

Assessment of Knowledge, Attitude and Vaccination Status of Hepatitis B Infection among Medical University Students in Mogadishu-Somalia

Ilyas Adan Gabow^{1,2}, Ali Abdi Mohamed³

¹Department of Biochemistry, University of Somalia, Mogadishu, Somalia ²Faculty of Health Sciences & Tropical Medicine, Somali National University, Mogadishu, Somalia ³Department of Education, University of Somalia, Mogadishu, Somalia Email: ilyaasmsdrl@gmail.com, caligees6321@gmail.com

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Abstract

Background: Hepatitis B virus (HBV) is a primary reason for liver cancer and continues to be a worldwide public health issue. The likelihood of contracting HBV is greater in healthcare workers (HCWs) compared to individuals who are not in healthcare professions. Medical students are classified as a high-risk demographic since, like HCWs, they often come into contact with bodily fluids and blood during their clinical training. By 2030, a greater proportion of people will have received HBV vaccinations, thereby halting the spread of new infections-The Somali Ministry of Health with the help of various agencies announced to eradicate hepatitis from Somalia. The priority actions are national hepatitis strategy, hepatitis survey, public awareness, training, and capacity building. Objectives: This study aims to assess the knowledge, attitude, and vaccination status of Hepatitis B infection among medical university students in Mogadishu, Somalia, 2024. Methods: Cross-sectional study design was used in this study and the survey was carried out among medical students enrolled in Universities from April 1, 2023 to June 30, 2023. The data was analyzed using SPSS version 26.0 software, Chi-square analysis and Logistic regression analysis to identify associations between demographic factors and HBV knowledge, attitudes, and vaccination status, as well as perspectives and immunization status concerning viral hepatitis. Results: The study achieved a response rate of (96%), with 230 participants. Most students (76.5%) were aged 26 - 30 years, and (60.8%) were male. Nearly half (48.7%) were in their third year of study, and the majority (36.1%) were from the Medicine and Surgery department. While 92.2% had heard of HBV, gaps in understanding were evident. About 37.8% erroneously believed HBV could spread via handshakes,

and only 33.9% were aware HBV is treatable. Awareness of HBV's severe complications, such as liver cirrhosis and liver cancer, was reported by 61.3%, and 83% understood that vaccination could prevent infection. Positive attitudes towards HBV vaccination were prevalent. Most participants (81.3%) supported vaccination before sexual activity, and 78.3% endorsed mandatory HBV vaccination policies for healthcare workers. However, 87.4% expressed concerns about the vaccine promoting unsafe sexual behavior, and 96.1% cited cultural resistance as a barrier to vaccination. A significant proportion (80.86%) of students had not been vaccinated against HBV. Among vaccinated students, 17.4%, 15.7%, and 47.82% had received one, two, and three doses, respectively. Barriers to vaccination included safety concerns (77.4%), lack of time (86.52%), and doubts about efficacy (42.61%). Conclusion: This study highlights gaps in knowledge and vaccination coverage among medical students, which are critical for their health and future clinical practice. Enhancing awareness and vaccination rates can empower students to advocate for preventative measures in their professional environments. Despite high awareness of HBV, knowledge gaps and cultural barriers persist, affecting attitudes and vaccination uptake among medical students. Educational interventions addressing misconceptions, cultural resistance, and vaccine safety are critical. Increased advocacy for mandatory vaccination policies in healthcare settings is also essential to improve HBV prevention methods.

Keywords

Knowledge, Attitude Vaccination Status, Hepatitis B, Medical Students, Mogadishu, Somalia

1. Introduction

Hepatitis B virus (HBV) infection is a worldwide public health problem, and it is considered the most significant global risk factor for liver cancer [1]. Hepatitis B (HBV) remains a significant global health challenge, with over 2 billion individuals showing signs of current or past infection, and approximately 350 million chronic carriers. The World Health Organization (WHO) estimates that 296 million people live with chronic hepatitis B (CHB), leading to around 820,000 deaths annually, primarily from liver-related complications [1]. Between 0.7 and 1.4 million persons have chronic hepatitis B in the United States alone. In 2013, there were an estimated 19,764 newly diagnosed cases of hepatitis B [2]. HBV is 100 times more infectious than HIV [3]. The majority of cases, 68%, were recorded in the African and Western Pacific regions [4]. The World Health Organization wants to achieve the goal of viral hepatitis elimination by 2030. One of the important steps for viral hepatitis elimination is increasing general knowledge, and educational interventions are needed to increase knowledge and awareness [5]. The prevalence of Hepatitis B Virus (HBV) among medical students in Sub-Saharan Africa varies, with studies indicating different rates. Research shows that HBV is a significant concern among young adults, including students, with prevalence rates ranging from 5.4% to 31.39 [6] [7]. Factors contributing to the spread of HBV among this population include poor vaccination coverage, lack of awareness, and occupational exposure risks [8].

Hepatitis B virus (HBV) is an enveloped, double-stranded (DNA) virus that is considered a global health problem. Around the world, 290 million people are estimated to have chronic hepatitis B infection, which is t [9]. In clinical settings, Hepatitis B is transmitted by contact with blood or body fluid of infected person. The main route of transmission is by mother to child at birth, unsafe injections, blood transfusion and unprotected sexual intercourse [10]. It is a very contagious virus that can infect both symptomatic and asymptomatic people. People who have the virus on a long-term basis represent a major risk to all medical personnel, thus vaccination is usually necessary for them [11].

In KwaZulu-Natal, South Africa, a study on HIV and HBV co-infection among mother-child pairs revealed that 8.6% of mothers were HBV-positive, with 46.7% having detectable HBV DNA despite antiretroviral therapy (ART) active against HBV [11] [12].

Medical students show a higher awareness of HIV compared to HBV, despite the latter posing a higher transmission risk [8]. Studies reveal that only 28.4% of 3rd-year MBBS students have complete knowledge of HBV transmission modes [13]. Additionally, a significant number of medical students lack protective anti-HBs levels against HBV, indicating vulnerability to infection during clerkship activities [14]. Seroprevalence rates of HBsAg and anti-HBc among clinical and preclinical medical students show an overall prevalence of 11.0% for HBsAg and 65.9% for anti-HBc, with clinical students more likely to have been exposed to HBV [15].

Additionally, Healthcare personnel and medical students, for example, should be vaccinated and checked for hepatitis B immunity. Medical students indeed face a high risk of exposure to blood and bodily fluids during their clinical training, as highlighted in various studies [16]-[18].

In Somalia, before the military regime in 1969, private medical practice existed concurrently with public health care in a centralized public health system. The government ended private medical practices in 1972 in the context of the nationalization of privately owned services and economic assets. Between 1991 and 2012, there was a protracted conflict that damaged the systems for safe drinking water, sanitation, and health. Private health care currently predominates in public services, and the country's public health care system is non-operational [19]. Following the nation's tragic civil war, hepatitis virus infections have become a major public health concern. As a result, national programs and standards have been developed for the prevention and treatment of all forms of adult hepatitis [20].

It is believed that Somalia lacks a national strategy for viral hepatitis surveillance, prevention, and control [21]. Although hepatitis B virus infection has been classified as occurring in regions of the etiologies of HCC in Somalia are comparable to those of other parts of the world where the incidence of HBV infection exceeds 10% [22]. A meta-analysis dis-closed 18.9% pooled HBV prevalence among the general population in Somalia and 7.3% of HBV prevalence among hemodialysis patients were also reported [23]. HBV is considered a substantial public health hazard in Somalia, with a prevalence rate above 8%.HBV vaccination has been part of the national routine immunization program for children under five years of age in Somalia since 2013 [10]. Medical students are among the most important parts of medical college, as they are at a high risk of contracting hepatitis B, Because they develop a strong immune response and immune memory, medical students were therefore encouraged to get vaccinated against HBV before entering the clinical setting. This study was conducted to assess the knowledge, attitudes and vaccination status of HBV among medical students. However, research from several countries has indicated that the hepatitis B vaccination coverage and seroprotection of medical students are inadequate, and that a variety of factors affect their knowledge, attitudes, and vaccination rates [3] [24] [25]. In Somalia, there is a shortage of information among medical students on hepatitis B vaccine coverage and associated factors, which restricts the establishment and execution of effective prevention and control programs. As a result, the purpose of this study is to examine medical university students' knowledge, attitude, and vaccination status about hepatitis B infection, as well as to determine the barriers and facilitators to hepatitis B vaccination in this demographic. This research will help improve hepatitis B knowledge and immunization among medical students, ultimately lowering the hepatitis B burden in Somalia.

2. Method and Materials

2.1. Study Design, Study Setting and Study Population

This study is instructional based-on cross-sectional study design; the study was conducted at four universities in Mogadishu city namely Somali national university-SNU, Mogadishu University, Benazir University, and University of Somalia) from March to June 2021. The first one of them was public and other institutions were private. Mogadishu is the capital and largest city of Somalia, with a population of approximately **2,727,000 in 2024 of total population**. 240 participants were selected using simple random sampling technique to select eligible study participants.

2.2. Inclusion and Exclusion Criteria

The study included all clinical students from the health sciences departments of the universities in Mogadishu. These students were in the Medicine, Nursing, Midwifery, Clinical Officer, Medical Laboratory, and public health students. The study participants were chosen from these departments because they have close contact with patients during their training period in hospitals, health centers, and clinics. Medical students who were not present.

2.3. Data Collection Tool and Procedure

The tool for data collection was a self-administered structured questionnaire. The questionnaire contained 40 questions aiming to assess knowledge, attitudes, and vaccination status of medical students towards HBV infection. The questionnaire had four parts: The first part sought information about socio-demographic characteristics of medical students (age, sex, marital status, profession, etc.). The second part (13 questions) aimed to assess medical students' knowledge of transmission and prevention of HBV infection. The third part (11 questions) dealt with assessing attitudes towards the disease and prevention; the fourth part questions (11 questions) were related to the vaccination status of HBV prevention.

2.4. Statistical Analysis

Data entry and analysis was performed using SPSS version 26 (IBM Corp., 2016 and NY) the responses to categorical variables were coded to allow for or quantitative analysis. Data cleaning was done to ensure that the data was accurate and to maintain the good validity of the study. The variables, such as age, were presented as means with standard deviation. The proportion of categorical variables like vaccination status was presented. Data from the investigation was presented via tables. Chi-square was used to analyze the association. Hepatitis B-related knowledge and attitude questions were scored. To classify knowledge and attitude levels, individual total scores were transformed into percentages. Those with a score of 60.0% or above were classified as having a positive attitude level, while those with scores below 60.0% were classified as having a negative attitude level. For a knowledge score below 60%, it was for low, 60%, and 70% and above for high knowledge level on hepatitis B. Control of quality assurance.

2.5. Data Quality Control

We double-checked the field data to make sure all the necessary info was captured and saved. The questionnaire had to be re-administered if it was not correctly filled out by tracing the respondent through his or her phone number. A password-protected personal computer was used to enter the data. To ensure the accuracy of the information entered, an additional individual was assigned to examine each entry separately.

2.4. Ethical Consideration

The study was approved by the ethics committee of the postgraduate school of public health and research (SPHR) at the Somali National University and the selected universities. The Ethical Review Committee of the SPHR also approved the written consent forms obtained from all participants. Efforts were made to avoid any ill effects on the respondents, be they physical or psychological. Proper acknowledgment of all information sources utilized in the research was ensured to mitigate any potential issues of plagiarism. Proper acknowledgment of all information sources was ensured to mitigate any potential issues of plagiarism.

3. Results

3.1. Results of Socio Demographic Characteristics of Medical Students

A total of 240 students belonging to five departments were approached for the study. Most of the students participated in the study, achieving a response rate of 96%. The majority of the students 176 (76.5%) were in the age group of 26 - 30 years old and 140 (60.8%) were male. Marital status data indicated that a significant portion of respondents were single (71%), followed by married individuals (20%), and a smaller group of divorced participants (9%). When examining the academic years of the respondents, it was found that nearly half of the respondents were in their third year (48.7%), while the remaining were distributed across other years: 13.9% in the first year, 17.4% in the second year, 14.8% in the fourth year, and 5.2% in the fifth year. The departmental affiliation showed that Medicine and Surgery students comprised the largest group at 36.1%, followed by Public Health (19.1%), Medical Nursing (18.7%), Midwifery (16.5%), and Medical Laboratory (9.5%) (Table 1).

Table 1. Demographical characteristics of respondents (N = 230).

Variable	Category	Frequency	Percentage (%)				
	Age groups						
	18 - 25 47 (20.5%)						
	26 - 30	176	(76.5%)				
	31 - 35	7	(3.0%)				
	G	ender					
	Male	140	(60.8%)				
	Female	90	(39.2%)				
	Mari	tal status					
	Single	164	(71%)				
	Married	46	(20%)				
	Divorced	20	(9%)				
	Years at	t University					
	1 st Year	32	(13.9%)				
	2 nd year	40	(17.4%)				
	3 rd year	112	(48.7%)				
	4 th year	34	(14.8%)				
	5 th year	12	(5.2%)				

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Departments					
Medicine and Surgery	83	(36.1%)			
Medical Laboratory	22	(9.5%)			
Medical Nursing	43	(18.7%)			
Public health	44	(19.1%)			
Midwifery	38	(16.5%)			
Total	230				

3.2. Results of Knowledge of Medical Students on Hepatitis B Infection

Table 2. Distribution of participants' knowledge of hepatitis B virus infection (n = 230).

	Yes	No	I don't know
variable Knowledge of questions	n (%)	n (%)	n (%)
Have you heard about hepatitis B virus (HBV) infection?	212 (92.2%)	18 (7.8%)	
The cause of HBV infection is bacteria	12 (5.22%)	214 (93%)	4 (1.73%)
The cause of HBV infection is virus	218 (94.8%)	12 (5.2%)	00 (0.00%)
The cause of HBV infection is protozoa	18	201	11
Is HBV infection transmitted through sexual intercourse?	210 (91.3%)	14 (6%)	6 (2.6%)
Is HBV infection transmitted through blood transfusion?	158 (68.7%)	67 (29.1%)	5 (2.2 %)
Do you think as a medical students or your occupation is a risk for HBV infection transmission.	188 (81.7%)	23 (10%)	19 (8.3%)
Do you think Hepatitis B virus infection is transmittable both sharing contaminated needles and infected toothbrushes?	221 (96.1%)	5 (2.2%)	4 (1.8%)
Hepatitis B virus infection is transmittable through child birth	195 (84.5%)	31 (13.5%)	4 (1.7%)
Greeting with hand or staying together (air transmission) is transmittable for HBV	87 (37.8%)	132 (57.4%)	11 (4.8%)
Is Hepatitis B virus infection treatable?	78 (33.9%)	133 (57.8%)	19 (8.3%)
Do you think Hepatitis B virus infection can cause both liver cirrhosis and liver cancer	141 (61.3%)	58 (25.2%)	31 (13.5%)
Do you think Hepatitis B Virus infection can be prevented by Vaccination	191 (83%)	31 (13.5%)	8 (3.5%)

The study assessed participants' knowledge of Hepatitis B Virus (HBV) infection, revealing a generally high level of awareness but also significant gaps in understanding. Among the 230 participants, 92.2% had heard of HBV, and 94.8% correctly identified it as a viral infection. However, misconceptions persisted, with 5.2% erroneously believing HBV to be caused by bacteria and 4.8% thinking it was due to protozoa. When it came to transmission, 91.3% knew HBV could be transmitted through sexual contact, and 68.7% recognized blood transfusion as a risk. Alarmingly, 37.8% incorrectly believed in air transmission via handshakes or close proximity. While 84.5% correctly understood that HBV could be transmitted from mother to child during birth, only 33.9% were aware that HBV is treatable. Furthermore, 61.3% knew that HBV could cause liver cirrhosis and liver cancer, and 83% understood that vaccination could prevent the infection. These results highlight the need for Hepatitis B Vaccinations and improve overall knowledge about HBV transmission, and prevention. Notably, 37.8% of respondents were incorrectly answered when they said that handshakes and close contact could spread HBV. Furthermore, 33.9% of those surveyed thought HBV could be treated. Given the consequences for individual safety and public health, these information gaps are especially concerning. Furthermore, only 61.3% of students correctly identified the significant effects of HBV infection, including liver cancer and liver cirrhosis. Even though 83% of respondents knew that vaccinations might prevent HBV, some people are still not aware of the best way to avoid contracting the virus (Table 2).

The study investigated the attitudes of medical students towards Hepatitis B Virus (HBV) infection, revealing insightful perspectives that could inform public health initiatives. Analysis of the responses from 230 participants indicated that a significant majority, 92.2%, had friendships with individuals of the opposite sex, which may be relevant in understanding social behaviors influencing HBV transmission. Notably, 81.3% agreed that both boys and girls should receive the HBV vaccine before becoming sexually active, demonstrating strong support for early vaccination. However, 87.4% of participants believed that the HBV vaccine might increase the risk of multiple sexual behaviors among medical students, reflecting a potential misconception that needs addressing through education. Cultural considerations were also evident, as 96.1% acknowledged that taking the HBV vaccine could pose a problem within Somali culture, highlighting the need for culturally sensitive health interventions.

In terms of perceived prevalence, 81.73% of respondents believed that HBV prevalence in Somalia is high, underscoring an awareness of the infection's public health impact. Protection by the HBV vaccine was deemed beneficial by 82.61%, and an overwhelming 91.3% agreed that vaccination is particularly important for children under five years old. Furthermore, 78.3% supported making HBV vaccination a policy within the healthcare workforce, indicating a strong endorsement for institutional vaccination mandates.

Willingness to receive the HBV vaccine if recommended was expressed by

81.7% of participants, and 96.1% would refer other healthcare workers for vaccination, demonstrating a collective responsibility towards preventing HBV. Lastly, 84.5% agreed that the vaccine could be administered to adults, reflecting broad acceptance of vaccination across age groups. These findings highlight a generally positive attitude towards HBV vaccination among medical students, coupled with an awareness of cultural and behavioral factors that need to be considered in public health strategies. Targeted educational programs addressing misconceptions and culturally sensitive approaches will be crucial in enhancing HBV prevention efforts (**Table 3**).

	Agree	Disagree	I am not sure
Attitudes items of questions	n (%)	n (%)	n (%)
Do you have partner friendship with girls/boys?	212 (92.2%)	12 (5.2%)	6 (2.6%)
Boys and girls should get HBV vaccine before they become sexually active	187 (81.3%)	39 (16.95%)	4 (1.74%)
HBV vaccine will increase the risk of multiple sexual behaviors among medical students	201 (87.4%)	20 (8.7%)	9 (3.4%)
Taking of hepatitis B infection vaccine might be a problem in Somali culture	221 (96.1%)	5 (2.17%)	4 (1.73%)
Do you think the prevalence of hepatitis B in Somalia is high	188 (81.73%)	36 (15.7%)	6 (2.61%)
Protection by Hepatitis B is good	190 (82.61)	25 (10.86)	15 (6.52%)
Protection of hepatitis B is good children under five alone	210 (91.3%)	14 (6%)	6 (2.6%)
Hepatitis B Vaccination should be made policy in the health care workforce	180 (78.3 %)	33 (14.3%)	17 (7.4%)
I would willing to get hepatitis B vaccination, if recommended	188 (81.7%)	23 (10%)	19 (8.3%)
I would refer other health care workers for hepatitis B vaccination	221 (96.1%)	5 (2.2%)	4 (1.8%)
It can be administrated to adults	195 (84.5%)	31 (13.5%)	4 (1.7%)

Table 3. Distribution of participants' attitudes on hepatitis B virus infection (n = 230).

The logistic regression analysis presented in **Table 4** explores the relationship between demographic factors of medical students and their knowledge, attitudes, and vaccination status towards Hepatitis B Virus (HBV) infection. The data reveals several significant associations that warrant attention. There is a statistically significant difference in knowledge about HBV infection across age groups (p = 0.001). Specifically, participants aged 31 - 35 demonstrated the highest level of

knowledge (44.35%), followed by those aged 26 - 30 (32.17%). In terms of attitudes towards HBV vaccination, the 26 - 30 age group exhibited the most positive attitudes (42.61%), which was statistically significant (p = 0.005). Gender also played a significant role in knowledge and attitudes towards HBV. Male participants showed higher levels of knowledge (50.43%) compared to females (25.2%), with a p-value of 0.003. This trend extends to attitudes, where males again demonstrated more positive attitudes (37.82%) than females (27%), with a (p-value of 0.000). The year of study significantly influenced both knowledge and attitudes (p = 0.000 and p = 0.008, respectively). The most knowledgeable students were in their third year (29.1%), followed by those in their second year (9.1%). Positive attitudes were most prevalent among third-year students (29.57%), indicating that experience and exposure during their studies might enhance their understanding and attitudes towards HBV. There were notable differences in knowledge and attitudes across different study departments (p = 0.001 for both). Medical students exhibited the highest knowledge (24.35%) and positive attitudes (27.8%). In contrast, students from the midwifery department showed lower levels of knowledge (6.95%) and attitudes (5.7%). According to 87.4% of participants, HBV vaccine may promote unsafe sexual behaviors, which is a worrying assumption that could prevent vaccine uptake. Additionally, the study revealed an important cultural factor: 96.1% of participants agreed that receiving the HBV vaccine may encounter cultural resistance in Somalia, emphasizing the necessity of culturally competent health interventions.

Table 4. Logistic regression analysis between demographic of medical students on knowledge and attitud	 Logistic regression analysis between demograph 	nic of medical students o	n knowledge and attitude
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Compilator	Know	ledge	D males a	Attit	rudes	D mala a
Covariates	High	Low	P-value –	Positive	Negative	P-value
			Age			
18 - 25	10 (4.35%)	37 (16.1%)		8 (3.5%)	39 (17%)	
26 - 30	102 (44.35%)	74 (32.17)	0.001	98 (42.61%)	78 (34%)	0.005
31 - 35	4 (1.74)	3 (1.3%)		7 (3.0%)	0 (0%)	
			Genders			
Female	58 (25.2%)	32 (14%)	0.002	62 (27%)	28 (12.17%)	0.000
Male	116 (50.43%)	24 (10.43%)	0.005	87 (37.82%)	53 (23.0%)	0.000
		Y	ears of universit	у		
1 st Year	12 (5.2%)	20 (8.7%)		10 (4.35%)	22 (9.57%)	
2 nd year	21 (9.1%)	19 (8.3%)		25 (10.87%)	15 (6.52%)	
3 rd year	67 (29.1%)	45 (19.6%)	0.000	68 (29.57%)	44 (19.1%)	0.008
4 th year	28 (12.1%)	6 (2.61%)		24 (10.4%)	10 (4.3%)	
5 th year	12 (5.2%)	0 (0.0%)		9 (4%)	3 (1.3%)	

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			Departments			
Medicine	56 (24.35%)	27 (11.73%)		64 (27.8%)	19 (8.3%)	
Laboratory	14 (6.1%)	8 (3.5%)		14 (6.1%)	8 (3.5%)	
Nursing	37 (16.1%)	6 (2.61%)	0.001	34 (14.78%)	9 (3.9%)	0.0051
Public health	31 (13.91%)	13 (5.65%)		34 (14.78%)	10 (4.3%)	
Midwifery	16 (6.95%)	22 (9.56%)		13 (5.7%)	25 (10.9%)	

Table 5. The vaccination status of Medical University students (n = 230).

Vaccination status of HBV infection among medical students	Category	Frequency	Percentage %
Have been vaccinated against HBV infection?			
	Yes	44	(19.14%)
	No	186	(80.86%)
If your answer is vaccinated, How many doses of HBV received?			
	Dose one	40	(17.34%)
	Dose two	36	(15.7%)
	Dose three	110	(47.82%)
If you are not vaccinated, what are the reasons you did not take	Agree	Disagree	I am not sure
HB vaccine?	n (%)	n (%)	n (%)
1) I am afraid of side effects and injections.	75 (32.61%)	102 (44.35%)	53 (23.04)
2) I was previously infected with HBV infection so I cannot get vaccine.	21 (9.13%)	187 (81.30%)	22 (9.57%)
3) I don't believe in immunization.	98 (42.61%)	101 (43.91%)	31 (13.48%)
4) I have been to busy.	199 (86.52%)	21 (9.13%)	10 (4.35%)
5) I am not at high risk of contact acting HBV.	65 (28.26%)	135 (58.7%)	30 (13.04%)
6) It is too costly.	78 (33.91%)	120 (52.17%)	32 (13.91%)
7) I think HBV infection is not dangerous to my health.	89 (38.7%)	102 (44.35%)	39 (16.7%)
8) I think HBV infection Vaccine my not be safe.	178 (77.4%)	33 (14.34%)	19 (8.26%)
9) I think HBV infection may not be effective to prevent Future HBV infections.	122 (53.04%)	100 (43.48%)	8 (3.48%)

The hepatitis B vaccination status of medical students is displayed in **Table 5**. Within the current study, it was observed that a significant portion, amounting to 186 individuals (80.86%), of medical students had not undergone vaccination against hepatitis B. Among those who had received the vaccine, percentages for

having taken one, two, and three doses were recorded at 17.4%, 15.7%, and 47.82% respectively (Refer to **Table 5**). When questioned about their reasons for not receiving the HB vaccine, the responses from medical students indicated that a majority of 178 individuals (77.4%) and 199 individuals (86.52%) expressed concerns over the safety of the Hepatitis B infection Vaccine and cited being occupied as reasons for non-vaccination. Additionally, a portion of medical students, specifically 98 individuals (42.61%), harbored doubts regarding the efficacy of immunization.

4. Discussion

This study assessed the knowledge, attitudes, and vaccination status among medical university students in Mogadishu, Somalia. The study's most common age range was 26 to 30 years old (76.5%). This range is consistent with medical students studying at various universities in Mogadishu who participated in a related study titled "the assessment of the Knowledge, Attitude, and Acceptability towards Human Papillomavirus and its Vaccine among Undergraduate Female Medical Students, South-West Ethiopia" [26]. The findings of this study indicate a generally high level of awareness about Hepatitis B Virus (HBV) infection among medical students, with 92.2% having heard of HBV and 94.8% correctly identifying it as a viral infection. These results are consistent with previous studies conducted in various regions, which also reported high levels of awareness among medical students [27] [28]. However, significant gaps in understanding persist. For instance, 5.2% of participants erroneously believed that HBV is caused by bacteria, and 4.8% thought it was due to protozoa. This aligns with findings from a study at Qassim University, Saudi Arabia, where a notable proportion of medical students also held misconceptions about the etiology of HBV [27]. The study also revealed that only 33.9% of participants were aware that HBV is treatable, which is lower compared to other studies. An investigation conducted in Ghana, for instance, revealed that more people were aware that HBV is treatable [29]. While 61.3% of participants knew that HBV could cause liver cirrhosis and liver cancer, and 83% understood that vaccination could prevent the infection, these figures indicate room for improvement. Previous studies have shown that knowledge about the long-term consequences of HBV and the benefits of vaccination is crucial for encouraging preventive behaviors among medical students. The study also found that the misconception that the HBV vaccine might increase the risk of multiple sexual behaviors among medical students, as believed by 87.4% of participants, indicates a critical area for educational intervention. Addressing this misconception through targeted educational programs is essential to ensure that vaccination efforts are not undermined by unfounded fears. The positive perception of the HBV vaccine's protective benefits, with 82.61% deeming it beneficial, further supports the case for widespread vaccination. Previous studies have also highlighted similar misconceptions among medical students, emphasizing the need for accurate information and education. These studies also revealed that awareness of HBV prevalence and the benefits of vaccination are key determinants in promoting vaccine uptake [3] [15] [30].

Regarding the generalizability of these findings, the results from this study may be relevant to other countries in Sub-Saharan Africa and regions with similar socioeconomic and healthcare contexts. In countries with limited access to healthcare and vaccination programs, medical students' understanding of infectious diseases like HBV can influence public health campaigns. The study's findings provide valuable insights for improving health education among medical students in other low-resource settings, especially where knowledge gaps about preventable diseases are prevalent. For example, in regions like East Africa, where HBV is endemic and public awareness is often low, similar educational interventions might be effective in raising awareness and improving vaccination rates. Additionally, while the findings pertain specifically to medical students in Mogadishu, Somalia, they align with results from studies in other regions, including Saudi Arabia and Ghana, where medical students also showed varying levels of knowledge about HBV. However, it is important to note that regional cultural differences, healthcare infrastructures, and educational systems might impact how these results apply. For example, countries with more advanced healthcare systems might have higher levels of awareness and vaccination coverage. Therefore, while the study provides a foundation for understanding the current state of HBV knowledge and attitudes in Somalia, further research in other regions and countries with different healthcare contexts would help to better understand how findings can be universally applied and adapted to local needs.

Studies in different regions may highlight distinct barriers to vaccine uptake, such as logistical challenges in rural areas or cultural perceptions surrounding vaccination, which could affect generalizability. Thus, while the high level of awareness found in this study is promising, further efforts tailored to specific populations, considering local knowledge gaps, health beliefs, and access to healthcare, would be essential for improving the effectiveness of vaccination campaigns across diverse settings. A more comprehensive and region-specific approach could lead to better targeted health interventions, ultimately contributing to the global fight against Hepatitis B. Studies have reported varying levels of awareness of HBV infection. In a study done with medical students, overall knowledge was found to be 68%, and only 40% knew the correct precautions that should be taken in order to prevent needle-stick injuries. Hepatitis B vaccination is one of the most important primary prevention methods for this contagious disease, and immunization against this infectious agent provides optimal protection for individuals at risk [31]. Thus, this study emphasizes the need for educational interventions to address misconceptions and improve vaccination rates, both within Somalia and globally, especially in countries with similar healthcare challenges. A limitation of this study: It was conducted in only four universities, despite Mogadishu having over 50 medical institutions, limiting the generalizability of the findings. Data collection relied on university campus allowances, restricting access to certain

student populations and reducing sample diversity. The timeframe for data collection was short, preventing it from reaching a larger and more varied group of students. Student availability was affected by academic and clinical duties, resulting in lower participation rates. Lack of cooperation from department deans hindered outreach efforts, reducing student awareness and participation in the survey. As a cross-sectional study, it provides a snapshot of knowledge and attitudes at one point in time, without capturing changes or trends over time.in conclusion and recommendation

The "The Assessment of Knowledge, stations, and Vaccination Status among Medical University scholars in Mogadishu, Somalia" highlights significant perceptivity into the current state of vaccine-related mindfulness and practices within this demographic. The findings reveal that while there's a foundational understanding of vaccination benefits among scholars, gaps in comprehensive knowledge and positive stations persist. These gaps may contribute to sour vaccination rates. Sweats to enhance educational programs within medical classes are pivotal to ground these gaps. By fostering a more robust understanding of vaccination's part in public health, we can ameliorate stations and eventually increase vaccination uptake. Also, targeted mindfulness juggernauts and accessible vaccination services could further support these pretensions. Overall, this exploration underscores the need for strategic interventions to empower unborn healthcare professionals in Somalia, equipping them with the knowledge and stations necessary and apply effective vaccination programs. I also propose, on behalf of the Department of Public Health at Somali National University, that we conduct screenings and vaccinations for this disease. These should be carried out at university centers, schools, and other gathering places to reduce the spread of the disease. Additionally, as a specialist in public health, we suggest implementing public awareness campaigns of Hepatitis B.

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Conflicts of Interest

The authors have disclosed that they have no conflicts of interest in relation to the publishing of this research study. Without any financial assistance, the task was carried out on its own. The opinions and conclusions expressed in this article are all the result of the writers' individual scholarly work.

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