree	5	3.4%
Efforts in safe waste disposal are a financial burden on the administrative department of the hospital	• Agree	59	40.7%
	• Strongly agree	64	44.1%
	• Disagree	20	13.8%
	• Strongly disagree	2	1.4%
Waste disposal is a team work not a hospital responsibility	• Agree	48	33.1%
	• Strongly agree	81	55.9%
	• Disagree	13	8.9%
	• Strongly disagree	3	2.1%
Likes to cooperate in hospital waste management team	• Agree	48	33.1%
	• Strongly agree	82	56.6%
	• Disagree	13	8.9%

	• Strongly disagree	2	1.4%
Waste bins improve waste handling	• Agree	48	33.1%
	• Strongly agree	86	59.3%
	• Disagree	8	5.5%
	• Strongly disagree	3	2.1%
Waste management is my professional task	• Agree	47	32.4%
	• Strongly agree	73	50.3%
	• Disagree	21	14.5%
	• Strongly disagree	4	2.8%
Separating medical waste is important	• Agree	45	31.0%
	• Strongly agree	88	60.7%
	• Disagree	6	4.1%
	• Strongly disagree	5	3.4%
Follow the hospital guidelines regarding medical waste in COVID-19 period	• Agree	46	31.7%
	• Strongly agree	87	60.0%
	• Disagree	8	5.5%
	• Strongly disagree	4	2.8%

Table (7) illustrates the attitude of participants toward hospital waste disposal during covid-19 outbreak. 71.0 % strongly agree and 22.8% agree that gloves are necessary for handling medical wastes. 69.0% strongly agree 23.4% agree wearing ppe decreases the risk of contracting infection at the hospital

44.1%strongly agree 40.7% agree that efforts in safe waste disposal are a financial burden on the administrative department of the hospital. 59.3% strongly agree and 33.1% agree that waste bins improve waste handling 50.3%strongly agree 32.4%agree that, waste management is my professional task.

**Table 8: Practice of participants toward hospital waste disposal during COVID-19 outbreak**

How often separate medical waste from general waste	• Always	110	75.9%
	• Never	8	5.5%
	• Sometimes	27	18.6%
Put sharp medical waste into a hard container	• Always	109	75.2%
	• Never	8	5.5%
	• Sometimes	28	19.3%
Wash hands thoroughly after contact with medical waste, even if you had worn gloves	• Always	110	75.9%
	• Never	4	2.8%
	• Sometimes	31	21.4%
Clean spills of liquid Medical waste immediately with proper procedure	• Always	105	72.4%
	• Never	5	3.4%
	• Sometimes	35	24.1%
Close and seal the medical waste bag when it is 1/3 to 2/3 full	• Always	83	57.2%
	• Never	13	9.0%
	• Sometimes	49	33.8%
Sort medical waste during collection	• Always	83	57.2%
	• Never	13	9.0%
	• Sometimes	49	33.8%
Separate sharp waste from blunt waste	• Always	104	71.7%
	• Never	9	6.2%
	• Sometimes	32	22.1%
Move medical waste using trolleys	• Always	90	62.1%
	• Never	6	4.1%
	• Sometimes	49	33.8%
Clean the waste trolley directly after each collection	• Always	100	69.0%
	• Never	9	6.2%
	• Sometimes	36	24.8%

Table (8) shows the practice of participants toward hospital waste disposal during covid-19 outbreak. 75.9 % separate medical waste from general waste, 75.2% always put sharp medical waste into a hard container, 75.9% always wash hands thoroughly after contact with medical waste, even if you had worn gloves, 72.4% always clean spills of liquid medical

waste immediately with proper procedure, 57.2% always close and seal the medical waste bag when it is 1/3 to 2/3 full. 71.7 % always separate sharp waste from blunt waste, 62.1% always move medical waste using trolleys, 69.0% always clean the waste trolley directly after each collection.

**Table 9: The relationship between years of experience and practice of participants toward hospital waste disposal during COVID-19 outbreak**

		Experience		Total (N=145)	P value
		< 10 years	> 10 years		
How often separate medical waste from general waste	• Always	64	46	110	.027
		83.1%	67.6%	75.9%	
	• Never	1	7	8	
		1.3%	10.3%	5.5%	
• Sometimes	12	15	27		
	15.6%	22.1%	18.6%		
Put sharp medical waste into a hard container	• Always	63	46	109	.143
		81.8%	67.6%	75.2%	
	• Never	3	5	8	
		3.9%	7.4%	5.5%	
• Sometimes	11	17	28		
	14.3%	25.0%	19.3%		
Wash hands thoroughly after contact with medical waste, even if you had worn gloves	• Always	60	50	110	.500
		77.9%	73.5%	75.9%	
	• Never	1	3	4	
		1.3%	4.4%	2.8%	
• Sometimes	16	15	31		
	20.8%	22.1%	21.4%		
Clean spills of liquid Medical waste immediately with proper procedure	• Always	63	42	105	.026
		81.8%	61.8%	72.4%	
	• Never	2	3	5	
		2.6%	4.4%	3.4%	
• Sometimes	12	23	35		
	15.6%	33.8%	24.1%		
Close and seal the medical waste bag when it is 1/3 to 2/3 full	• Always	47	36	83	.221
		61.0%	52.9%	57.2%	
	• Never	4	9	13	
		5.2%	13.2%	9.0%	
• Sometimes	26	23	49		
	33.8%	33.8%	33.8%		
Sort medical waste during collection	• Always	60	32	92	.000
		77.9%	47.1%	63.4%	
	• Never	0	4	4	
		0.0%	5.9%	2.8%	
• Sometimes	17	32	49		
	22.1%	47.1%	33.8%		
Clean the waste trolley directly after each collection	• Always	58	42	100	.210
		75.3%	61.8%	69.0%	
	• Never	4	5	9	
		5.2%	7.4%	6.2%	
• Sometimes	15	21	36		
	19.5%	30.9%	24.8%		

Table (9) shows the relationship between years of experience and practice of participants toward hospital waste disposal during COVID-19 outbreak.

There was a significant relation between years of experience and frequency of separation of medical waste from general waste, cleaning the spills of liquid

Medical waste immediately with proper procedure and sorting the medical waste during collection.

## DISCUSSION

In the present study, regarding methods of separating medical waste in the hospital during covid-19 pandemic; 54.5% reported separation of infectious, non-infectious, acute, fluid and general waste; 29.7% reported separation using color-coded boxes and 15.9% use separate boxes with correct stickers. As regards methods of storing medical waste in the hospital during covid-19 pandemic; 49.0% of the participants reported storage in rooms dedicated to each type 37.9% store in leak-proof containers. Agamuthu *et al.*, (2020) undertook a case study in Malaysia which reported that medical waste bags (yellow bags) are used to collect COVID-19 medical waste, which was then labelled as COVID-19 medical waste. These yellow bags will be placed in the COVID-19 collection bins, which are clearly labelled and securely locked. The access key is only given to designated cleaners who deal with COVID-19 medical waste. Every day, the collection bin will be replaced. While waiting for the lorry to transport the COVID-19 medical waste to the incinerator outside the hospital, the collection bin will be kept in cold storage. Autoclave, incineration, and chemical disinfection may all be used to treat clinical medical waste [13]. Mekonnen *et al.*, (2021) carried out an institution-based cross-sectional and case study to assess the clinical medical waste generation rate and management in Ethiopia. The study found that hospital wastes were temporarily stored using plastic buckets with cover for non-sharp wastes. Safety boxes were used for sharp waste in the emergency room and surgical and gynecological wards. Waste disposal methods included incineration and an open container that was picked up by waste collector companies and plastic bottle houses and dumped in an open dumpsite. All medical infectious wastes, such as sharp materials (syringes, needles, blades, and others), anatomical wastes, used face masks, and paper towels, are disposed of in the waste incinerator [15].

In the current study, Regarding the practice of participants toward hospital waste disposal during covid-19 outbreak; 75.9% separate medical waste from general waste, 75.2% always put sharp medical waste into a hard container, 75.9% always wash hands thoroughly after contact with medical waste, even if worn gloves, 72.4% always clean spills of liquid medical waste immediately with proper procedure, 57.2% always close and seal the medical waste bag when it is 1/3 to 2/3 full 71.7% always separate sharp waste from blunt waste, 62.1% always move medical waste using trolleys, 69.0% always clean the waste trolley directly after each collection. Peng *et al.*, (2020) conducted a study in a general hospital to illustrate the practice of medical waste disposal responding to the 2019-2020 novel coronavirus pandemic, they found that, several medical waste buckets with distinct

markings were put in public areas of the hospital and wrapped in double-layer medical waste bags and disposed of as general medical waste by a designated employee. In case of infectious and pathological waste should be wrapped in double-layered medical waste containers, and the bags' surfaces should be sterilized with a chlorine-based disinfectant before being stored in a sealed medical waste bucket. The injury waste is placed in the sharps box to keep the packaging from being damaged, then the chlorine-containing disinfectant is sprayed once more after packaging for disinfection. Specimens or storage solutions from the lab containing pathogens should be sealed and packed first after that, they should be sterilized with high-pressure steam at 121°C for 110 minutes before being discarded in the medical waste bucket. Also, the study reported that high-temperature incineration is preferred for COVID-19-related medical waste which is the most popular and efficient method for killing infectious diseases and it can be used to dispose of a variety of infectious medical waste. Medical waste can also be treated with sanitary landfill after steaming and boiling at a high temperature in areas without incineration capability [14]. Sangkham S. *et al.*, (2020) showed that Medical waste created by clinics, wards, specialized examination rooms, and medical laboratory should be considered COVID-19-related medical waste and labeled as "COVID-19 infectious waste." during the packaging process, special staff should apply this mark. COVID-19-related medical waste was stored in a dedicated temporary storage area with clearly visible warning signs, to prevent waste from mixing with other waste in the general wards, medical waste buckets are put in this location. Then, the disposal of medical waste related to COVID-19 should be arranged by specially trained workers and special vehicles, which should be different from general medical waste collection vehicles which should have a non-absorbent, sealed loading area, which can be locked, disinfected and separated from the main vehicle [16]. In another study, municipal solid waste incinerators to co-process medical waste as a supplementary emergency disposal method for medical waste disposal are necessary and feasible. The temperature of the rotary kiln is controlled above 850 °C, and the hazardous waste is thoroughly incinerated into high- temperature flue gas and slag residue after about 60 min of high-temperature incineration [17].

In the present study, most (86.2%) of the participants had guidelines in hospital regarding medical waste during the Covid-19 period. In China, Ma Yufeng *et al.*, (2020) conducted a study to assess guidelines for emergency treatment of medical waste during COVID-19 which reported that during COVID-19, the guidelines for emergency treatment of medical waste during COVID-19 for medical waste disposal were available but still woefully insufficient [17].



## CONCLUSIONS

Most of the hospital had guidelines regarding medical waste disposal during the Covid-19 period. Nurses have a good level of knowledge regarding the medical waste disposal during the Covid-19 period. Nurses have a good attitude regarding the medical waste disposal during the Covid-19 period. Nurses have a good practice regarding the medical waste disposal during the Covid-19 period. There was a significant relation between years of experience and frequency of separation of medical waste from general waste, cleaning the spills of liquid medical waste immediately with proper procedure and sorting the medical waste during collection. There was a highly significant relation between years of experience and frequency of separation of medical waste from general waste, and cleaning the spills of liquid medical waste immediately with proper procedure and sorting the medical waste during collection.

## RECOMMENDATIONS

- Hospital should providing continuous training for nursing staff regarding medical waste disposal during the Covid-19 period.
- Nurses should updating their knowledge and skill regarding regarding medical waste disposal during the Covid-19 period.
- Pharmacists and all health care workers should be included in training regarding medical waste disposal during the Covid-19 period.

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