

## HEPATITIS B: A STUDY ON KNOWLEDGE, ATTITUDE, AND PREVENTIVE PRACTICES AMONG NURSES AND MIDWIVES

Ansam Hussein Muhei Al-Agele\*<sup>1</sup>, Saeb Jasim Al-Shuwaili<sup>2</sup>, Husam Rehan Fadhil<sup>3</sup> and Heba Baqer Abdulrazzaq AL-Haddad<sup>1</sup>

<sup>1</sup>Baghdad Teaching Hospital, Baghdad, Iraq.

<sup>2</sup>Al-Hadi University College, Baghdad, 10011, Iraq.

<sup>3</sup>College of Medicine, University of Fallujah

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\*Corresponding Author: Ansam Hussein Muhei Al-Agele

Baghdad Teaching Hospital, Baghdad, Iraq.

### ABSTRACT

**Background:** Hepatitis B infection is a highly consequential liver infection caused by the hepatitis B virus and is a substantial worldwide health concern. Nurses and midwives have a greater probability of developing hepatitis B. Effective prevention of Hepatitis B virus (HBV) necessitates a thorough understanding, appropriate mindset, and proper implementation of measures related to Hepatitis B infection and immunization. **Methodology:** This is a cross sectional study that included 350 participants and was conducted in Baghdad/Iraq. A questionnaire based interview was employed as the data collection method that consisted of distinctive parts evaluating each of knowledge, attitude, and practice. **Results:** Among the study participants, only 126 (36%) had good knowledge, 136 (38.9%) had favorable attitude, and 108 (30.9%) had good practice. Educational levels was found to be the only factor significantly associated with awareness. **Conclusion:** This study in Iraq highlights a concerning lack of hepatitis B awareness among nurses and midwives. Notably, the educational level emerged as the strongest predictor of awareness, suggesting a potential gap in training or education for nurses. These findings underscore the critical need for targeted hepatitis B awareness campaigns within the Iraqi healthcare system to enhance primary prevention efforts and protect nurses and midwives who are in critical contact with patients.

**KEYWORDS:** Educational levels was found to be the only factor significantly associated with awareness.

### INTRODUCTION

Hepatitis B, resulting from the hepatitis B virus (HBV), is a significant worldwide public health issue, causing severe, long-lasting infections that have the potential to progress to cirrhosis and hepatocellular carcinoma, which are life-threatening conditions. According to the World Health Organization (WHO), it was anticipated that about 296 million individuals were affected by chronic hepatitis B in 2019, with roughly 1.5 million new infections occurring each year. During the same year, there were almost 820,000 documented fatalities, mostly caused by complications related to hepatitis B.<sup>[1]</sup> In Iraq, Hepatitis B is widespread, with a reported frequency ranging from about 1% in the northern area to 3.5% in the southern region.<sup>[2]</sup>

Hepatitis B is spread by blood and contaminated body fluids. Transmission happens when there is direct contact between blood from an infected person and the blood of

another person. This may happen through the use of unsterile needles or by sharing sharp tools.<sup>[3]</sup>

Epidemiological studies suggest that an individual who encounters a needle-stick injury from a needle previously used on an infected source patient has a 30% probability of contracting HBV infection.<sup>[4]</sup> Healthcare workers (nurses and midwives in particular), have an increased risk of exposure and contracting the illness if they did not utilize personal protective measures correctly.<sup>[5]</sup> HBV transmission may be linked to a lack of information of the prevalence of HBV and occupational safety measures, such as immunization against HBV, post-exposure prophylaxis (PEP), training, and the adoption of safer working practices.<sup>[6]</sup> Unvaccinated healthcare workers (HCWs) face significant risks while dealing with sharp objects and needle stick injuries. These hazards include possible exposure to several infections, such as HBV.<sup>[7]</sup>

In the field of professional nursing, knowledge is a powerful tool that has a positive impact on critical thinking, attitude, and professional practice. It enables nurses to effectively address the most common health problems and diseases in the country's epidemiological profile. This knowledge contributes to early detection of diseases, appropriate treatment, health promotion, and prevention of avoidable conditions.<sup>[8]</sup>

**METHODS**

This is a cross sectional study that included 350 participants and was conducted at health institutes of Al-Karkh Health Directorate/ Baghdad/ Iraq during the period 1/3/2024 to 15/5/2024. All nurses and midwives who accepted to participate in the study were included. A questionnaire based interview was employed as the data collection method.

The questionnaire consisted of the following parts.

1. Basic sociodemographic characteristics (age, gender, marital status, residence, and occupation).
2. The second part consisted of a total of 18 questions divided into three sections that collected information about general knowledge (8 questions), attitude (6 questions), and practice (6 questions). Each correct answer was assigned a score of 1, whereas an incorrect answer was given a score of zero. Regarding rating, a total knowledge score of 5-8 was

considered as good knowledge, while a score of 0-4 was considered as poor knowledge. As for attitudes and practices, a total score of 4-6 was considered accordingly as positive attitude, or good practice, whereas a score of 0-3 was rated as poor negative attitude, and poor practice.

**Statistical Analysis**

Analysis was conducted using statistical package for social sciences (SPSS version 26). Categorical variable were tested using Fischer’s exact test. A P value of less than or equal to 0.05 was assigned as a criterion for declaring statistical significance.

**RESULTS**

The age distribution of the studied sample ranged from 22-58 years old with a mean  $36.5 \pm 8.5$  SD. Regarding gender; the studied sample showed slight female predominance, as the female to male ratio was 1.08: 1. Regarding marital status, 182 (51.9%) were single. Concerning occupation, 235 (67.1%) participants were nurses and 115 (32.9%) were midwives. Regarding educational level; 195 (55.6%) had nursing institute diploma, whereas 155 (44.4%) had university degree. As for work experience; 70 (20%) had < 1 year work experience, 124 (35.4%) had 1-5 year experience, and 156 (44.6%) had >5 year experience; as illustrated in table.<sup>[1]</sup>

**Table (1): Basic demographic and job characteristics of the studied sample.**

Variable	Frequency	Percentage
<b>Age</b>		
<40 years	182	51.9
≥40 years	169	48.1
<b>Gender</b>		
Male	168	47.9
Female	183	52.1
<b>Marital status</b>		
Single	182	51.9
Married	169	48.1
<b>Occupation</b>		
Nurse	235	67.1
Midwife	115	32.9
<b>Educational level</b>		
Institute	195	55.6
University or above	155	44.4
<b>Work experience</b>		
< 1 year	70	20.0
1-5 years	124	35.4
>5 years	156	44.6

Participant responses to the knowledge section are illustrated in table (2).

**Table (2): Participant responses to the knowledge section.**

Knowledge item	Frequency	Percentage
<b>Hepatitis B Virus can be transmitted by contaminated blood and body fluids</b>		
Yes	265	75.7
No	85	24.3
<b>Virus be transmitted by unsterilized syringe, needle and surgical instruments</b>		

Yes	303	86.6
No	47	13.4
<b>Hepatitis B Virus can be transmitted by unsafe sex</b>		
Yes	179	51.1
No	171	48.9
<b>A vaccine can prevent Hepatitis B Virus infection</b>		
Yes	175	50.0
No	175	50.0
<b>Hepatitis B Virus has post-exposure prophylaxis</b>		
Yes	186	53.1
No	164	46.9
<b>Hepatitis B Virus can be cured/treated</b>		
Yes	184	52.6
No	166	47.4
<b>Hepatitis B virus can cause hepatocellular carcinoma</b>		
Yes	180	51.4
No	170	48.6
<b>Hepatitis B virus can cause chronic cirrhosis</b>		
Yes	165	47.1
No	185	52.9

Participant responses to the attitude section are illustrated in table (3).

**Table (3): Participant responses to the attitude section.**

Attitude questions	Frequency	Percentage
<b>All patients should be tested for Hepatitis B Virus before they receive health care</b>		
Yes	181	51.7
No	169	48.3
<b>Following infection control guidelines will protect me from being infected by Hepatitis B Virus at work</b>		
Yes	182	52.0
No	168	48.0
<b>Changing gloves during blood collection is an important preventive measure</b>		
Yes	186	53.1
No	164	46.9
<b>Hepatitis B vaccine is safe and effective</b>		
Yes	186	53.1
No	164	46.9
<b>I am concerned about HBV infection at work</b>		
Yes	193	55.1
No	157	44.9
<b>All HCWs should practice safe needle disposal protocol</b>		
Yes	163	46.6
No	187	53.4

Participant responses to the practice section are illustrated in table (3).

**Table (3): Participant responses to the practice section.**

Practice questions	Frequency	Percentage
<b>Have you ever screened for Hepatitis B Virus</b>		
Yes	170	48.6
No	180	51.4
<b>I always report for needle prick injury</b>		
Yes	162	46.3
No	188	53.7
<b>Have you been vaccinated against Hepatitis B Virus?</b>		
Yes	182	52.0
No	168	48.0
<b>Do you ask your barber to change the blade/or use safe equipment for ear or nose piercings?</b>		

Yes	157	44.9
No	193	55.1
<b>Check if the patient has a blood-borne disease after a needlestick injury</b>		
Yes	179	51.1
No	171	48.9
<b>Do you avoid meeting patients with HBV?</b>		
Yes	170	48.6
No	180	51.4

Regarding response rating; 126 (36%) participants had good knowledge while 224 (64%) had poor knowledge. Concerning attitude, 136 (38.9%) had good attitude whereas 214 (61.1%) had poor attitude. As for practice, 108 (30.9%) had good practice while 242 (69.1%) had poor practice; as illustrated in figure (1).

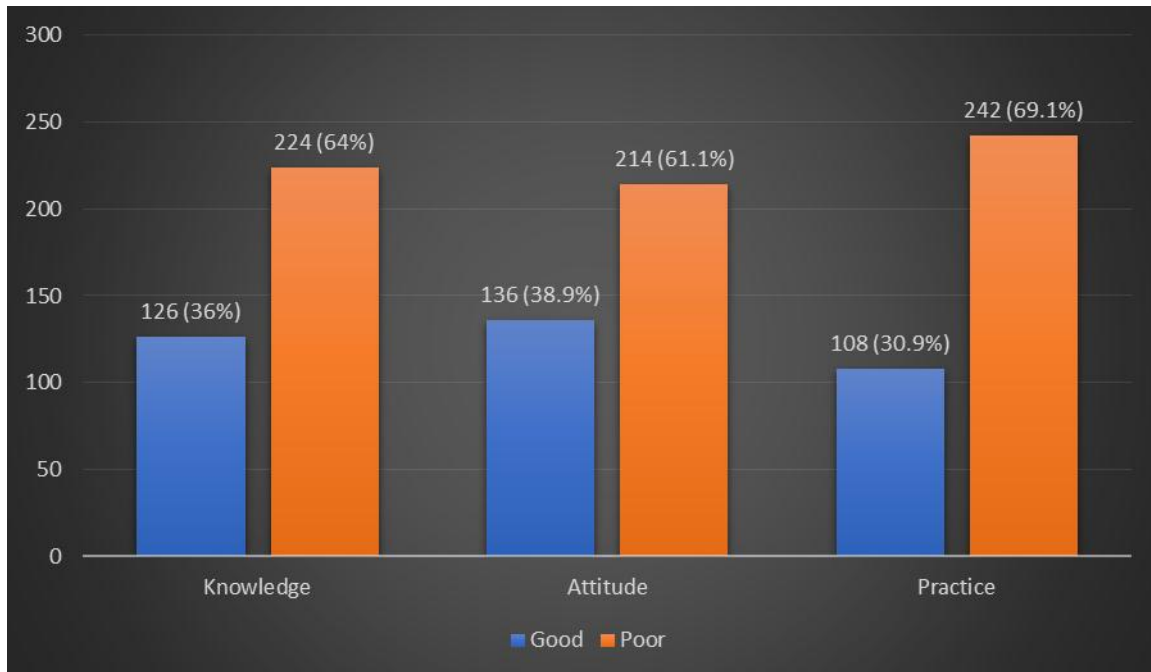


Figure (1): Rating of questionnaire sections.

Relationship between overall knowledge rating and basic characteristics

A statistically significant association was detected between overall knowledge rating and educational level ( $p < 0.001$ ); as shown in table (4).

Table (4): Relationship between overall knowledge rating and basic characteristics.

Variable	Knowledge rating		P value
	Good	Poor	
<b>Age</b>			
<40 years	60	121	0.266
	47.6%	54.0%	
≥40 years	66	103	
	52.4%	46.0%	
<b>Gender</b>			
Male	65	103	0.319
	51.6%	46.0%	
Female	61	121	
	48.4%	54.0%	
<b>Marital status</b>			
Single	63	118	0.657
	50.0%	52.7%	
Married	63	106	
	50.0%	47.3%	

Profession				
Nurse	80	139	0.819	
	63.5%	62.1%		
Midwife	46	85		
	36.5%	37.9%		
Educational level				
Institute	37	158		<0.001
	29.4%	70.5%		
University and above	89	66		
	70.6%	29.5%		
Work experience				
<1 year	43	75	0.970	
	34.1%	33.5%		
1-5 years	47	82		
	37.3%	36.6%		
>5 years	36	67		
	28.6%	29.9%		

Relationship between overall attitude rating and basic characteristics.

A statistically significant association was detected between overall attitude rating and educational level ( $p < 0.001$ ); as shown in table (5).

**Table (5): Relationship between overall attitude rating and basic characteristics.**

Variable	Attitude rating		P value	
	Good	Poor		
Age				
<40 years	66	115	0.380	
	48.5%	53.7%		
≥40 years	70	99		
	51.5%	46.3%		
Gender				
Male	58	110		0.125
	42.6%	51.4%		
Female	78	104		
	57.4%	48.6%		
Marital status				
Single	72	109	0.743	
	52.9%	50.9%		
Married	64	105		
	47.1%	49.1%		
Profession				
Nurse	86	133		0.910
	63.2%	62.1%		
Midwife	50	81		
	36.8%	37.9%		
Educational level				
Institute	48	147	<0.001	
	35.3%	68.7%		
University and above	88	67		
	64.7%	31.3%		
Work experience				
<1 year	47	71		0.952
	34.6%	33.2%		
1-5 years	49	80		
	36.0%	37.4%		
>5 years	40	63		
	29.4%	29.4%		

Relationship between overall practice rating and basic characteristics.

A statistically significant association was detected between overall practice rating and educational level ( $p < 0.001$ ); as shown in table (6).

**Table (6): Relationship between overall practice rating and basic characteristics.**

Variable	Practice rating		P value	
	Good	Poor		
<b>Age</b>				
<40 years	49	132	<b>0.132</b>	
	45.4%	54.5%		
≥40 years	59	110		
	54.6%	45.5%		
<b>Gender</b>				
Male	52	116		<b>1.000</b>
	48.1%	47.9%		
Female	56	126		
	51.9%	52.1%		
<b>Marital status</b>				
Single	52	129	<b>0.418</b>	
	48.1%	53.3%		
Married	56	113		
	51.9%	46.7%		
<b>Profession</b>				
Nurse	71	148	0.473	
	65.7%	61.2%		
Midwife	37	94		
	34.3%	38.8%		
<b>Educational level</b>				
Institute	33	162	<b>&lt;0.001</b>	
	30.6%	66.9%		
University and above	75	80		
	69.4%	33.1%		
<b>Work experience</b>				
<1 year	35	83	<b>0.876</b>	
	32.4%	34.3%		
1-5 years	42	87		
	38.9%	36.0%		
>5 years	31	72		
	28.7%	29.8%		

**DISCUSSION**

Nurses and midwives are at a considerable risk of being exposed to bloodborne infections, such as HBV infection, particularly in countries with a high frequency of this illness. Conducting KAP research among nurses and midwives is essential for assessing and enhancing their understanding of how infectious illnesses are transmitted, as well as strategies for prevention and treatment.

Regarding knowledge, the present study revealed that most nurses and midwives had awareness that contaminated blood and unsterilized syringes had the potential to transmit hepatitis B infection. However, a significant proportion did not think that hepatitis B may be transmitted by sexual contact. Moreover, half the participants underestimated the potential of hepatitis B vaccination and postexposure prophylaxis to prevent

infection. Therefore, only 36% of patients achieved adequate knowledge. The study done by Sammour et al. found that 94% and 96.6% of the participants correctly identified that HBV may be spread by contaminated sharp items and blood transfusion, respectively, demonstrating a high level of knowledge. However, a mere 72% of individuals recognized that HBV may be spread via sexual contact, and only 43.8% were aware of the existence of a definitive treatment for HBV. In addition, about one-third of healthcare workers provided inaccurate responses to additional questions regarding the routes of transmission of Hepatitis B virus (HBV).<sup>[9]</sup> According to research conducted by Roien et al. and Elbager et al. in Cameroon and Sudan, it was found that only 47% and 58% of the participants have sufficient knowledge.<sup>[10][11]</sup>

Regarding attitudes, just 38.9% of individuals had favorable attitudes. This discovery is alarming, since a substantial number of individuals showed little concern for fundamental preventative measures, such as wearing gloves and properly disposing of needles. Furthermore, about half of the participants expressed skepticism regarding the safety and effectiveness of vaccination. The research conducted by Roien *et al.* found that only 44% of participants had positive attitudes. Specifically, only 69% believed that the hepatitis B vaccination is safe and effective and only 39% approved of changing gloves during blood collection.<sup>[10]</sup> These findings align with the results of the current study.

Similarly to knowledge and attitude; the present study showed an overall good practice of 30.9%, as around half the sample neglected screening for hepatitis B, neglected vaccination and reporting needle stick injuries. In Africa, the study by Shah *et al.* revealed that only 61% of healthcare workers were vaccinated.<sup>[12]</sup> Whereas the study by Sammour *et al.* reported that 66.2% were screened for hepatitis B, 85.2% were vaccinated.<sup>[9]</sup>

It is noteworthy to mention that our study found that higher educational level was associated with significantly higher knowledge, attitude, and practice than other professions. Whereas increased age and even longer work experience were not found to be predictors of better knowledge, attitude and practice. This observation may be attributable to the comprehensive training and educational focus on infectious diseases that is undertaken during university studies, which may not be as extensively incorporated into the curriculum of nursing institutes. This in concordance with a study by ElSheikh *et al.* who showed that the level of knowledge was significantly associated with educational degree.<sup>[13]</sup>

## CONCLUSION

This study in Iraq highlights a concerning lack of hepatitis B awareness among nurses and midwives. Notably, the educational level emerged as the strongest predictor of awareness, suggesting a potential gap in training or education for nurses. These findings underscore the critical need for targeted hepatitis B awareness campaigns within the Iraqi healthcare system to enhance primary prevention efforts and protect nurses and midwives who are in critical contact with patients.

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