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Assessment of Health Workers' Knowledge about Blood Borne Diseases

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A B S T R A C T

Blood borne diseases is a serious global public health problem, health workers are in danger of infection. 1- Assessment of health workers' knowledge about blood borne diseases in Al- Basra general hospital. 2- Assessment of health workers' knowledge precautions to prevent infections. Across sectional institutional study was conducted among health workers the total subjects studied were 50 of health workers. Data was entered in *spss* program and analyzed using chi-square test. Highest percentage of the sample was aging group (20-29) years (42%), female (66%), blood blank unit (46%), institute (54%) and employee years (1-10) (64%). The highest percentage of relation of health workers' knowledge and age for the age group (50-59 years) (100%), the percentage of knowledge males (88.23%) was higher than females (75.7%), highest percentage for knowledge was for blood bank unit workers (90.3%), highest percentage for employment years (21-30 years) and (more than 30 years) (100%), and highest percentage for knowledge was for college (91.6%). There is no significant difference between health workers' knowledge and age, gender, work place, employment years and education. Health workers staff in Al-Basra general hospital has sufficient knowledge about blood borne diseases but need more knowledge about transmission methods of blood borne diseases and how to deal with blood spill and contaminated fluid. The employment and direct dealing with blood present good information to health workers about blood borne diseases.

Introduction

Blood-borne diseases include a wide spectrum of infectious conditions that infect their target tissue through the circulation of blood (Greenberg *et al.*, 2000). Transmission of blood borne diseases is by direct contact with infected blood or other body fluids. The infection risk can be reduced by avoiding direct contact with blood and body fluids, by avoiding the use of contaminated needles and syringes for injection or any other medical or cosmetic procedure penetrating the skin (including acupuncture, piercing and tattooing), and by avoiding transfusion of unsafe blood. Hepatitis B and C, HIV/AIDS and malaria are examples of blood borne diseases (WHO, 2007; Dionne-Odom *et al.*, 2016).

In the health-care setting, transmission of blood-borne pathogens represents a matter of increasing public interest over the past number of years. There have been several reports of health-care workers, who had been involved in exposure-prone procedures, infected with

blood-borne pathogens (Slainte and Leana, 2005).

Exposure to blood-borne pathogens shows a serious danger to health care workers (HCWs). Needlestick and sharps injuries have been reported as transmission method of at least 20 different pathogens (Collins and Kennedy, 1987; Tarigan *et al.*, 2015). Risk factors of infecting or transmitting a blood borne pathogen are not the only healthcare provider. For this, knowledge of health worker about blood borne diseases becomes more importance in save health worker life.

The study aims to determine to the awareness of blood borne diseases among health workers, to assess the existing knowledge of health workers' knowledge precautions to prevent infections, and to find out the association between the levels of knowledge and demographic variables.

Materials and Methods

In this cross-sectional study, questionnaire composed of (20) questions about blood borne diseases was evaluated by four referees to add their notes. After that, questionnaire was distributed to (50) health workers, we divided years of experience for them to classes (1-10, 11-20, 21-30,>30) and their level of education to (secondary school nurses, institute, college). Also we divided their age to classes (20-29, 30-39, 40-49, 50-59) and work place (blood bank unit, operation rooms, dialysis unit, laboratory unit). All participants answer 20 questions through self-administered, and we collect the score of each sample to evaluate knowledge of health worker about blood borne diseases.

Setting of the project

This study was carried out from health worker in Al-Basra General Hospital from 22-October-2017 and ends the work in 15-April-2018.

Sample of study

Fifty health workers' working in (blood bank unit, operation rooms, dialysis unit, laboratory unit) in Al –Basra General Hospital were participated in the study project.

Project instrument

The questionnaire was designed and constructed after reviewing related literatures, obstetrical background and previous studies.

The questionnaire consisted of three parts which included the following appendix:

Part one: socio-demographic characteristics

Demographic data relative to socio-demographic date characteristic such as nurse age, gender, working place, years of employment and level of education.

Part two: knowledge regarding blood borne diseases

Included (16) question related health workers' knowledge regarding blood borne disease such as: causes, type and transmission ways.

Part three: knowledge regarding precaution to prevent infection

Included (4) question related health workers' knowledge about how to prevent infection.

Limitation of the study

The difficulties encounter the researcher in conducting the present study as following:

This study was performed in one hospital in Basra city and it did not cover all city hospital.

The study population was limited to (50) health workers because some of them were not cooperative and refuse to participate.

Data collection

Data were collected from 22-October-2017 to the investigator had explained the benefit of the study to the participants and ask them to answer the questionnaire items in the same day of visiting.

Data analysis

Data analysis of study sample was done by using the *SPSS* (Statistical package for social sciences) (version 16). Percentage (%) and chi-square data analysis approaches were used in order to analyze and assess the result of the study.

The criteria of probability levels were used to determine the significance of statistical test as following:

High significance ($P< 0.01$), Significance ($P<0.05$) and No significance ($P\geq 0.05$).

Results and Discussion

Socio-demographic characteristics of the health workers

Majority nurses were females (66%), within the age group of (20-29 and 30-39).

As to level of education, most health workers are graduated from institute (54%). As to years of experience, most of them are working in blood bank unit and laboratory (46% and 24%), and most health workers (64%) have rendered 1-10 years of employment (Table 1).

Descriptive statistics of level of health workers' knowledge regarding blood borne diseases.

According to Table 2, number of health workers who showed good knowledge through correct answers is (40) which present (80%).

Relationship among level of knowledge and variables of study (age, gender, level of education, employment years, and working place).

Table 3 shows the maximum good knowledge in the age (50-59) [100%] and the minimum good knowledge in the age (20-29) [71%], the relation between knowledge and age was insignificant.

The male have good knowledge (88.23%) compared to the female (75.7%). The relation between knowledge and gender was insignificant. Table 3 shows (40) good knowledge, the maximum score (21) was in blood bank unit (91.3%) and the minimum score (5) was in dialysis unit (62.5%). The relation between the knowledge and work place was insignificant.

The maximum good knowledge (100%) in employment years (21-30 and >30) and the minimum good knowledge (71.8) in (1-10). The relation between knowledge and employment years was insignificant.

The maximum good knowledge (91.6) was college nurses while the minimum good knowledge (63.6) in secondary school nurses. The relation between knowledge and education is insignificant.

Table 4 showed that majority of nurses answer the questions (8 and 10) correctly (98%), while the majority answer the question (12) wrong (86%).

Table 5 shows the nurses have good knowledge to prevent infection in question 17(94%), while have bad knowledge in question 18 (86%).

Table.1 Socio-demographic characteristics of the health workers (n=50)

Variable		No.	%
Age	20-29 years	21	42
	30-39 years	15	30
	40-49 years	6	12
	50-59 years	8	16
Sex	male	17	34
	female	33	66
Working department	Blood bank unit	23	46
	Operation room	7	14
	Dialysis unit	8	16
	Laboratory unit	12	24
Employment of nurses by years	1-10 years	32	64
	11-20 years	8	16
	21-30 years	5	10
	30 years and over	5	10
Level of education	Secondary school nurses	11	22
	Institute	27	54
	College	12	24

Table.2 Percentage of health workers according to knowledge

	No. of nurses	Percentage
Good knowledge	40	80%
Bad knowledge	10	20%

Table.3 Relation between health workers' knowledge and variables

Age	Good knowledge	Percentage	Bad knowledge	Percentage	Total
20-29	15	71%	6	29%	21
30-39	12	80%	3	20%	15
40-49	5	83%	1	17%	6
50-59	8	100%	0	0%	8
Total	40	80%	10	20%	50
df =3		X^2 =3.006			p =0.391
Sex	Good knowledge	Percentage	Bad knowledge	Percentage	Total
Male	15	88.23%	2	11.77%	17
Female	25	75.7%	8	24.3%	33
Total	40	80%	10	20%	50
X^2 =1.092		df = 1			p =0.296
Place	Good knowledge	Percentage	Bad knowledge	Percentage	Total
Blood bank unit	21	91.3%	2	8.7%	23
Operation room	5	71.4%	2	28.6%	7
Dialysis unit	5	62.5%	3	37.5%	8
Laboratory unit	9	75%	3	25%	12
Total	40	80%	10	20%	50
X^2 = 3.877		df =3			p =0.275
Years	Good knowledge	Percentage	Bad knowledge	Percentage	Total
1-10	23	71.8%	9	28.2%	32
11-20	7	87.5%	1	12.5%	8
21-30	5	100%	0	0%	5
>30	5	100%	0	0%	5
X^2 = 4.102		df =3			p =0.251
Education	Good knowledge	Percentage	Bad knowledge	Percentage	Total
Secondary school nurses	7	63.6%	4	36.4%	11
Institute	22	81.4%	5	18.6%	27
College	11	91.6%	1	8.4%	12
Total	40	80%	10	20%	50
X^2 = 2.899		df =2			p =0.235

Table.4 Health workers' knowledge about blood borne diseases according to questionnaire items

Questions	answers	NO	%
1-What is the blood borne diseases.... a- Microorganisms such as viruses or bacterial b-air borne particles that are easily inhaled c-small larva that feed on animal carcass	Correct answer	48	96
	Wrong answer	2	4
2-Type of blood borne diseases.. a-syphilis b-tuberculosis c-tetanus	Correct answer	28	56
	Wrong answer	22	44
3-What is the way leading to transmitted blood borne diseases? a-sharps and splash exposure b-needle stick and dusts exposure c-splash and fluid exposure	Correct answer	36	72
	Wrong answer	14	28
4-The device with hollow-bore needles can... a-be the highest risk of injury b-be increased risk of injury c-be decrease risk of injury	Correct answer	33	66
	Wrong answer	17	34
5-HBV transmitted primarily through.. a-blood to blood b-person to person c-blood to person	Correct answer	19	38
	Wrong answer	31	62
6-HBV can survive in dried blood for.. a-10 days b-3 days c-7 days	Correct answer	8	16
	Wrong answer	42	84
7-80% of people infected with HCV.. a-asymptomatic b-have jaundice and fatigue c-have abdominal pain and loss of appetite	Correct answer	36	72
	Wrong answer	14	28
8-HIV caused by.. a-bacteria b-virus c-fungus	Correct answer	49	98
	Wrong answer	1	2
9-HIV... a-cannot survive very long outside of human body b-can survive very long outside of human body c-can survive very short outside of human body	Correct answer	24	48
	Wrong answer	26	52
10-HIV.. a-attacks the central nervous system b-attacks the cardiovascular system c-attacks the immune system	Correct answer	49	98
	Wrong answer	1	2
11-Getting test for HIV when...	Correct	32	64

a-symptoms appear b- you feel infected with HIV c- touch the person infected with HIV	answer Wrong answer	 18	 **36**
12-One of transmission way of HIV except blood is... a-breast milk b-sewage c-saliva	Correct answer Wrong answer	7 43	**14** **86**
13-Brucellosis is caused by... a-bacteria b-virus c-fungus	Correct answer Wrong answer	35 15	**70** **30**
14-The onset of Brucellosis can be insidious or acute generally beginning within... a-4 to 7weeks incubation b-2 to 4 weeks incubation c-3 to 5 weeks incubation	Correct answer Wrong answer	25 25	**50** **50**
15-The most common complication of Brucellosis... a-osteoporosis disease b-osteoarticular disease c-meningitis	Correct answer Wrong answer	20 30	**40** **60**
16 Malaria transmitted to human by... a-fleas b-mosquitoes c-bacteria	Correct answer Wrong answer	34 16	**68** **32**
Total		50	**100%**

Table.5 Health workers' knowledge about precautions to prevent infections according to questionnaire items

Questions	Answer	NO	%
17-One of the most effective protection against blood borne disease a-wear two layers of gloves b-wear mask c-wear gown	Correct answer Wrong answer	47 3	**94** **6**
18-If exposed to blood borne diseases a-wash thoroughly with an abrasive soap b-wash thoroughly with denatured alcohol c-wash thoroughly with soap and running water	Correct answer Wrong answer	7 43	**14** **86**
19-Spilled blood or body fluid must be removed by a-covering with paper towels saturated with disinfectant for 20 min b-cleaning with disinfectant and running water immediately C-cleaning with alcohol, soap and water.	Correct answer Wrong answer	10 40	**20** **80**
20- One of protection methods against malaria is... a-vaccination b-gloves and mask c-protection against mosquitoes	Correct answer Wrong answer	17 33	**34** **66**
Total		50	**100%**

Our study was designed to evaluate the health workers' knowledge about blood borne diseases and precaution to prevent infection, three forma was used for the evaluation, first forma represent the demographic features for the studied group, the second forma consist of sixteen items represent the level of knowledge about blood borne diseases, the third forma consist of four items represent the level of knowledge about precaution to prevent infection. Our study showed that health workers working in hospital for over than thirty years have sufficient knowledge about blood borne diseases and precaution to prevent infection. This explains the importance of employment and training in to get good knowledge and practice. This result agreed with Dellobelle *et al.,* (2009) study in South Africa who mentioned that lack of training impacting negatively on health workers (Dellobelle *et al.,* 2009), there was no statistical difference between males and females in knowledge, this result may due to the same education and experience they have been received. Our study showed that health workers in blood bank unit have the highest knowledge might because they deal directly with blood compared with other hospital department. According to education, our study agreed with Aziz, (2013) study in Erbil city at that there is no significant relation between health education role and some variables (Aziz, 2013). As noticed from table 4 there is good information about HIV disease regarding other diseases constructed in the questionnaire although there are few cases in our hospitals (Raddam, 2007, MHI, 2012) this is due to widespread information about the disease. Most of health workers participated in our study did not have enough knowledge about the methods of transmission of blood borne diseases, how to deal with blood spill, and what to do after infection. So they did not have enough knowledge about precautions to protect themselves from infection.

In our study, it was concluded that:

Health workers staff in Al-Basra general hospital has sufficient knowledge about blood borne diseases.

The employment and direct dealing with blood present good information to health workers about blood borne diseases.

Health workers need more knowledge about transmission methods of blood borne diseases and how to deal with blood spill and contaminated fluid.

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