Attitude, Practice and Associated Factors Towards Patients With Hepatitis B and C Viruses Among Nurses Working in Governmental Hospitals in Addis Ababa, Ethiopia, 2019.

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Abstract

Background: nurses spend much time caring for patients with different diagnosis some of which are potentially infectious. Infectiousness of some diseases may affect nurse's behavior to care for patients equally and effectively. Hepatitis B and C are infectious global treats responsible for 96% of hepatitis related mortality. Hence, this study aimed to assess attitude, practice and associated factors towards patients with hepatitis B and C viruses among nurses working in governmental hospitals in Addis Ababa.

Methods: Institutional based cross-sectional study was conducted in public hospitals in Addis Ababa Ethiopia from April 01 to 30, 2019. A total of 396 nurses were selected using simple random sampling technique. Data was collected using a pretested, validated self-administered questionnaire. Epi info version 7.2 and SPSS version 24 were used for data entry and analysis respectively. Binary and multivariable logistic regression analyses were used to characterize the association between dependent and independent variables.

Results: Among 383 respondents 45.6% and 35.8% reported to have positive attitude and good practice respectively. Receiving training on infection prevention and getting vaccinated against hepatitis B are significantly associated with nurse's attitude. Nurses who served for more than ten years and those vaccinated against hepatitis B are also found to have good practice.

Conclusion: The overall level of nurse's attitude and practice towards patients with hepatitis B and C viruses is significantly low. Therefore nurses need to get training on infection prevention and hepatitis B vaccine for free. Proper supply of personal protective equipment should also be assured.

Background

Viral hepatitis is a leading cause of morbidity and mortality from liver diseases worldwide. About 1.34 million deaths from viral hepatitis were reported globally by the year 2015. Hepatitis B virus (HBV) and hepatitis C virus (HCV) accounted for 96% of viral hepatitis related mortality. In 2015 WHO estimated 257 million and 71 million global cases of HBV and HCV respectively. The majority of these cases were in Asia and Africa (1). A systemic review and meta-analysis on hepatitis viruses in Ethiopia showed 7.4% (95% CI: 6.5–8.4) pooled prevalence of HBV and 3.1% (95% CI: 2.2–4.4 for that of anti-hepatitis C virus antibody (2).

Hepatitis viruses B and C presents at a higher concentration in infected blood. These viruses are also detected in exudates, semen, and vaginal secretion and to the lowest amount in saliva (3, 4). Easy transmission from infected blood and body fluid (BBF) puts them as major occupational hazards for health care professionals especially for those who spend much time with these patients. Nurses are among the professionals spending much time with patients and reporting the highest proportion of exposure to BBF (5, 6).

Following infection prevention techniques is the basis for avoiding HBV and HCV transmission in health care setting. Additionally, individuals exposed for BBF or needle stick injury should wash the area with soap and water and get hepatitis B immune globulin (HBIG) as a prophylaxis. Vaccination against hepatitis B also helps to protect self from acquiring the virus. However, there is no effective vaccine against HCV (7, 8).

In 2016 WHO approved global strategy to eliminate viral hepatitis as a global public health treat by the year 2030 (9). Action plans has been established in each WHO regions for the accomplishment of this global strategy. In Africa, regional action plan is formulated for 2016 to 2020 targeting at preventing new HBV and HCV infection by 30%, reducing HBV and HCV related death by 10%, delivering high quality care and stopping stigma and discrimination of patients (10). However, viral hepatitis prevention has faced many challenges in countries with limited resources. Low community awareness, lack of screening services and timely care are among the challenges to eliminate viral hepatitis especially hepatitis viruses B and C (11).

Patients with hepatitis B and C are subjected to stigmatization from friends, family members as well as health care workers. Fear of stigmatization also causes many patients not to disclose their condition for their close families. This in turn affects their quality of life and increase disease transmission and progression (12).

The stigma and discrimination are even worse when nurses spending much time with these patients practice it. Infectiousness of the viruses and lack of confidence in protecting self are the reasons for nurses to face an ethical dilemma in deciding whether to care with dignity and equality for HBV and HCV infected individuals. Previous studies showed that some nurses feel anxious about acquiring HBV and HCV, while others feel confident to protect them self when caring for these patients (13).

Research studies reveal that nurses had better knowledge of HBV and HCV but fail to comply with preventive practices against HBV and HCV. This increases nurse's exposure to HBV and HCV and compromises the quality of care given for these patients. Better knowledge, positive attitude and good practice towards caring for patients with hepatitis B and C are vital in properly treating as well as preventing transmission of hepatitis viruses B and C (14, 15).

Nevertheless, studies done in Ethiopia are not sufficient enough to address attitude and practice towards HBV and HCV infected individuals. So that the aim of this study was to assess attitude and practice of nurses towards hepatitis B and C patients and to provide recommendations based on study findings.

Methods

Study design and setting

Institution based cross sectional study design was implemented from April 01 to 30, 2019 at governmental hospitals in Addis Ababa. Addis Ababa is the capital city of Ethiopia where the African

union is headquartered. The city has 51 hospitals of which 14 are governmental. Nurses participated in this study were selected from five randomly selected governmental hospitals namely Tikur Anbesa Specialized Hospital (TASH), Alert hospital, Zewditu memorial hospital, Yekatit 12 hospital and Minilik II hospital.

Study population and recruitment criteria

Nurses who had at least one-year clinical experience and selected randomly from selected governmental hospitals in Addis Ababa were participated in the study.

Sample size determination and sampling procedure

The sample size was determined using single population proportion formula. Based on the assumption 5% margin of error, 95% confidence interval (CI) and taking 42.6% good practice from a study done in Jimma (16), the actual sample size for the study was calculated as follows.

$$n_i = \frac{(Z_{\alpha/2})^2 pq}{d^2}$$

Where n_i = the minimum sample size required

$Z_{\alpha/2}$ = standard normal deviation, set at 1.96, to correspond to the 95% confidence interval

$P = 0.43$

$q = 1.0 - p$

d = margin of error/an absolute precision = 5% = 0.05

$$n_i = \frac{(1.96)^2 (0.43) (1-0.43)}{(0.05)^2} = 377$$

By adding 5% for non-responses the final sample size became 396.

Five governmental hospitals in Addis Ababa (TASH, Alert hospital, Zewditu memorial hospital, Menlik II hospital and Yekatit 12 hospital) were selected using simple random sampling technique. To determine the number of nurses to be participated in study from each of the selected hospitals proportional allocation was applied. Finally, study participants from each selected hospital were selected by simple random sampling technique.

Study variables

Dependent variables: Attitude and practice of nurses towards patients with hepatitis B and C viruses

Independent variables: age, sex, marital status, years of work experience, training on infection prevention, history of exposure to BBF and needle and sharp injuries from HBV and HCV infected patients, vaccination against HBV and attitude towards patients with HBV and HCV

Data collection tool and techniques

Data was collected from the study participants using semi structured self-administered questionnaire. The tool was adapted from published articles (14,16–18). Internal consistency of the tool was checked by Cronbach's alpha which was 0.75 for attitude items, 0.73 for practice items and 0.79 for both.

Operational definitions

Attitude: intention and acceptance towards care of patients with hepatitis B and C viruses. Likert's five-point scale was used in rating of attitude related items and were scored 1 to 5 (1-strongly disagree, 2-disagree, 3-neutral, 4-agree, 5-strongly agree for positive statements and the reverse for negative ones). The scores for each statement were added to give maximum of 45 and minimum of 9. Positive attitude was given for interviewee who scored 32 and above whereas; negative attitude was given for interviewee who scored below 32 (19).

Practice: Nurses way of care for patients with hepatitis B and C viruses. Rating of practice related items was from 0-4 (0-never, 1-seldom, 2-sometimes, 3-usually, 4-always for recommended practices and the reverse for non-recommended practices). The scores for each item were added giving maximum of 40 and minimum of 0. Nurses scored 28 and above were considered to have good practice and those who scored <28 were taken to have poor practice (19).

Data processing and analysis

The data was coded, cleaned, and entered into Epi info version 7.2 and then exported to SPSS window version 24 for analysis. Descriptive statistics, frequency, and proportion were computed. The association between each independent variable and the outcome variables was assessed by using binary logistic regression. All variables with $P \leq 0.25$ in the binary logistic regression analysis were further taken to multivariable logistic regression analysis in order to control all possible confounders. Adjusted odds ratio along with 95% CI and P-value < 0.05 were considered to declare factors that have statistically significant association with nurse's attitude and practice towards patients' hepatitis B and C viruses.

Results

Socio-demographic characteristics of nurses

From the total of 396 study participants 383 respond to the questionnaire which gives response rate of 96.7%. About two third (67.1%) of the respondents were females and more than half (52.5%) in the age group of 22-29 with mean age of 31.4. Nearly half (51.7%) were single, 173 (45.2%) had monthly income

of 3500 to 5000 ETB, 334 (87.2%) were BSC nurses, 90.3% staff and 9.7% head nurses, 189 (49.3%) worked for 1 to 5 years in health care. **(Table:1)**

Table 1: Socio-demographic characteristics of nurses working in governmental hospitals in AA, Ethiopia, 2019 (N=383)

Characteristics	Category	Number	Percent
Sex	Male	126	32.9
	Female	257	67.1
Age (min=22, max=56, mean=31.4, SD=7.52)	22-29	201	52.5
	30-39	132	34.5
	>40	50	13.1
Marital Status	Single	198	51.7
	Married	172	44.9
	Divorced	8	2.1
	Widowed	5	1.3
Monthly income	<3500ETB	52	13.6
	3500-5000ETB	173	45.2
	>5000ETB	158	41.3
Educational level	Diploma	33	8.6
	BSC	334	87.2
	MSC	16	4.2
Working hospital	TASH	151	39.4
	Yekatit 12	70	18.3
	Alert	63	16.4
	Menelik II	51	13.3
	Zewditu	48	12.5
Working unit	Emergency	54	14.1
	OPD	82	21.4
	Pediatrics ward	26	6,8
	Medical wards	66	17.2
	Surgical wards	54	14.1
	Orthopedics ward	11	2.9
	ICUs	31	8.1
	OR	48	12.5

	Others	11	2.9
Work experience (min=1, Max=34, Mean=7.58, SD=7.09)	1-5 years	189	49.3
	6-10 years	108	28.2
	>10years	86	22.5

Nurses attitude towards patients with hepatitis B and C Viruses

About 176 (46%) of the respondents disagree or strongly disagree to be reluctant to take care of patients with hepatitis B and C viruses. Sixty-six-point one percent of them disagree or strongly disagree to the statement I am afraid of going near patients infected with hepatitis B and C. Regarding fear of getting infection from these viruses 164 (42.8%) disagreed, 112 (29.2%) strongly disagreed and only 5.7% strongly agreed. About 163 (42.4%) of the respondents agreed and 76 (19.8%) strongly agreed that they are confident to treat hepatitis B and C patients effectively and safely. Infection control guidelines are believed by majority (85.4%) of the respondents to protect self against these viruses. In general, less than half (45.6%) of the respondents were found to have positive attitude towards patients with hepatitis B and C viruses. **(Table: 2)**

Table 2: Attitude towards patients with hepatitis B and C viruses of nurses working in governmental hospitals in AA, Ethiopia, 2019 (N=383).

Variable	Category				
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
	No	No	No	No	No
	%	%	%	%	%
I am reluctant to take care of patients with hepatitis B and C viruses	58	114	35	103	73
	15.1	29.8	9.1	26.9	19.1
I am afraid of going near patients infected with hepatitis B and C viruses	26	73	31	134	119
	6.8	19.1	8.1	35.0	31.1
I have no concern of being infected with hepatitis B and C viruses	22	50	35	164	112
	5.7	13.1	9.1	42.8	29.2
I am confident that I have the skills needed to effectively and safely treat patients with hepatitis B and C viruses	76	163	52	68	24
	19.8	42.4	13.6	17.8	6.3
Following infection control guidelines protects me from being infected with hepatitis B and C viruses	177	150	26	24	6
	46.2	39.2	6.8	6.3	1.6
People with hepatitis B and C should be treated in a separate room in a hospital	61	114	36	115	57
	15.9	29.8	9.4	30.0	14.9
Health professionals who are HBV or HCV positive should be discouraged from having contact with patients	51	73	47	131	81
	13.3	19.1	12.3	34.2	21.1
Relatives of patients with hepatitis B and C should be notified of the patient's status even without patients consent	64	97	52	111	59
	16.7	25.3	13.6	29.0	15.4
Patients with hepatitis B and C viruses should not be appointed for follow up care	24	48	36	151	124
	6.3	12.5	9.4	39.4	32.4

Nurses practice towards patients with hepatitis B and C viruses

Majority (82.5%) of the respondents always use gloves for hepatitis B and C patient contact and 71.8% of the respondents always change gloves after having contact to these patients. About three fourth (76.2%) of nurses always dispose sharp and needles used for hepatitis B and C patients properly. Nearly half (49.1%) of the respondents always use additional infection control measures while, 27.7% always double gloves for hepatitis B and C patient care that they didn't use for other patients. More than half (52.0%) of

the respondents always mark hepatitis B and C status on the chart. In this study, it is also found as only 110 (28.7%) always deliver the same standard of care for hepatitis B and C patients as they did for others. In general, nearly two third (64.2%) of participants has reported poor practice towards care of patients with hepatitis B and C. **(Table: 3)**

Table 3: Practice towards patients with hepatitis B and C viruses of nurses working in governmental hospitals in AA, Ethiopia, 2019 (N=383).

Variable	Category				
	Always	Usually	Sometimes	Seldom	Never
	No.	No.	No.	No.	No.
	%	%	%	%	%
Using gloves for hepatitis B and C patient contact	316	41	19	4	3
	82.5	10.7	5.0	1.0	0.8
Changing gloves after contact with hepatitis B and C viruses infected patients	275	57	38	11	2
	71.8	14.9	9.9	2.9	0.5
Disposing needle/ sharps used for hepatitis B and C patients properly	292	56	26	4	5
	76.2	14.6	6.8	1.0	1.3
Using additional infection control measures while caring for hepatitis B and C patients that you don't use for other patients	188	96	77	12	10
	49.1	25.1	20.1	3.1	2.6
Wearing double gloves for contact with hepatitis B and C patients	106	68	121	35	53
	27.7	17.8	31.6	9.1	13.8
Marking hepatitis B and C status on the chart	199	80	69	9	26
	52.0	20.9	18.0	2.3	6.8
Avoiding physical contact with hepatitis B and C patients	7	64	68	81	163
	1.8	16.7	17.8	21.1	42.6
Delivering the same standard of care to patients with hepatitis B and C viruses as you do for other patients	110	111	97	26	39
	28.7	29.0	25.3	6.8	10.2
Responding to hepatitis B and C patients' needs timely	149	118	89	15	12
	38.9	30.8	23.2	3.9	3.1
Talking positively about patients living with hepatitis B and C	147	88	60	38	50
	38.4	23.0	15.7	9.9	13.1

Occupational exposure and vaccination status

Regarding to occupational exposure 43 (11.2%) of the respondents had history of exposure for BBF from HBV and HCV infected patient while, 19 (5.0%) ever sustained needle stick injury from such patients. Washing with soap and water was the major action taken after BBF and needle stick injury done by 74.4%

and 73.7% of nurses respectively. About three fourth (73.9%) of the respondents were fully vaccinated for hepatitis B while 317 (82.8%) took two doses and 333 (86.9%) took at least one dose of hepatitis B vaccine. Thirteen-point one percent of them didn't take hepatitis B vaccine at all.

Factors associated with the level of nurse’s attitude and practice towards patients with hepatitis B and C viruses

Multivariable regression analysis for nurse’s level of attitude with independent variables showed nurses who attended training on infection prevention to be 2.1times more positive for hepatitis B and C patients than who didn’t get training on infection prevention [AOR: 2.1; 95 CI (1.33-3.42)]. Getting hepatitis B vaccination also found to increase the likely to have positive attitude by 6.6 [AOR: 6.6; 95% CI (2.78-17.28)] **(Table 4)**.

Table 4: Regression analysis of attitude towards patients with hepatitis B and C among nurses working in public hospitals in Addis Ababa, Ethiopia, 2019 (N=383).

Variables	Category	Level of attitude		Odd ratio at 95% CI)			
		Positive	Negative	Crude odds ratio	p-value	Adjusted odds ratio	p-value
Sex	Male	66 (52.4)	60 (47.6)	1.52 (0.99-2.3)	0.056		
	Female	108 (42.0)	149 (58.0)	1			
Age	22-29	84 (41.8)	117 (58.2)	1			
	30-39	60 (45.5)	72 (54.5)	1.16(0.75-1.81)	0.509		
	≥40	30 (60.0)	20 (40.0)	2.09(1.11-3.93)	0.022		
Marital status	Single	84 (42.4)	114 (57.6)	1			
	Married	81 (47.1)	91 (52.9)	1.21 (0.08-1.82)	0.368		
	Divorced	6 (75.0)	2 (25.0)	4.07 (0.08-20.68)	0.090		
	Widowed	3 (60.0)	2 (40.0)	2.04 (0.33-12.45)	0.442		
Monthly income	<3500ETB	19 (36.5)	33 (63.5)	1			
	3500-5000ETB	68 (39.3)	105 (60.7)	1.13(0.59-2.14)	0.719		
	>5000ETB	87 (55.1)	71 (44.9)	2.13 (1.12-4.04)	0.022		
Educational level	Diploma	11 (33.3)	22 (66.6)	1			
	BSC	151 (45.2)	183 (54.8)	1.65 (0.77-3.51)	0.194		
	MSC	12 (75.0)	4 (25.0)	6.00 (1.57-22.99)	0.009		
Position	Staff	147 (42.4)	199 (57.5)	1			
	Head	27 (73.0)	10 (27.0)	3.66 (1.72-7.79)	0.001		
Working unit	Emergency	21 (38.9)	33 (61.1)	1.70 (0.40-7.13)	0.470		

	OPD	47 (57.3)	35 (42.7)	3.58 (0.89- 14.48)	0.074		
	Pediatrics ward	12 (46.2)	14 (53.8)	2.29 (0.49- 10.61)	0.291		
	Medical ward	21(31.8)	45 (68.2)	1.24 (0.30- 5.17)	0.763		
	surgical ward	25 (46.3)	29 (53.7)	2.30 (0.55- 9.61)	0.254		
	Orthopedic ward	3 (27.3)	8 (72.7)	1			
	ICUs	15 (48.4)	16 (51.6)	2.50(0.56- 11.23)	0.232		
	OR	24 (50.0)	24 (50.0)	2.67 (0.63- 11.28)	0.183		
	Others	6 (54.5)	5 (45.5)	3.200 (0.54- 18.98)	0.200		
Work experience	1-5	82 (43.4)	107 (56.6)	1.20 (0.74- 1.95)	0.450		
	6-10	42 (38.9)	66 (61.1)	1			
	>10	50 (58.1)	36 (41.9)	2.18 (1.23- 3.89)	0.008		
Training on IP	Yes	93 (57.8)	68 (42.2)	2.38 (1.57- 3.60)	0.000	2.13(1.33- 3.42)	0.002
	No	81 (36.5)	141 (63.5)	1			
Exposure to BBF	Yes	19 (44.2)	24 (55.8)	1			
	No	155 (45.6)	185 (54.4)	1.06 (0.56- 2.00)	0.862		
History of needle stick injury	Yes	11 (57.9)	8 (42.1)	1.70 (0.67- 4.31)	0.268		
	No	163 (44.8)	201 (55.2)	1			
Vaccination against HBV	Yes	167 (50.2)	166 (49.8)	6.18 (2.70- 14.14)	0.000	6.63 (2.78- 17.26)	0.000
	No	7 (14.0)	43 (86.0)	1			

Regarding with factors affecting practice towards patients with hepatitis B and C viruses nurses served for more than 10 years were 3.8 times more likely to have good practice than those who worked for 1 to 5 years [AOR: 3.8; 95% CI (1.31-10.98)]. Nurses who sustained needle stick injury from hepatitis B and C patients had 5.2 times likely of having poor practice than those who didn't sustained injury [AOR: 5.2; 95%CI (1.24-21.86)]. Vaccination against hepatitis B and positive attitude were also found to have significant association with nurse's practice towards hepatitis B and C patients with P-values of 0.006 and 0.000 respectively (Table 5).

Table 5: Regression analysis of practice towards patients with hepatitis B and C among nurses working in public hospitals in Addis Ababa, Ethiopia, 2019 (N=383).

Variables	Category	Level of practice		Odd ratio (95% CI)			
		Good	Poor	Crude odds ratio	p-value	Adjusted odds ratio	p-value
Sex	Male	51(40.5)	75 (59.5)	1.35 (0.87-2.10)	0.179		
	Female	86 (33.5)	171 (66.5)	1			
Age	22-29	60 (29.9)	141(70.1)	1			
	30-39	45 (34.1))	87 (65.9)	1.22(0.71-1.95)	0.416		
	≥40	32 (64.0)	18 (36.0)	4.18 (2.18-8.02)	0.000		
Marital status	Single	65 (32.8)	133 (67.2)	1			
	Married	65 (37.8)	107 (62.2)	1.24 (0.81-1.91)	0.319		
	Divorced	5 (62.5)	3 (37.5)	3.41 (0.79-14.71)	0.100		
	Widowed	2 (40.0)	3 (60.0)	1.364 (0.22-8.37)	0.737		
Monthly income	<3500ETB	12 (23.1)	40 (76.9)	1			
	3500-5000ETB	50 (28.9)	123 (71.1)	1.36(0.66-2.80)	0.411		
	>5000ETB	75 (47.5)	83 (52.5)	3.01(1.47-6.17)	0.003		
Educational level	Diploma	8 (24.2)	25 (75.8)	1			
	BSC	121(36.2)	213 (63.8)	1.78(0.78-4.06)	0.174		
	MSC	8 (50.0)	8(50.0)	5.13 (0.88-11.05)	0.007		
Position	Staff	115 (33.2)	231 (66.8)	1			
	Head	22 (59.5)	15 (40.5)	2.95 (1.47-	0.002		

				5.89)		
Working unit	Emergency	17 (31.5)	37 (68.5)	3.24 (1.58-6.66)	0.001	
	OPD	40 (48.8)	42 (51.2)	2.91 (1.11-7.63)	0.029	
	Pediatrics ward	12 (46.2)	14 (53.8)	1.56 (0.69-3.52)	0.282	
	Medical ward	15 (22.7)	51 (77.3)	1		
	surgical ward	15 (27.8)	39 (72.2)	1.31 (0.51-2.99)	0.526	
	Orthopedics ward	4 (36.4)	7(63.6)	1.94 (0.50-7.55)	0.337	
	ICUs	14 (45.2)	17 (54.8)	2.80 (1.13-6.97)	0.027	
	OR	17 (35.4)	31(64.6)	1.87 (0.82-4.26)	0.139	
	Others	3 (27.3)	8(72.7)	1.28 (0.30-5.42)	0.742	
Work experience	1-5	59 (31.2)	130 (68.8)	1		
	6-10	27 (25.0)	81 (75.0)	1.36 (0.80-2.32)	0.257	0.014
	>10	52 (59.3)	35 (40.7)	4.37 (2.37-8.06)	0.000	3.79 (1.31-10.97)
Training on IP	Yes	75 (46.6)	86 (53.4)	2.25 (1.47-3.48)	0.000	
	No	62 (27.9)	160 (72.1)	1		
Exposure to BBF	Yes	16 (37.2)	27 (62.8)	1.07 (0.56-2.07)	0.835	

	No	121 (35.6)	219 (64.4)	1			
History of needle stick injury	Yes	4 (21.1)	15 (78.9)	1			
	No	133(36.5)	231 (63.5)	2.16 (0.70-6.64)	0.179	5.20 (1.24-21.86)	0.025
Vaccination against HBV	Yes	131 (39.3)	202 (60.7)	4.76 (1.97-11.48)	0.001	4.50(1.56-13.02)	0.006
	No	6 (12.0)	44 (88.0)	1			
Nurses Attitude	Positive	100(57.5)	74(42.5)	6.28(3.95-10.00)	0.000	3.86(1.93-7.72)	0.000
	Negative	37(17.7)	172(82.3)				

Discussion

The result of this study revealed as 46.0 % of the respondents disagree or strongly disagreed with being reluctant to care for hepatitis B and C infected patients. This is higher when compared with studies done in Kutahya Western Turkey where 35.2% were willing and in South East Brazil only 20.6% of the participants were willing to care for hepatitis B and C viruses infected patients (17,20). This difference may be due to the study participants being all health care workers in these studies. However, the finding in this study is much lower than the study from Vietnam that reported 73.3% of the respondents to be willing to care for hepatitis B/C patients. Besides, in a study from Japan only 18% of nurses agreed or somewhat agreed as they were unwilling to care for these patients (13,18). The possible reason for this difference may be lack of preventive and therapeutic facilities in hospitals that imposes fear of acquiring these infections.

It is revealed from this study that 72.0% of the respondents concerned with getting infection from hepatitis B and C viruses. This study is in line with the study from North West Ethiopia that 77.2% disagreed with being non concerned with getting hepatitis B infection (21). Relatively lower proportion (54%) of participants in a study from Japan had anxiety related the risk of acquiring hepatitis B and C infections. Moreover, quarter (25.9%) of nurses in the present study afraid going near patients infected with HBV and HCV. Additionally, 65.8% in the Vietnam and 79% of participants in the Japan studies don't care of acquiring these infections from infected colleagues. Again in the Japan study 88% of the participants disagree and strongly disagreed to avoid infected colleagues (13,18,22). This discrepancy may be due to lack of personal protective equipment and nurse's attitude for colleagues may be different for other patients.

Some respondents in this study showed discriminatory behaviors that include feeling hepatitis B and C patients to be treated in a separate room (45.7%), not to be appointed for follow up care (18.8%) and infected health care professionals to be discouraged from having patient contact (32.4%). Additionally,

42% of the respondents need hepatitis B and C patients' status to be disclosed to their families even without patient's permission. Comparable to this study a report from South East Brazil revealed as 21.1% of HCWs participated in the study need hepatitis B and C patients to be given the last appointment for the day. In that study also 53.8% of the participants need all patients to be screened and infected individuals to be identified for safety. These behaviors of nurses may come from the higher perception of risk and fear of hepatitis B and C infections (20).

Regarding confidence in protecting self against hepatitis B and C 62.2% feel confident to treat these patients safely. This is relatively consistent with the study from Japan that found as 59% of nurses agree or somewhat agree that they were confident to protect them against these infections. However, relatively higher proportion (70%) reported in the Vietnam study. This discrepancy may be resulted from the difference in socio-demographic characteristics of respondents (13,18).

Regarding nurse's practice of infection control measures, majority (82.5%) of the respondents reported as they always use gloves while caring for hepatitis B and C patients. Relatively lower (73.3%) of the participants in a study in Bangladesh and 76.7% in Nigeria reported proper use of gloves (14,23). Compared to this finding much lower proportion of respondents in studies in Hayatabad medical complex in Pakistan and Egypt use gloves with percentages 45% and 54.5% respectively (15,24). This dissimilarity may be due to differences in working setup, the one done in Pakistan included other HCWs and that of the Bangladesh and Nigeria studies asked respondents habit of glove use while caring for any patient. The number of respondents involved in the Pakistan and Nigerian studies were also low that might contribute to this discrepancy (14,23,24).

Significant proportion of nurses took special measures to protect self from these infectious diseases. In the present study 49.1% always and 25.1% usually use additional infection prevention mechanisms. Marking the status on the chart is one of the non-recommended practices done by many HCWs to give special precaution for that patient. In the present study about half (52%) always and 20.9% usually practice it. In the study from Kutahya, majority (84.3%) of the HCWs use additional infection prevention precautions and 69.3% of the preferred wearing double gloves for treating hepatitis C patient having bleeding (17). In the study form Pakistan 7% of the respondents need to treat hepatitis B patients in isolated room and 65% replied as they use separate dressing set for these patients (24). In the Ghanaian study also 10.4% always do carefully with hepatitis B patients (25). Fear of acquiring infection and discriminating patients with hepatitis B and C viruses is most probably created from easy transmission of these viruses and lack of appropriate treatment.

Only 28.7% of nurses participated in this study always deliver the same standard of care for patients infected with hepatitis B and C. Moreover 38.9% and 38.4% of the participants always respond to these patients needs and talk positively about them respectively. The study from Pakistan also revealed that 68.9% of nurses need to deliver equal standard of care for hepatitis C patient (26). This percentage may be elevated because it was their perception towards hypothetical patient not what they were performing.

Significantly low proportion of the respondents (35.8%) in this study had good practice towards patients with hepatitis B and C viruses. Higher percentage of respondents from studies in Dhaka medical college (87.4%), Bangladesh (49.3%), and Jimma (40.9%) were found to have good preventive practice (14,16,27). These figures were higher because they assess nurses and other HCWs practice of standard precautions to prevent hepatitis B and C infections while the current study assessed nurse's practices beyond this.

This study also examined factors associated with nurse's attitude and practice towards hepatitis B and C patients. Nurses who attended training on infection prevention were also 2.1 times more likely to be positive for hepatitis B and C patients than who didn't get training on infection prevention [AOR: 2.1; 95 CI (1.325-3.418)]. This may be because getting training on infection prevention increases nurses knowledge on how to treat a patient with hepatitis safely and confidently which in turn affects attitude and practice (14). Getting hepatitis B vaccination also found to increase the likely to have positive attitude by 6.6 [OR: 6.6; 95%CI (2.78-17.28)]. The possible reason for this may be vaccination decreases the fear of acquiring infection and increases confidence in protecting self that many nurses lack.

Nurses worked for more than 10 years were 3.8 times more likely to have good practice than those who worked for 1-5 years [AOR: 3.8; 95% CI (1.31-10.98)]. A study done in Hayatabad medical complex in Pakistan found that those who worked for more than 4 years better use gloves (24). Nurses sustained needle stick injury from hepatitis B and C patients had 5.2 times poor practice than who respondents didn't sustained it [AOR: 5.2; 95%CI (1.236-21.862)]. Vaccination against hepatitis B and positive attitude were found to have significant association with nurse's practice towards hepatitis B and C patients with P-values 0.006 and 0.000 respectively. The study from Nigeria also disclosed as positive attitude had significant association with good practice ($p=0.001$) (37). This is because having positive attitude helps to take a safe and effective action.

Limitations Of The Study

One limitation of this study was the self-reported method of assessment of nurse's practices towards patients with hepatitis B and C viruses; the level practice may have been better assessed by observation although that couldn't be done because of shorter duration to get large number of hepatitis B and C patients being cared by nurses. Some of the information requested in the data collecting tool may be under-reported due to recall bias. Furthermore, Cross sectional study design is also ill in identifying which variable causes a change to the other in the exposure outcome relationship.

Conclusion

It could be inferred from this study that the overall level of nurse's attitude and practice towards patients with hepatitis B and C viruses is significantly low. Even though nurses better comply with some of the standard precautions, they use additional infection control measures which are not recommended and may be of discriminatory.

Nurses trained on infection prevention and vaccinated against hepatitis B were more likely to have positive attitude towards patients with hepatitis B and C viruses. Nurses who were positive to accept hepatitis B and C patients deliver better acceptable care than those who had negative attitude. Respondents worked for more than 10 years and those vaccinated against hepatitis B found to have good level of practice. Whereas, previous needle stick injury from hepatitis B and C patients influenced the respondent's practice to be poor.

Abbreviations

AOR: Adjusted Odds Ratio; BBF: Blood and Body Fluid; CI: Confidence Interval; COR: Crude Odds Ratio; ETB: Ethiopian Birr; FMOH: Federal Ministry Of Health; HBV: Hepatitis B Virus; HCV: Hepatitis C Virus; HCW: Health Care Worker; PPE: Personal Protective Equipment; TASH: Tikur Anbesa Specialized Hospital

Declarations

Ethics approval and consent to participate

Letter of approval was obtained from institutional review board of Addis Ababa University, College of health sciences, school of Nursing and midwifery with protocol number 028/19/SNM. Additionally, letter of permission was obtained from Addis Ababa health bureau with issue number 36048/227. Written consent was obtained from study participants after informing them about the study.

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