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Original Research Article

Knowledge, Attitude, and Practices of Hepatitis B Among Emergency Healthcare Workers in Lahore

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Abstract: ***Background:*** *Hepatitis B (HB) remains a significant public health concern globally, particularly among healthcare workers who are at high risk due to exposure to infected bodily fluids.* ***Objective:*** *This study aimed to evaluate the knowledge, attitudes, and practices (KAP) regarding Hepatitis B among Rescue 1122 workers in Lahore, Pakistan.* ***Methodology:*** *This cross-sectional analytical study was conducted over nine months at the Emergency Services Academy-Rescue 1122 in Lahore, involving 358 EMTs selected via simple random sampling. A self-designed questionnaire, with a Cronbach's alpha of 0.76, assessed knowledge, attitude, and practices (KAP) related to Hepatitis B. Descriptive statistics and Chi-square tests were used for data analysis, with significance set at $P \leq 0.05$.* ***Results:*** *358 questionnaires were distributed with a response rate of 100%, and they seem to have an association with education, experience with Rescue 1122, age, residence, and various other sociodemographic factors. The determinants for inadequate knowledge included gender and residency. At the same time, negative attitude can also be determined on the basis of education and similarly, health awareness education was only determinant for poor practices.* ***Conclusion:*** *results from this study show that knowledge and practices were adequate and good, respectively. Therefore, it reaffirms that adequate knowledge yields good practices and subsequently careful coverage of the Hepatitis B vaccine.*

Keywords: Knowledge, attitude, practices, Hepatitis B, Emergency, Healthcare, Rescue 1122

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Introduction

Hepatitis B (HB) is an infection that occurs in the liver and is quite a serious ailment brought about by the Hepatitis B virus. It has been recognized as a serious as well as life-threatening worldwide issue concerning well-being. Hepatitis B Virus (HBV) mainly affects liver resulting massively in self-limiting intense hepatitis, which presents a defensive HBV-specific T-cell and B-cell reactions. (1, 2) It is estimated that 2 billion individuals are effective by HBV globally; among of which approximately 350 million are HB surface antigen chronic carriers (HBsAg).(3) Its surprising that 75% of world HB carriers are recognized from Asia.(4) HB is exceptionally becoming endemic in Pakistan and new cases have begun to emerge since the last decade. Pakistan is known to be the central zone of hepatitis B infection, with an expected populace prevalence of 2–7%.(5) In Pakistan, it has been reported that the presence of HB carriers is 7-9 million. (6)

HBV has some superstitions that it has various other modes of transmission like via holding hands, kisses, cuddling or breastfeed of mothers or it may be spread through coughing, sneezing, food sharing. HBV in its acute form can cause vague manifestations or may be lethal, which may require the utmost needed transplantation of the liver. Moreover, HBV is ranked among top two in carcinogenic agents that influence humans after smoking.(7) The HBV spread is usually via bodily fluids for example vaginal secretions, blood and semen. The common route for infection exchange of HBV are transfusions of blood, unprotected sexual activities, needle stick injury or sharing of needles and organ transplantation. (8)

By sticking to all-inclusive safety measures which incorporate utilizing sterilizations of the equipment, for example, gloves and immunization, the spread of HBV contamination can be prevented with cautions (9). Antibodies against HB are outstandingly immunogenic. HB antibodies are successful and exceptionally immunogenic, and their inoculations are usually given in three doses. It is recommended to administer first dose of vaccination right after birth, it is 89–98 percent viable and is efficient in HBV infection in newborns vulnerable of transmission from mothers who are certain for HBsAg or HBeAg. (10) Common complications associated with HB vaccine include pain at the site of injection and fever. Thou, vaccination is not associated with sepsis evaluation of increased febrile episodes. (11) If HB is not prevented via precautionary measures, it is estimated that 10% of patients may develop Chronic Liver disease and approximately 20% patients may develop cirrhosis of the liver. (12)

Therefore, Knowledge Attitude and practices (KAP) of community are measured because measuring KAP intend to avoid the development & spread of infection. KAP is symbolic presentative of a people in community particularly to gather information of what is being known to them about a specific topic and also intend to study their behavior towards that specified objective. (13)

Despite the critical role of these workers in managing emergencies, there is a notable gap in research focused on their knowledge, attitude, and practices (KAP) regarding Hepatitis B, especially within high-risk settings like Rescue 1122. This study addresses the urgent need to evaluate the KAP of Hepatitis B among these frontline workers in Lahore, Pakistan, where the disease burden is particularly high. By examining the factors that influence their knowledge and practices, the study will provide essential insights into how to improve education, enhance preventive measures, and reduce the risk of transmission. The findings will not only contribute to the well-being of Rescue 1122 personnel but also inform broader public health strategies aimed at reducing Hepatitis B in healthcare environments.

Methodology

This cross-sectional analytical study was conducted over nine months at the Emergency Services Academy-Rescue 1122 in Lahore which

employed 358 in-service Emergency Medical Technicians (EMTs), aged 18–40 and of either gender, were selected using simple random sampling through the lottery method. The sample size was calculated based on a 63.1% prevalence of poor knowledge, with a 5% margin of error and 95% confidence interval using the standard formula. EMTs who had direct patient contact were included, while those with a history of hepatitis B, siblings currently diagnosed with hepatitis B, or not working in the field were excluded. Data collection occurred in two batches of EMTs to ensure representative sampling. Data collection procedure is evident in figure 1.
A self-designed questionnaire, with a Cronbach's alpha of 0.76 indicating good internal consistency, was used to collect data on KAP. Knowledge was assessed using twenty questions focused on transmission, signs, and symptoms, with responses scored on a yes/no basis. A score of ≤11 (less than 60%) indicated inadequate knowledge, while >11 (more than 60%) indicated adequate knowledge. Attitude was assessed by six questions evaluated attitudes, scoring 1 point for positive responses and 0 for negative ones. A score ≥4 indicated a positive attitude, while ≤3 indicated a negative attitude. Whereas practices with ten questions assessed practices, with 1 point for good practices and 0 for poor ones. A score ≥6 indicated good practices, while <6 indicated poor practices.
Descriptive statistics (frequencies, percentages, mean, and standard deviation) were calculated for the data. Visualizations like pie charts, histograms, and bar charts were used. Chi-square tests assessed the relationship between knowledge levels and factors like residency and qualification, with significance set at $P \leq 0.05$.

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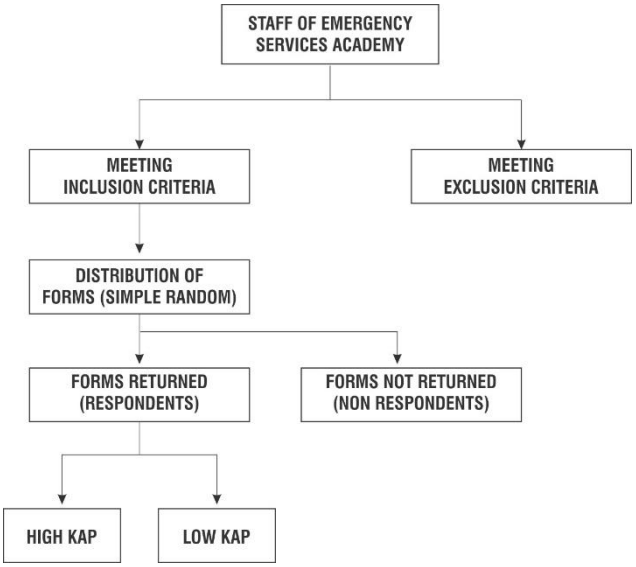

Figure 1 Flow chart of recruitment of study population

Results

A total of 358 subjects was assessed for Knowledge, Attitude and Practices of Hepatitis B. There were 327 (91.3%) male and 31(8.7%) females in this study. The mean age of the study participants was 25.8 ± 2.2. Out of the total respondents 178 (49.7%) have rural residency and 180 (50.3%) have urban residency. The level of education ranges from masters 23 (6.4%), bachelors 87 (24.3%), Intermediate 179 (50.0%) and matric 69 (19.3%) as their level of education. About 272 (76%) of the total respondents had experience of 1-2 years with Rescue 1122 while 86 (24%) have experience of more than 2 years. The mean age of the study participants was 25.81 ± 2.246. Minimum Age was 21 years and maximum age was 33 years.
Among 358 participants, 336 (93.9%) participants had adequate knowledge regarding Hepatitis B. Only 22 (6.1%) study population had inadequate knowledge. Rather, rest of the knowledge regarding HB was adequate and known by many respondents with the mean knowledge score of 15.22±2.2 with minimum score of 8 and maximum of 20.
Over all 151 (42.2%) of the rescue 1122 had positive attitude for HB while 207 (57.8%) have negative attitude. To recapitulate, most respondents seem to have a negative attitude towards Hepatitis B and the mean score for attitude was 3.5 ± 1.0 with minimum score of 1 and maximum of 6.
343 (95.87%) respondents have good practices while only 15 (4.19%) have poor practices. The mean score for HB related practices was 8.7 ± 0.9 revealing poor practices among rescue 1122 participants with minimum score of 5 and maximum of 10 also illustrated in figure 2.

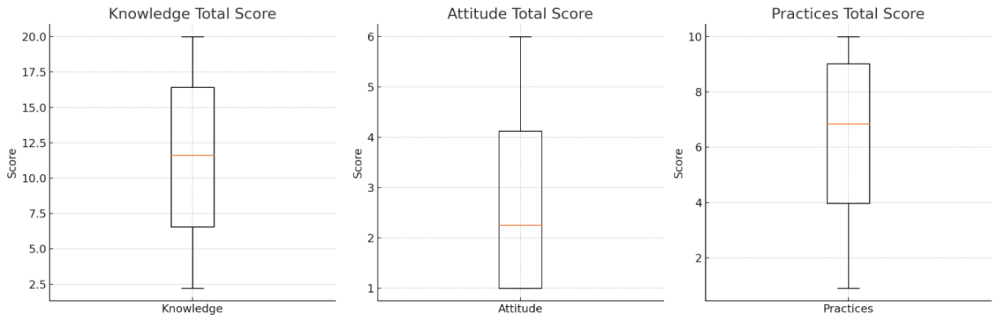

Figure 2: Box plot showing the score distribution of (i) Knowledge, (ii) Attitude & (iii) Practices

It has been observed that there is a significant correlation between the education of the study population and knowledge. The more they are qualified, the more they have knowledge regarding Hepatitis B (P≤0.05). Moreover, background of the residency also had strong correlation with knowledge as rural areas due to less health facilities have less awareness about Hepatitis B. The P value for health education was also P≤0.05, indicating that the respondents who had frequently or ever attended a health education program had adequate knowledge. In contrast, experience had no relation to knowledge.

Attitude had no relation to experience working with the Rescue 1122 organization and health education, but it is what respondents or the study affect the practices

population feel about Hepatitis B. It is rather dependent on residency, where they belong as a study population; those who belonged to urban areas had a positive attitude towards HB, and the more education, the more positive the attitude towards Hepatitis B (P≤0.05) towards Hepatitis B.

Study Population that had ever attended health education had good practices referring to careful behavior (P≤0.05). Hence. Good Practices had a significant and strong correlation with more education and among those who attended awareness programs. Rather, experience working with Rescue 1122 had no relation with Good Practices neither Residency

Table 1: Correlation of Knowledge, Attitude & Practices with Socio-demographic factors:

Variables	Demographics	Knowledge			Attitudes			Practices		
		Adequate	Inadequate	p-value	Positive	Negative	p-value	Good	Poor	p-value
Education	Matric	55 (15.4%)	14 (3.9%)	0.003*	26 (7.3%)	43 (12%)	<0.001*	63 (17.6%)	6 (1.7%)	0.035*
	Inter	166 (46.4%)	13 (3.6%)		72 (20.1%)	107 (29.9%)		170 (47.5%)	9 (2.5%)	
	Bachelor	72 (20.1%)	15 (4.2%)		33 (9.2%)	54 (15.1%)		87 (24.3%)	0 (0%)	
	Master	23 (6.4%)	0 (0%)		20 (5.6%)	3 (0.8%)		23 (6.4%)	0 (0%)	
Residency	Urban	172 (48%)	8 (2.2%)	<0.001*	85 (23.7%)	95 (26.5%)	0.033	173 (78.3%)	7 (2%)	0.082
	Rural	144 (40.2%)	34 (9.5%)		66 (18.4%)	112 (31.3%)		170 (47.5%)	8 (2.2%)	
Health Education	Yes	194 (54.2%)	16 (26%)	0.004*	87 (24.3%)	123 (34.4%)	0.407	209 (58.4%)	1 (0.3%)	<0.001 *
	No	122 (34.1%)	4.5 (7.3%)		64 (17.9%)	84 (23.5%)		134 (37.4%)	14 (3.9%)	
Experience	1-2 years	234 (65.4%)	38 (10.6%)	0.324	109 (30.4%)	163 (45.5%)	0.686	261 (72.9%)	11 (3.1%)	0.099
	>2 years	82 (22.9%)	4 (1.1%)		42 (11.7%)	44 (12.3%)		82 (22.9%)	4 (1.1%)	

***indicates statistically significant*

Gender significantly affects both knowledge and attitude. For knowledge, females (coded as 1) have 195% higher odds of having more knowledge compared to males (Exp(B) = 2.953, CI 95% [1.022, 8.53], p = 0.92). For attitude, females have 151% higher odds of having a positive attitude compared to males (Exp(B) = 2.51, CI 95% [1.077, 5.851], p = 0.033). Age significantly affects practices, reducing the odds of having positive practices by 13.7% with each additional year (Exp(B) = 0.863, CI 95% [0.825, 1.259], p = 0.019).

Education significantly decreases the odds of having a positive attitude by 28.6% (Exp(B) = 0.714, CI 95% [0.542, 0.941], p = 0.714) and reduces the odds of engaging in positive practices by 71.1% (Exp(B) = 0.289, CI 95% [0.118, 0.706], p = -1.242). Residence significantly increases knowledge, with people in certain areas having 409% higher odds of possessing more knowledge (Exp(B) = 5.091, CI 95% [2.23, 11.624], p = 0.408). Also illustrated in Table: 2.

Table 2: Association between demographic variables and Knowledge, Attitude, and Practices outcomes.

	Knowledge				Attitude				Practices			
	Sig.	Exp(B)	95.0% C.I.for EXP(B)		Sig.	Exp(B)	95.0% C.I.for EXP(B)		Sig.	Exp(B)	95.0% C.I.for EXP(B)	
			Lower	Upper			Lower	Upper			Lower	Upper
Age	0.092	1.097	0.939	1.28	0.094	1.098	0.993	1.215	0.019	0.863	0.825	1.259
Gender(1)	1.083	2.953	1.022	8.53	0.92	2.51	1.077	5.851	-17.945	0	0	.
Experience	-0.379	0.684	0.45	1.004	-0.056	0.946	0.886	1.009	-0.117	0.391	0.68	1.163
Residence	1.628	5.091	2.23	11.624	0.408	1.504	0.971	2.33	-0.245	0.659	0.263	2.328
Education	-0.331	0.718	0.442	1.167	-0.337	0.714	0.542	0.941	-1.242	0.289	0.118	0.706
Constant	-5.625	0.019	0.004		-1.871	0.154	0.195	0.714	-0.516	0.873	0.597	

Discussion

Hepatitis is of major concern globally and one of the leading public health problem. It causes huge burden on health sector resulting in patient's helplessness. (14) Current study evaluated KAP of HB among Rescue 1122 workers. It revealed adequate knowledge with the mean score of 15.2 ± 2.2 (76.1%). Similar studies globally reported Adequate KAP regarding Hepatitis B. (15),(16),(17) Unlike this study, inadequate knowledge regarding HB was reported around the globe.(18),(19),(20) Most likely reasons that can be attributed for the difference in results may be the demographic or background variation of respondents, basic medical knowledge, health education, study location and as well as the study tool/questionnaire used for data collection.

This study demonstrated adequate degree of Knowledge among Rescue 1122 in regards to hepatitis B, however gaps in Knowledge were distinguished which should be reinforced in study groups. These results are in concurrence with another review directed by large community. (21) In this study, participants had knowledge about the causative organism and the body organs attacked by the disease, but they did not have adequate knowledge about Symptoms and treatment. Transmission of HB is via feco-oral route and may also result from injury with contaminated objects, needle sharing or sexual contact. It also has maternal transmission from mother to children.(22) Likewise, Shalaby et al. in 2007 in his study revealed had adequate knowledge towards transmission of HB like this study for having same background of health care providers.(23)

Moreover, attitude mean score was less and considered as negative attitude. Respondents consider homeopathy, herbal and traditional therapies as the treatment of choice. Doctors were considered last resort to provide cure. Similar study was also reported in Pakistan(24) because there had been a vast trend of quackery from decades. People especially in rural areas due to lack of facilities prefer feasible methods of traditional

therapies. Another similar study that took place in Nawabshah regarding KAP of HB evaluated well known knowledge in regard to treatment of ailments. It was observed that educated participants also relied on homeopathic or herbal treatment. (25) Similarly, this study among rescue 1122 workers 45.81% respondents believe in other than doctor for treatment of Hepatitis B. Having various options can cause complications from such entities and may result in collapse of health system worsening patient condition.

It is noticed that there are certain systems that are not approved by authorities but their impact is articulated in the population. Other attributed factors treatment cost forces people to seek diagnosis and treatment from other remedies. Many respondents of Rescue 1122 are even not aware of the price of treatment for HB.

Education was associated with the Knowledge, more educated study population tend to give correct answers regarding HB, this is also credential in another study that was conducted in Lahore among University students that yield good results. (26) The impact of education and its association with Knowledge, attitude & practices has also been observed in Malaysian Population(27). Most of the study population had adequate knowledge and practices regarding HB in urban areas of Islambad(16) but unfortunately due to lack of health care facilities Nowshera population had inadequate knowledge and practices(28) as evident in this study population that urban population had better practices and adequate knowledge.

Another survey conducted among Turkish yield <5% knowledge among study population, possible reason could be HB is more common in Asia(29), unlike this study where study population is more prone to HB. Hong Kong telephonic survey had low response rate and there is possibility of selection biasness which showed inadequate Knowledge, negative attitude.(20)

Moreover, there are certain barriers that have an important role in hindering therapy of success in patients. In this study, the respondents had adequate knowledge about the blood transfusion safety protocols, use of sterilized syringes and all those things that contribute to transmission of HB like changing blades of barbers before a haircut, tattooing and ear nose piercing are also the potential risk factors. (30) Communicable diseases are common and people are endanger for it therefore, they keep good care of the blades and other sharing razors.

In this study, the participants had keen knowledge about transmission from barbers and hence, respondents observed on changing blades before use that was a common practice. It was also found in another study to eliminate risk of HB (31) Initially, it was considered that blood transfusion is common route for transmission of HB.(32) still there is population that due to lack of poor health facilities doesn't undergo screening before blood transfusion.

There had been a significant correlation with Knowledge and practices as another study indicating that better awareness implies better practices and knowledge is a tool that reaffirms behavior or acts(33),(34) but opposite relation was observed as if study population of India, they had adequate knowledge but doesn't seem to practice their knowledge. (35)

Conclusion

Knowledge and practices about hepatitis B among Rescue 1122 were adequate & good, respectively, while attitude needs improvement. Level of awareness, especially among Staff working in emergency department is fundamental to ultimately diminish global health burden of such infectious diseases. Furthermore, government and related organizations should take preventive measures for running mindful awareness program to prevent the occurrence of these issues and particularly focusing on complete coverage of vaccination status of individuals.

Declarations

Data Availability statement

All data generated or analysed during the study are included in the manuscript.

Ethics approval and consent to participate

Approved by the department concerned. (IRBEC-UOLS-54-24)

Consent for publication

Approved

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Conflict of interest

The authors declared the absence of a conflict of interest.

Author Contribution

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MA
Conception of Study, Development of Research Methodology Design,
RIS
Study Design, manuscript review, critical input.
IHK
Manuscript drafting, Study Design,

All authors reviewed the results and approved the final version of the manuscript. They are also accountable for the integrity of the study.

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