

Research Article

Knowledge, Attitude and Practice of Hepatitis (B) among Healthcare Workers in Relation to their Vaccination Status in Khartoum, Sudan, 2015: A Cross-sectional Study

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Abstract

Background: Hepatitis B is a serious chronic infection of the liver and caused by hepatitis B virus. It is an endemic disease in Sudan. Healthcare workers are occupationally more prone to acquire the disease. Evaluation of their knowledge, attitude and practice and their vaccination status, are very important in the control of the disease. The aim of this study was to assess the knowledge, attitude, and practice of healthcare workers towards hepatitis B and their vaccination status.

Materials and Methods: In total, 372 healthcare workers were enrolled in the study, which was conducted at 10 public hospitals in Khartoum state during July-August 2015. After taking written informed consent from the Khartoum State Research Department, self-administrated questionnaires were distributed to the healthcare workers. The KAP score was the sum of the three categories, which is 32 points, and the mean was then obtained.

Results: The study revealed that the respondents' mean scores of knowledge, attitude, and practice (KAP) were 18.4, 2.14 and 2.49, respectively. The study also showed that doctors have the highest KAP score in comparison with other occupations. Doctors are the least occupational category that uses gloves when dealing with patient's blood. The KAP score was found higher among vaccinated healthcare workers 27.4% in comparison to unvaccinated ones, That yield to a significant the association between KAP score and vaccination status (p-value 0.007).

Conclusions: This study concluded that, there is a positive association between the level of vaccination among Health care workers and their Knowledge, attitude and practice of hepatitis B virus. Further studies would be recommended on larger population.

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1. Introduction

Hepatitis B (HB) is a serious chronic infection of the liver and caused by HB Virus (HBV). During the acute phase, the majority of HB patients are asymptomatic. However, the symptoms may last for several weeks in those who are symptomatic [1]. HBV can be transmitted through different mechanisms, including contact with blood and blood products, sexual intercourse, contaminated needles and haemodialysis [2].

Healthcare workers (HCWs) are defined as “all paid and unpaid persons working in health-care settings who have the potential for exposure to infectious materials (e.g. blood, tissue and specific body fluids, and medical supplies, equipment, or environmental surfaces contaminated with these substances)” [3].

The World Health Organization estimated that about 240 million patients are currently infected with HBV [1]. Worldwide, sub-Saharan Africa and East Asia are considered to have the highest prevalence of HB (5-10% chronically infected adult patients) [1]. The prevalence of HB surface antigen (HBsAg) in Sudan is more than 8% [5]. The prevalence of HBV among HCWs is not exactly known, but it was estimated to be similar to that of non-HCW [6]. Annually, more than 60,000 cases of HBV infection among HCWs are due to contaminated sharp injuries alone [7]. There was a significant reduction in the incidence of HB infection after the introduction of the HBV vaccines [8].

Worldwide, many studies have been conducted to assess the level of the knowledge, attitude, and practice of HCWs toward HBV, and others have evaluated the vaccination status of HCWs [9–11, 14]. Previous studies conducted in Sudan have addressed these two issues; some were conducted in public hospitals outside the capital (Khartoum) and those conducted inside the capital were limited to few hospitals [9–11].

The purpose of this study was to assess the level of knowledge, attitude, and practice of the Sudanese HCWs toward HBV and their vaccination status in multiple public hospitals in Khartoum state. This can help in exploring barriers for not getting HBV vaccination and creating effective strategies to limit the HBV infection in HCWs.

2. Methods

2.1. Study setting and participants

It was a cross-sectional analytical study among HCWs in 10 chosen public hospitals in Khartoum in the Sudan, from July to August 2015. These hospitals were: Soba University Hospital, Khartoum Teaching Hospital, Khartoum North Teaching Hospital, Omdurman Teaching Hospital, Military Hospital Helipad, Khartoum Dental Teaching Hospital, Radiation and Isotopes Center-Khartoum, AlShaab Specialized Teaching Hospital, Ibrahim Malik Teaching Hospital, E.N.T Specialized Hospital.

The inclusion criteria were as follows: HCWs who were working in the medical service across different departments and specialties during the time of the study (doctors, nurses, lab technicians, midwives and dentists); and those who agreed to participate in the study.

2.2. Sampling technique

We obtain the total number of HCWs and distribution in different specialties in Khartoum state from the ministry of health annual report. [12]. We could not employ random sampling because of the lack of an accurate list of names of all HCWs in the city's hospitals. We included 372 HCWs in our study out of a total population of 10331 HCWs [12, 13].

2.3. Sample size calculation

The sample size was obtained using the following formula:

$$\text{Sample size} = N/(1+N(d)^2)$$

Where:

N= Population size = 10331

d = Level of precision = 0.05.

2.4. Study questionnaire

A self-administered was used, 39 items questionnaire composed of five sections. In addition to the socio-demographic and work-related characteristics, 25 questions evaluated knowledge towards HB, four questions assessed attitude, three questions

explored practices towards HB, and five assessed the respondent's vaccination status. The questions were designed after performing a wide range literature review [14–20].

2.5. Statistical analysis

We used SPSS v20.0 for data entry and analysis. The study predictor variables were the socio-demographic data and the levels of knowledge, attitude and practice towards HB, while the outcome variable is the vaccination status of the respondents. We assigned one point for each correct answer and zero points for each incorrect one. The total number of points was 25, 4, and 3 points for knowledge, attitude and practice, respectively. The KAP score was the sum of the three categories, which is 32 points. A p-value of <0.05 was considered statistically significant for chi-square test to assess the relationship between variables.

3. Results

The mean age of study participants was 30.01 years and the male to female ratio was 1:2. Most of the participants were doctors: 119 (32.0%). The socio-demographics of the 372 respondents are shown in Table 1.

3.1. Assessment of knowledge

Knowledge was assessed by questions focusing on HB causes, transmission, sign and symptoms, and management. The average respondents' knowledge score was 18.4 points. Regarding occupational distribution, all dentists scored above the average and 117 (98.3%) of doctors scored above the average. On the other hand, 20.0% of respondents thought that HB could be transmitted through contaminated food. In addition, only 9.9% of respondents scored high points on the knowledge assessment questions. More than 70.0% of the study respondents have a good level of knowledge, as assessed by the mode of transmission questions. Also, 213 (96.0%) of respondents knew the correct method of diagnosing HB.

3.2. Assessment of attitude

Attitude towards HB was assessed by four questions. This study showed that 81.5% of respondents did not know the guidelines that should be followed after a needle injury.

Characteristics	N	Percentage
GENDER		
Male	128	34.4
Female	242	65.1
Missing	2	0.5
OCCUPATION		
Doctor	119	32.0
lab technician	35	9.4
Nurse	187	50.3
Midwife	12	3.2
Dentist	19	5.1
AGE GROUPS, YEARS		
20-30	254	68.3
31-40	66	17.7
41-50	33	8.9
51-60	9	2.4
Missing	10	2.7
VACCINATION STATUS:		
Vaccinated	270	72.6
Not vaccinated	102	27.4
TOTAL	372	100

TABLE 1: Descriptive statistics of the study respondents.

In addition, 46% of respondents stated that HB patients should be quarantined, and 41.7% said that they will not share household items with a HB patient because it is not safe. Overall, the average respondents' attitude score was 2.14 points "of 4 points".

3.3. Assessment of practice

The results showed that 17.5% of respondents avoid dealing with HB patients, and 12.6% of doctors do not wear gloves when they deal with the patients.

3.4. Vaccination status

This study revealed that 27.4% of respondents were not vaccinated against HB. In total, 71.3% did not obtain the post-vaccination test to ensure the efficiency of the vaccination. Hospitals were found to be the most frequent place where respondents had obtained their vaccination - 61.0% of the vaccinated respondents received their vaccination there. In total, 7.4% of the respondents were not vaccinated due to the financial deficit, while 37.2% did not know where they could find the vaccine.

	Knowledge (p-value)*	Attitude (p-value)*	Practice Association(p-value)*
Age	0.00	0.01	0.21
Gender	0.85	0.47	0.86
Occupation	0.03	0.01	0.00
Vaccination Status	0.02	0.51	0.00

*(p-value is significant when less than 0.05)

TABLE 2: Associations between KAP scores and respondent characteristics.

3.5. Mean KAP score

The mean overall KAP score was found to be moderate (20-25 points, out of 32 points), with doctors scoring the highest KAP score compared with other occupations.

Association of descriptive characteristics and mean KAP scores

The study revealed that there is a positive significant association between the age of participants and their mean KAP score (p -value=0.014), but this association was weak (Cramer's V score= 0.148). The association between the gender of respondents and their mean KAP score was insignificant (p -value =0.422). In addition, the study found a moderate association between the occupation of the respondents and their mean KAP score (p -value=0.001; Cramer's V score=0.193). A good KAP score was associated with doctors, 57 (47.8%) of them scored high scores in this study. Other descriptive statistical associations are listed in Table 2.

3.5.1. Correlation between knowledge and practice

The study found that there is a strong association between the respondents' level of knowledge and their good practice towards HB (p -value< 0.001, Cramer's V score =0.381). In addition, the study showed that there is a significant association between the level of respondents' knowledge and their vaccination status (p -value=0.029), and this association was strong (Cramer's V score =0.306).

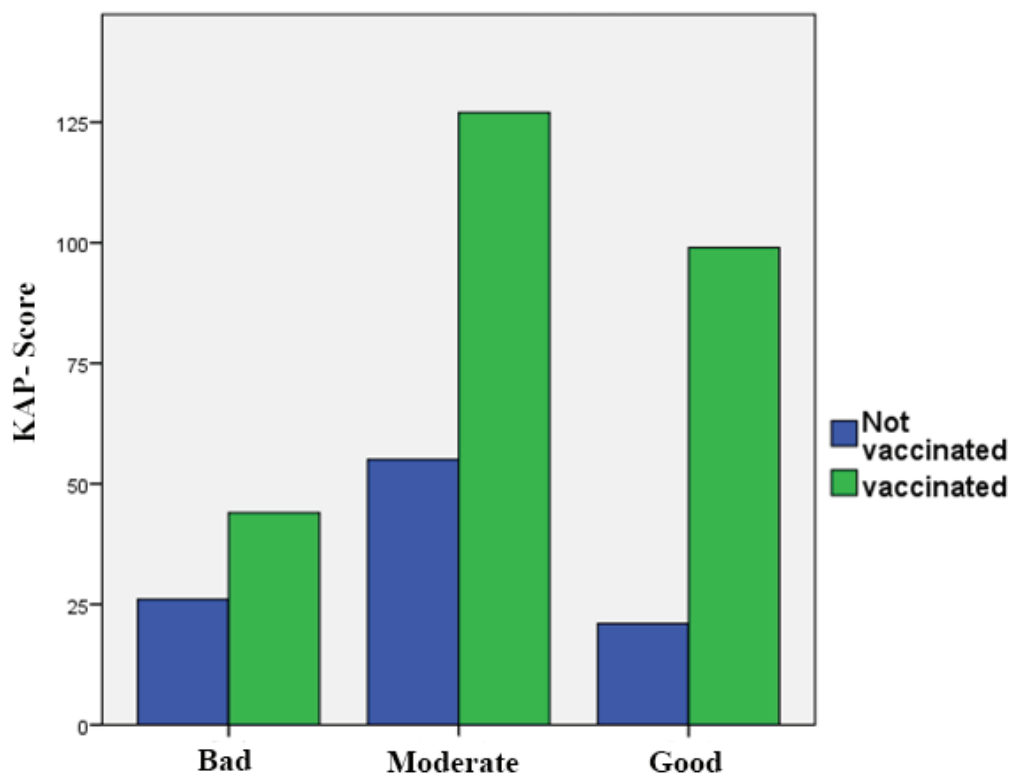


Figure 1: Association between the average KAP score of the respondents and their vaccination status.

3.5.2. Correlation between the mean KAP score and the vaccination status

This study found out that there is a moderate association between the mean KAP score of the respondents and their vaccination status (p -value= 0.007; Cramer's V score =0.164; Figure 1), and this was the primary result of this study.

4. Discussion

The aim of the current study was to assess KAP scores towards HB among HCWs in public hospitals in Khartoum state. HCWs are crucial in controlling HB. The study found that there is a significant association between the age of participants and their mean KAP score (p -value=0.014), (Cramer's V score=0.148). This may be due to increased experience by age and being in contact with patients for a long time. The study found a moderate association between the occupation of the participants and their mean KAP score (p -value=0.001; Cramer's V score=0.193), where doctors were associated with the highest KAP scores (47.8% of doctors scored 'good' in this study).

This study shows that 58.3% of the respondents scored a moderate level of knowledge towards HB. A similar study was held in Tikrit City- Iraq [14], in which a good level of knowledge was found amongst the medical staff. The difference between our study and Iraqi study may come from the different approaches in fighting the disease in both countries. Regarding the symptoms, only 9.9% of respondents showed a good level of knowledge; low knowledge about HB symptoms leads to a delay in the early diagnosis of the disease and may increase the rate of transmission of the disease among the population. In addition, the study found that 20% of respondents thought that contaminated food can transmit HBV, while 10% didn't know if food can transmit HB or not. This finding reveals a huge misconception about HB and among HCWs.

This study showed that 46% of respondents said that HB patients should be quarantined, and this negative attitude may increase the stigma towards HB patients in society. Surprisingly, our study shows that 81.5% of respondents didn't know the guidelines that should be followed after a needle injury, and this is a dangerous indicator as these guidelines should be known by every HCW in order to decrease the chance of acquiring the disease.

Our study showed that the majority of respondents who do not wear gloves when they are dealing with patients were doctors (representing 12.6% out of the total number of doctors), which is similar to a study carried out in Wad Madani-Sudan [11]. That study showed that 10.4% of doctors did not wear gloves when they deal with patients, and this is a dangerous indicator of careless practice towards this disease.

This study revealed that 27.4% of respondents were not vaccinated against HB. However, compared to a previous study published in 2011 [11], there was a significant improvement in the vaccination status among HCWs; 26.19% in the previous study compared with 72.6% in the present study.

Moreover, this study revealed that doctors, in comparison with other occupations, have the highest KAP scores, and vaccinated respondents have a higher mean KAP score than non-vaccinated respondents. There was a moderate association between the mean KAP score of the respondents and their vaccination status (p -value=0.007; Cramer's $V=0.164$).

5. Conclusions

Although the study was performed in the capital city of Sudan, the research findings cannot be generalized to the whole population of HCWs in Sudan. Therefore, we recommend conducting more research in this area. Also, we had difficulties in finding

a validated internationally standardized HB KAP questionnaire with a proper scoring system for HCWs, especially in the Arabic language.

We recommend that higher authorities continually assess the knowledge of HCWs about infectious organisms and HB, especially in developing countries. We believe that by increasing the level of knowledge of HCWs, it is possible to decrease the prevalence of HBV among the general population; therefore, we recommend that health education of HCWs should be increased by conducting workshops, symposiums and training about HB and post-exposure prophylaxis guidelines, and guidelines should be available at all health facilities. We also compel that the Ministry of Health and hospitals establish guidelines for accepting only vaccinated new HCWs and to organize vaccination campaigns for already employed, non-vaccinated HCWs.

6. Acknowledgements

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7. Ethics Consideration

We obtained Ethical Clearance from the Khartoum state Ministry of Health Research Department.

8. Competing interests

The author declares that they have no competing interests.

Availability of Data and Material Data are available upon request.

9. Author contributions

ASMM, ASMA, TAAA, MTHS, AMMH, MHMF, and AAAA contributed to the study design, data collection and analysis, and preparation of the manuscript. MASA contributed to interpretation of Data and revision of the manuscript. MNME contributed to preparation and revision of the manuscript and supervised the whole process. All authors were involved in the revision of the manuscript and have agreed to the final content.

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