

Barriers and Drivers of Hepatitis B Vaccination Uptake Among Tanzanian University Students: The Role of Knowledge, Access, and Peer Influence

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ABSTRACT:

Hepatitis B virus (HBV) remains a significant public health concern in sub-Saharan Africa, yet vaccination coverage among young adults is suboptimal. This cross-sectional study investigated knowledge, vaccine uptake, and the influence of social stigma and cultural beliefs on HBV vaccination among 175 students at St. Augustine University of Tanzania, Malimbe Campus. A structured, pretested questionnaire assessed socio-demographic characteristics, knowledge of Hepatitis B, vaccination status, and perceptions of stigma and cultural beliefs. Data were analyzed using descriptive statistics, Chi-square tests, and logistic regression. Results indicated that overall knowledge was low, with 54.9% of students demonstrating poor knowledge, and only 26.9% had received at least one dose of the vaccine. Multivariable analysis identified three significant predictors of vaccination: perceiving vaccination as necessary (Adjusted Odds Ratio [AOR]=1.84, 95% CI: 1.04–3.24), awareness of where to access the vaccine (AOR=0.30, 95% CI: 0.17–0.52), and peer influence (AOR=1.63, 95% CI: 1.04–2.57). Stigma, family, and religious beliefs did not independently influence uptake. These findings highlight that structural barriers and social cues, rather than cultural or religious factors, primarily determine vaccination behavior. To improve coverage, interventions should combine targeted health education emphasizing the necessity of vaccination, enhanced accessibility of vaccination services on campus, and peer-led strategies to leverage social influence. Such approaches are essential to reduce HBV transmission and promote preventive health behaviors among university students in Tanzania.

Keywords: Hepatitis B vaccination; University students; Vaccine uptake; Peer influence; and Tanzania

1. INTRODUCTION

Hepatitis B Virus (HBV) remains a major global public health concern, particularly in sub-Saharan Africa, where infection and chronic carriage rates are persistently high. Although an effective vaccine has been available for decades, uptake among young adults and university students remains low. In Tanzania, the HBV vaccine was incorporated into the Expanded Programme on Immunization (EPI) in 2002 (MoHCDGEC, 2018). Consequently, many individuals currently in tertiary institutions were not vaccinated during childhood, leaving them susceptible to infection. Despite government and global initiatives to control HBV transmission, the disease continues to affect thousands of Tanzanians annually, highlighting persistent gaps in vaccine coverage and awareness.

HBV is a viral infection that targets the liver and can lead to chronic conditions such as cirrhosis and liver cancer. Transmission occurs through contact with infected blood or body fluids, including via sexual contact, contaminated medical instruments or mother-to-child transmission during childbirth (WHO, 2024). Globally, an estimated 254 million people live with chronic HBV, and about 1.1 million deaths are reported each year (WHO, 2024). While over 80% of children in many countries now receive the vaccine, coverage among young adults remains inconsistent. Studies from both developed and developing countries show that university students often have limited knowledge about HBV and demonstrate poor vaccination behavior (Custer et al., 2004).

In Africa, HBV affects approximately 82 million people (WHO, 2022). Limited catch-up vaccination programs for older populations and the absence of adult immunization policies exacerbate the problem. In Tanzania, the National Strategic Plan for Viral Hepatitis (2018/19–2022/23) prioritized high-risk groups such as healthcare workers and pregnant women but did not explicitly include university students (MoHCDGEC, 2018). At institutions like St. Augustine University of Tanzania (SAUT), vaccine uptake remains suboptimal due to inadequate health education, cost, and accessibility barriers.

Recent studies have revealed alarmingly low HBV vaccination coverage among Tanzanian university students. For instance, Mirambo et al. (2020) found that only 22–46% of health professional students in Mwanza had protective antibodies, while Erick et al. (2023) reported that only 6–17% of students in northeastern Tanzania demonstrated good preventive practices, including vaccination. A meta-analysis by Lebem Togtoga (2024) estimated vaccine coverage among Sub-Saharan African university students at 28.8%, with East Africa averaging 23.4%. These figures underscore the need to understand the underlying determinants of vaccine uptake.

Vaccine hesitancy, fueled by misinformation, cultural beliefs, religious perceptions, and mistrust in healthcare systems, remains a central barrier to vaccine acceptance (Cooper et al., 2018). Among university students, vaccination decisions are shaped not only by individual knowledge but also by peer influence, social norms, and institutional factors. The Health Belief Model (HBM) and Social Constructivist theories provide frameworks for understanding how perceived risk, perceived benefits, and socio-cultural influences shape vaccination behavior (Rosental & Shmueli, 2021).

Despite growing evidence on HBV prevalence in Tanzania, there is limited research exploring the social and cultural determinants of vaccine uptake among non-medical university students. Most existing studies focus on healthcare workers or medical students, leaving a gap in understanding the broader student population, whose vaccination behavior is influenced by unique social dynamics and varying levels of health literacy.

This study aims to assess the uptake of the Hepatitis B vaccine among non-medical students at St. Augustine University of Tanzania, Mwanza Campus, and to identify the social and cultural factors influencing their vaccination behavior. Specifically, it seeks to determine the proportion of vaccinated students, evaluate their knowledge and perceptions of Hepatitis B, and analyze how social beliefs, peer norms, and institutional factors shape vaccine uptake. Findings from this study will inform targeted public health strategies to enhance vaccine acceptance and contribute to Tanzania's goal of eliminating Hepatitis B as a public health threat by 2030.

2. METHODOLOGY

Study design

This study employed a quantitative cross-sectional design to assess the uptake of the Hepatitis B vaccine and associated socio-cultural determinants among university students at St. Augustine University of Tanzania (SAUT), Mwanza Campus. The design enabled data collection at a single point in time, allowing the estimation of vaccination prevalence and the identification of relationships between socio-demographic characteristics, knowledge levels, and vaccination behaviors. A pretested structured questionnaire was used to ensure standardization, objectivity, and comparability of responses across participants.

Study participants

The study population comprised undergraduate and postgraduate students enrolled in the Department of Sociology at SAUT. This group was selected because students from non-medical programs are not directly exposed to health sciences training, making their vaccination behavior more likely to reflect general community attitudes rather than professional health knowledge. Eligibility criteria included being an actively enrolled

student, belonging to the Department of Sociology, and providing informed consent. Students in medical or health-related programs, those on academic leave, or those unwilling to participate were excluded. The department hosts approximately 766 students, representing diverse socio-demographic and cultural backgrounds, which makes the group ideal for examining social and cultural influences on health behaviors.

Sample size calculation

The sample size was calculated using the Kish and Leslie (1965) formula for estimating a single population proportion:

$$n = Z^2 \times p(1-p) / d^2$$

Where:

- $Z = 1.96$ (standard normal value at 95% confidence level)
- $p = 0.11$ (proportion of HBV vaccine uptake from Erick et al., 2023)
- $d = 0.05$ (margin of error)

Substituting these values yielded $n = 150$. To account for a 10% non-response rate, the final sample size was adjusted to 165 participants. This ensured sufficient power for statistical analyses while maintaining feasibility in terms of data collection. To enhance the robustness of the dataset, responses from 10 participants who took part in the pilot phase whose data met the inclusion criteria were also incorporated. This brought the final sample size used for analysis to 175 participants.

Sampling procedure

A multi-stage sampling approach was adopted. In the first stage, purposive sampling was used to select the Department of Sociology, representing a non-medical cohort with diverse social backgrounds. In the second stage, stratified random sampling was employed to ensure proportional representation from each academic year (first to final year). Within each stratum, participants were randomly selected from registration lists provided by the department to minimize selection bias and ensure representativeness.

Data collection

Data were collected using a structured, self-administered questionnaire distributed electronically. The tool, developed in English (the language of instruction at SAUT), consisted mainly of closed-ended questions grouped into sections covering: (1) socio-demographic information, (2) knowledge about Hepatitis B infection and vaccination, (3) vaccination status, and (4) perceptions of social stigma and cultural beliefs related to vaccination. The questionnaire was pretested among a small group of non-participating students to ensure clarity and content validity. Feedback from the pretest was used to refine ambiguous questions and improve flow.

Statistical analysis

Data were coded, entered, and analyzed using IBM SPSS Statistics (Version 26). Descriptive statistics were used for data analysis. Knowledge was assessed using seven questions, each scored as 1 (correct) or 0 (incorrect/unknown). Scores were converted into percentages and categorized into *poor*, *moderate*, or *good* knowledge based on Bloom's cut-off points.

Bivariate analyses using Chi-square tests examined associations between socio-demographic variables, knowledge, and vaccination status. Variables with $p < 0.20$ were included in multivariable logistic regression models to identify independent predictors of vaccine uptake while controlling for confounders. Odds ratios (ORs) and adjusted odds ratios (AORs) with (95%) confidence intervals (CI) were reported. Statistical significance was set at $p < 0.05$.

Results were presented in tables and figures. The interpretation of findings was guided by constructs of the Health Belief Model (HBM), focusing on perceived susceptibility, benefits, barriers, and cues to action influencing Hepatitis B vaccination decisions.

3. RESULTS

Socio-demographic characteristics of participants

In total, 175 students participated in this study. More than half, (54.9%), of the respondents were female, while males constituted (45.1%). The majority of students (84.0%) were aged between 18 and 27 years, with smaller

proportions in the 28–37 years (14.3%) and 38–47 years (1.7%) age groups. Most participants were pursuing undergraduate studies (90.9%), whereas (9.1%) were enrolled in postgraduate programs.

By year of study, (39.4%) of the students were in their second year, (36.6%) in their third year, and (24.0%) in their first year. Christianity was the predominant religion (87.9%), followed by Islam (9.8%) and African traditional beliefs (2.3%). Slightly more than half of the respondents were single (56.0%), while 44.0% reported being in a relationship.

In terms of residence, the majority lived off-campus (81.1%), while (18.9%) stayed on-campus. Regarding region of origin, the largest proportion came from the Lake Zone (41.1%), followed by the Southern Highlands (17.7%), Northern Zone (17.1%), Central Zone (10.9%), and Coastal Zone (10.9%), with only (1.1%) each from Zanzibar and foreign countries. Nearly all students were covered by the National Health Insurance Fund (NHIF, 97.1%) (Table 1).

Table 1: Socio-demographic characteristics of study participants

Variable	Category	Frequency (n)	Percentage (%)
Gender	Female	96	54.9
	Male	79	45.1
Age group (years)	18–27	147	84.0
	28–37	25	14.3
	38–47	3	1.7
Education level	Undergraduate	159	90.9
	Postgraduate	16	9.1
Year of study	1 st Year	42	24.0
	2 nd Year	69	39.4
	3 rd Year	64	36.6
Religion	Christian	153	87.9
	Muslim	17	9.8
	African Traditional	4	2.3
Relationship status	No	98	56.0
	Yes	77	44.0
Residence	On-campus	33	18.9
	Off-campus	142	81.1
Region of origin	Lake zone	72	41.1
	Northern zone	30	17.1
	Southern Highlands	31	17.7
	Central zone	19	10.9
	Coastal zone	19	10.9
	Zanzibar	2	1.1
	Foreign	2	1.1
Health insurance	NHIF	170	97.1
	CHF	4	2.3
	ZHIF	1	0.6

Knowledge levels of Hepatitis B Vaccination among university's students

As shown in Figure 1, most students had limited knowledge of the vaccine. More than half of the respondents (54.9%) demonstrated poor knowledge, (23.4%) had moderate knowledge, and only (21.7%) showed good knowledge.

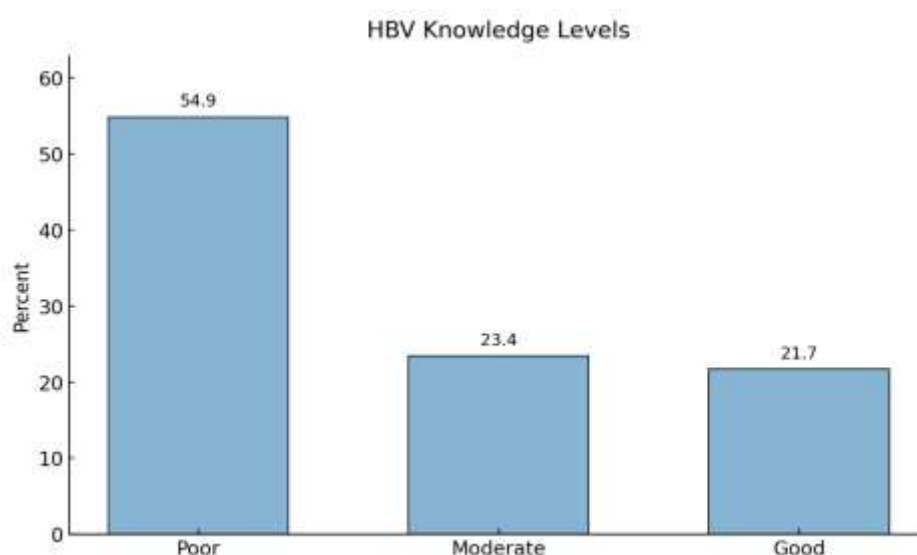


Figure 1: Knowledge levels on Hepatitis B vaccination among university's students

The majority within most categories exhibited poor knowledge. By gender, poor knowledge was slightly more common among females (59.4%) than males (49.4%). A greater proportion of males (26.6%) had moderate knowledge compared to females (20.8%), while good knowledge was fairly similar between the two groups (around 20–24%). Knowledge levels also varied by age. Students aged 18–27 years had the highest rate of poor knowledge (55.8%), compared to 44.0% among those aged 28–37. None of the students aged 38–47 demonstrated moderate or good knowledge. Regarding education level, undergraduates were more likely to have poor knowledge (56.0%) than postgraduates (43.8%). Interestingly, half of the postgraduates (50.0%) exhibited moderate knowledge, while nearly one-quarter of undergraduates (23.3%) had good knowledge (Table 2).

By year of study, first-year students showed the highest proportion of poor knowledge (66.7%), followed by third-years (64.1%) and second-years (39.1%). Second-year students were more likely to have moderate knowledge (36.2%), whereas third-years had the highest percentage of good knowledge (25.0%). Residence was also a factor, with on-campus students showing poorer knowledge (63.6%) than off-campus students (52.8%). Students not in a relationship were more likely to have poor knowledge (58.2%) compared to those in a relationship (50.7%). However, more students in relationships had moderate knowledge (31.2% versus 17.3%). Regional variation was also evident. Students from the Lake Zone had the highest rate of poor knowledge (56.9%), while those from the Southern Highlands showed relatively higher moderate knowledge (48.4%). Students from the Northern Zone exhibited the greatest proportion of poor knowledge (66.7%) (Table 2).

Table 2: Distribution of knowledge levels on Hepatitis B vaccination by socio-demographic characteristics among university's students

Variable	Category	Poor, n (%)	Moderate, n (%)	Good, n (%)
Gender	Female	57 (59.4)	20 (20.8)	19 (19.8)
	Male	39 (49.4)	21 (26.6)	19 (24.0)
Age group (years)	18–27	82 (55.8)	32 (21.8)	33 (22.4)
	28–37	11 (44.0)	9 (36.0)	5 (20.0)
	38–47	3 (100.0)	0 (0.0)	0 (0.0)
Education level	Undergraduate	89 (56.0)	33 (20.8)	37 (23.3)
	Postgraduate	7 (43.8)	8 (50.0)	1 (6.3)
Year of study	1 st Year	28 (66.7)	9 (21.4)	5 (11.9)
	2 nd Year	27 (39.1)	25 (36.2)	17 (24.6)

	3 rd Year	41 (64.1)	7 (10.9)	16 (25.0)
Religion	Christian	84 (54.9)	36 (23.5)	33 (21.6)
	Muslim	9 (50.0)	5 (27.8)	4 (22.2)
	African Traditional	3 (75.0)	0 (0.0)	1 (25.0)
Relationship status	No	57 (58.2)	17 (17.3)	24 (24.5)
	Yes	39 (50.7)	24 (31.2)	14 (18.2)
Residence	On-campus	21 (63.6)	4 (12.1)	8 (24.2)
	Off-campus	75 (52.8)	37 (26.1)	30 (21.1)
Region of origin	Lake zone	41 (56.9)	13 (18.1)	18 (25.0)
	Central	12 (63.2)	3 (15.8)	4 (21.1)
	Coastal	10 (52.6)	6 (31.6)	3 (15.8)
	Northern	20 (66.7)	3 (10.0)	7 (23.3)
	Southern	11 (35.5)	15 (48.4)	5 (16.1)
	Foreign	0 (0.0)	1 (50.0)	1 (50.0)
	Zanzibar	2 (100.0)	0 (0.0)	0 (0.0)
Health insurance	NHIF	94 (55.3)	39 (22.9)	37 (21.8)
	CHF	2 (50.0)	1 (25.0)	1 (25.0)
	ZHIF	0 (0.0)	1 (100.0)	0 (0.0)

Vaccination uptake among university students

The overall vaccine uptake was low, with (73.1%) of students having never received any dose, while only (26.9%) reported being vaccinated with at least a single dose (Figure 2).

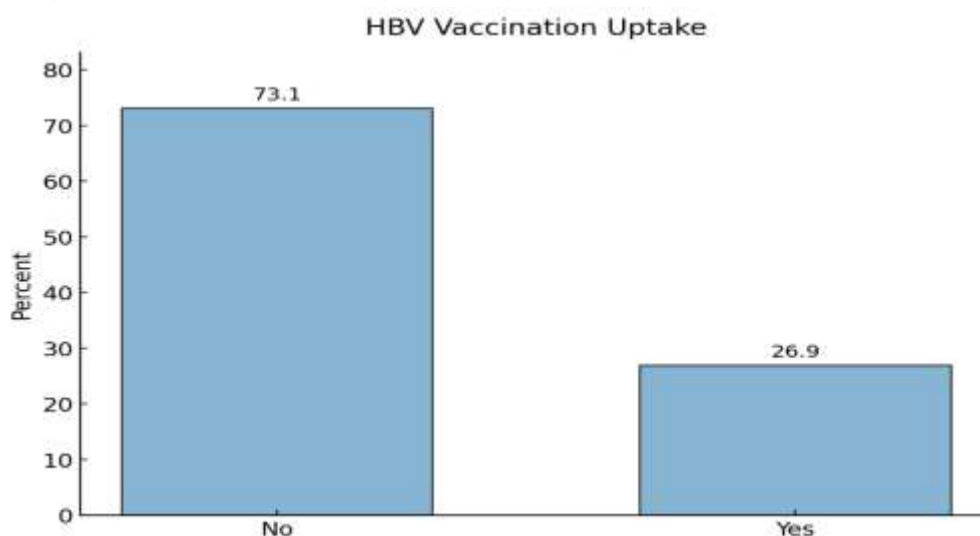


Figure 2: Overall uptake of Hepatitis B vaccination among university's students

Hepatitis B vaccine uptake across socio-demographic groups

The uptake was slightly higher among males (30.4%) than females (24.0%). By age, (26.5%) of students aged 18–27 years and (32.0%) of those aged 28–37 years were vaccinated, while none of the 38–47-year-olds had received the vaccine. Undergraduate students reported higher uptake (28.3%) than postgraduates (12.5%). Vaccination rates increased with year of study, from (21.4%) among first-years to (31.3%) among third-years, indicating greater uptake among more senior students. Muslims reported slightly higher uptake (35.3%) than Christians (26.1%), and none of the students identifying with African Traditional beliefs were vaccinated. Students in relationships had lower uptake (19.5%) than those not in relationships (32.7%). Uptake was also higher among on-campus residents (39.4%) compared to off-campus students (23.9%).

Regarding insurance coverage, uptake among NHIF members was (26.5%), compared to (50.0%) among the few CHF members and none among ZHIF participants (Table 3).

Table 3: Socio-demographic characteristics and Hepatitis B vaccination uptake among university students

Variable	Category	Vaccinated	Not vaccinated
		n (%)	n (%)
Gender	Female	23 (24.0)	73 (76.0)
	Male	24 (30.4)	55 (69.6)
Age group (years)	18–27	39 (26.5)	108 (73.5)
	28–37	8 (32.0)	17 (68.0)
	38–47	0 (0.0)	3 (100.0)
Education level	Undergraduate	45 (28.3)	114 (71.7)
	Postgraduate	2 (12.5)	14 (87.5)
Year of study	1st Year	9 (21.4)	33 (78.6)
	2nd Year	18 (26.1)	51 (73.9)
	3rd Year	20 (31.3)	44 (68.7)
Religion	Christian	40 (26.1)	113 (73.9)
	Muslim	6 (35.3)	11 (64.7)
	African Traditional	0 (0.0)	5 (100.0)
Relationship status	Yes	15 (19.5)	62 (80.5)
	No	32 (32.7)	66 (67.3)
Residence	On-campus	13 (39.4)	20 (60.6)
	Off-campus	34 (23.9)	108 (76.1)
Health insurance	NHIF	45 (26.5)	125 (73.5)
	CHF	2 (50.0)	2 (50.0)
	ZHSF	0 (0.0)	1 (100.0)

Factors influencing perceived social stigma and cultural beliefs on students' willingness to receive the Hepatitis B vaccine among students

Univariate analysis revealed several important patterns. Students (50%) who believed that “vaccination is necessary” were more likely to be vaccinated than those who did not hold this belief. Conversely, students who reported “not knowing where to get the vaccine” were (53%) less likely to be vaccinated. Social influences also played a meaningful role. Those who indicated that “close friends influence their health decisions” were about 38% more likely to be vaccinated, and students who felt “supported by close friends” were roughly (61%) more likely to receive the vaccine. Family support, the influence of religious leaders, and agreement that the “university should mandate vaccination” were all associated with higher odds of vaccine uptake (Table 4).

After adjusting for all potential predictors in the model, three factors remained statistically significant: perceived necessity of vaccination, lack of awareness of vaccine access points, and peer influence.

Perceived necessity of vaccination: students who more strongly agreed that “Vaccination is necessary for my future career” were significantly more likely to be vaccinated. Each one-level increase in agreement on the Likert scale was associated with an (84%) increase in the odds of vaccine uptake (AOR = 1.84, 95% CI: 1.04–3.24, $p = 0.036$). This finding aligns with the **perceived benefits** construct of the Health Belief Model (HBM), highlighting that acknowledging vaccination as a vital health measure promotes positive health behaviors.

Lack of awareness of vaccine access points: students who agreed with the statement “I don’t know where to get the vaccine” were substantially less likely to be vaccinated. Each one-step increase in agreement reduced the odds of vaccination by about 70% (AOR = 0.30, 95% CI: 0.17–0.52, $p < 0.001$). This corresponds to the **perceived barriers** construct of the HBM, showing that limited knowledge about where to obtain the vaccine can significantly hinder uptake, even when attitudes toward vaccination are positive.

Peer influence: agreement with the statement “My close friends’ influence matters” was positively associated with vaccine uptake. Each increase in agreement raised the odds of vaccination by 63% (AOR = 1.63, 95% CI: 1.04–2.57, $p = 0.034$). This reflects the **cues to action** domain of the HBM, indicating that social encouragement and peer modeling play a critical role in motivating vaccination behavior (Table 4).

Table 4: Factors influencing perceived social stigma and cultural beliefs on students’ willingness to receive the Hepatitis B vaccine

Variable (Survey Item)	Univariate analysis		Multivariate analysis	
	cOR(95%CI)	P-value	aOR(95%CI)	P-value
D1.Perceived benefit				
D1.1.I believe HBV Vaccine is effective in preventing disease	1.27 (0.91–1.77)	0.165	1.05 (0.54–2.07)	0.877
D1.2. Getting vaccinated is important for my overall health	1.19 (0.87–1.62)	0.282	0.78 (0.43–1.40)	0.408
D1.3. Vaccination is necessary step for my future career	1.51 (1.06–2.14)	0.022	1.84 (1.04–3.24)	0.036
D2. Perceived Barriers and Risk				
D2.1. I am Worried about potential side effects of the vaccine.	0.99 (0.71–1.37)	0.953	1.32 (0.82–2.15)	0.256
D2.2. The HBV Vaccine is too expensive for me.	0.79 (0.57–1.09)	0.155	1.02 (0.64–1.62)	0.946
D2.3. I don’t know where to get the vaccine or near campus area.	0.47 (0.34–0.66)	<0.001	0.30 (0.17–0.52)	<0.001
D2.4. I believe my risk of getting Hepatitis B is very low	0.91 (0.67–1.23)	0.544	1.23 (0.79–1.90)	0.360
D3. Cultural beliefs and Stigma				
D3.1.Ibelieve Only promiscuous people need Hepatitis B vaccine	1.19 (0.87–1.62)	0.282	1.18 (0.76–1.83)	0.473
D3.2. if someone gets vaccinated people might think they are sick	0.84 (0.63–1.14)	0.263	1.07 (0.68–1.68)	0.777
D3.3. Family beliefs influence decision to get vaccinated	1.24 (0.93–1.66)	0.148	1.04 (0.67–1.62)	0.851
D3.4. Traditional medicine can protect me from diseases like Hepatitis B just as well as vaccine	0.98 (0.73–1.32)	0.896	1.51 (0.90–2.53)	0.118
D4. Social Influence and Cues to Action				
D4.1. Close friends’ influence	1.38 (1.01–1.88)	0.044	1.63 (1.04–2.57)	0.034
D4.2. If recommended by health provider	1.37 (0.99–1.90)	0.053	1.02 (0.63–1.67)	0.923
D4.3. University should make HBV vaccination mandatory	1.49 (1.08–2.05)	0.015	0.87 (0.51–1.49)	0.611
E. Family Social Determinants				
E5. My family would support my decision to vaccinate	1.42 (1.04–1.95)	0.030	1.13 (0.67–1.92)	0.638
E5.1. Close friends would support me	1.61 (1.17–2.21)	0.003	1.32 (0.82–2.13)	0.247
E5.2. Religious leaders influence/Promote Vaccination	1.48 (1.09–2.00)	0.011	1.15 (0.72–1.84)	0.558

E5.3. Trust health advice from government clinics	1.30 (0.94–1.80)	0.113	0.95 (0.56–1.61)	0.841
E5.4. Traditional medicine can be more effective than vaccines	0.72 (0.53–0.99)	0.040	0.72 (0.45–1.15)	0.171
E5.5. Getting vaccinated is a responsible thing to do for my community.	1.17 (0.85–1.60)	0.346	0.91 (0.52–1.62)	0.760

4. DISCUSSION

This study explored university students' knowledge of Hepatitis B vaccination, vaccine uptake levels, and the influence of stigma and cultural beliefs in shaping vaccination behavior. The key findings revealed three major insights: most students demonstrated poor knowledge of Hepatitis B, overall vaccine uptake was low, and only three variables, perceived necessity of vaccination, awareness of where to access the vaccine, and peer influence, remained significant predictors of vaccine uptake in the multivariable model. These results provide valuable direction for designing targeted interventions and policies to enhance Hepatitis B prevention among young adults in higher learning institutions.

Knowledge levels on Hepatitis B vaccination

The finding that over half of the participants had poor knowledge of Hepatitis B vaccination aligns with evidence from other East African university populations, where limited understanding of transmission, prevention, and vaccination schedules is common (Erick et al., 2023; Munuo & Masika, 2024). Knowledge gaps at this level are particularly concerning, given that university students are often considered an educated group expected to model preventive health behaviors.

However, our results reinforce that knowledge alone is insufficient to translate into action. Even students with moderate or good knowledge did not always demonstrate higher vaccination rates. This emphasizes that awareness must be coupled with a sense of personal relevance and easy access to services. Educational programs should therefore move beyond basic information dissemination and instead foster a stronger perception of vaccination as a vital personal and public health responsibility. Embedding vaccination education into student orientation, health weeks, and curriculum modules on infectious diseases could promote this shift in perception.

Vaccination status and access

The overall Hepatitis B vaccination coverage of (26.9%) observed in this study is consistent with the pooled regional estimate of (28.8%) reported in a recent sub-Saharan Africa meta-analysis (Togtoga et al., 2024). Despite existing national policies recommending vaccination for high-risk groups, these figures highlight persistent implementation gaps.

Access barriers were identified as a major determinant of low uptake. Students who reported not knowing where to get vaccinated were approximately (70%) less likely to have received the vaccine. This echoes findings from Tanzanian healthcare worker studies, where logistical and informational barriers reduced vaccine completion despite favorable attitudes (Ndunguru et al., 2023).

This evidence points to the urgent need for institutional facilitation. Universities should establish on-campus vaccination centers or collaborate with nearby health facilities to conduct regular immunization drives. Clear communication, through notice boards, digital platforms, and student unions, about vaccination schedules and access points could substantially improve uptake. Incorporating vaccination into existing student health services and making it a prerequisite for clinical training or internships would further strengthen adherence.

Perceived social stigma and cultural beliefs

Peer influence emerged as one of the most powerful predictors of vaccine uptake. Students who reported being positively influenced by close friends were (63%) more likely to be vaccinated. This finding reflects the “cues to action” construct of the Health Belief Model (HBM) and resonates with social norms theory, which highlights how social networks shape health decisions among young adults. Comparable evidence from Cambodia showed similar peer-driven trends in vaccination among health workers (Sok et al., 2024).

These findings underscore the potential of peer-led interventions in university settings. Empowering student leaders, peer educators, and health ambassadors to promote vaccination can normalize the behavior and create positive peer pressure for uptake.

Interestingly, variables related to social stigma, family influence, and religious beliefs lost significance in the adjusted analysis. While they appeared important initially, their effects were overshadowed by stronger determinants such as perceived necessity and accessibility. This suggests that interventions focused solely on combating stigma or cultural misconceptions may yield limited results unless structural and social drivers are simultaneously addressed.

Policy and practice implications

The findings of this study carry significant implications for policy and practice aimed at improving Hepatitis B vaccination uptake among university students in Tanzania. First, universities should institutionalize structured health education programs that move beyond raising awareness to emphasizing the necessity and long-term benefits of Hepatitis B vaccination in preventing chronic liver disease and cancer. Such programs can be integrated into student orientation activities, health awareness weeks, and academic curricula to reinforce preventive health behavior. Second, accessibility must be prioritized through the establishment of on-campus vaccination centers or regular outreach clinics in collaboration with local health authorities. Making vaccines available within the university environment would address logistical barriers and encourage convenience-based uptake. Third, policymakers and health administrators should leverage the influential role of peer networks by implementing peer-led health promotion initiatives that utilize student leaders, associations, and ambassadors to create positive social norms around vaccination. Finally, clear communication strategies, through digital platforms, notice boards, and university communication channels, should be adopted to enhance awareness of vaccination schedules, eligibility, and benefits. Collectively, these policy and practice interventions can strengthen the operationalization of Tanzania's national Hepatitis B prevention strategy within higher learning institutions, ensuring broader coverage and improved protection among young adults.

Conclusion

This study assessed knowledge, vaccination uptake, and the influence of social stigma and cultural beliefs on Hepatitis B vaccination among students at St. Augustine University of Tanzania, Malimbe Campus. The findings reveal that knowledge about Hepatitis B was generally low, vaccination coverage remained poor, and behavioral determinants were primarily linked to perceived necessity, accessibility, and peer influence rather than stigma or religious beliefs. According to the Health Belief Model, these findings emphasize the importance of perceived benefits, reduced barriers, and social cues in shaping health behavior. The low uptake underscores the urgent need for targeted interventions that integrate health education, accessibility of vaccination services, and peer engagement strategies. Addressing these determinants can substantially improve vaccine coverage and contribute to Hepatitis B prevention among university students in Tanzania.

Recommendations

To improve Hepatitis B vaccination uptake among university students, health education programs should emphasize the necessity and long-term benefits of vaccination while correcting misconceptions about transmission and prevention. Universities should collaborate with health authorities to establish accessible, well-publicized vaccination points within campuses. Peer-led initiatives should be strengthened to leverage social influence and normalize vaccination as a shared responsibility. Furthermore, integrating vaccination services into existing student health programs will ensure continuity, convenience, and sustainability, ultimately supporting national goals for Hepatitis B control and prevention among young adults.

5. REFERENCES

1. Ministry of Health, C. D., Gender, Elderly and Children. (2018). *National strategic plan for the control of viral hepatitis 2018/19-2022/23*. Tanzania, United Republic.
2. WHO.(2024, April 9). *Hepatitis B*. <https://www.who.int/news-room/fact-sheets/detail/hepatitis-b>.
3. Custer B, S. S., Hazlet TK, et al. PMID: . (Nov 2004). . Global epidemiology of hepatitis b virus. *ournal of clinical gastroenterology*, 38(10 Suppl 33):S158-168. DOI: 110.1097/00004836-200411003-200400008.

4. WHO, W. H. O.-. (2022). Hepatitis B. (<http's://WWW/news-room/fact-sheets/detail/hepatitis-B>).
5. Mirambo, M. M., Mkumbo, E., Selega, H., Msemwa, B., Mushi, M. F., Silago, V., Seni, J., Mshana, S. E., & Kasang, C. (2020). Hepatitis B virus infections among health professional students in Mwanza city, Tanzania in 2016. *Archives of public health*, 78(1), 1–5. <https://doi.org/10.1186/S13690-020-00459-2/TABLES/3>.
6. Erick, E., Rwegoshola, K., Ibrahim, P. M., Semvua, H., & Chilongola, J. (2023). Incongruity between knowledge and preventive practices on hepatitis b infection among university students in north-eastern, Tanzania. *East African health research journal*, 7(1), 67–75. <https://doi.org/10.24248/EAHRJ.V7I1.710>.
7. 7.Lebem Togtoga, A. N., Saidou Bah, Papa Djibril Ndoeye, Khadim Niang. (2024). Hepatitis b vaccination coverage among university students in sub-saharan africa: Systematic review and meta analysis. *Journal of biosciences and medicines*, , Vol.12 No.10, 45-58.
8. 8.Cooper S, Betsch C, Sambala EZ, Mchiza N, Wiysonge CS. Vaccine hesitancy (2018). *A Potential threat to the achievements of vaccination programmes in Africa*. Hum Vaccin Immunother. 2018;14(10):2355-2357. doi: 10.1080/21645515.2018.1460987. Epub 2018 May 22. PMID: 29617173; PMCID: PMC6284499.
9. 9.Rosental, H., & Shmueli, L. (2021). Integrating health behavior theories to predict covid-19 vaccine acceptance: differences between medical students and nursing students. *Vaccines*, 9(7), 783. <https://doi.org/10.3390/VACCINES9070783/S1>.
10. 10.Togtoga, L., Ndong, A., Bah, S., Ndoeye, P. D., & Niang, K. (2024). Hepatitis B Vaccination Coverage among University Students in Sub-Saharan Africa: Systematic Review and Meta-Analysis. *Journal of Biosciences and Medicines*, 12(10), 45-58.
11. 11.Ndunguru, B., Wilfred, D., Kapesa, A., Kilonzo, S. D., Mirambo, M., Hyera, F., & Massaga, F. (2023). Low uptake of hepatitis b vaccination among healthcare workers in primary health facilities in mwanza region, north-western Tanzania.
12. 12. Sok, S., Chhoung, C., Sun, B., Ko, K., Sugiyama, A., Akita, T., & Tanaka, J. (2024). Knowledge of hepatitis B infection, hepatitis B vaccine, and vaccination status with its associated factors among healthcare workers in Kampot and Kep Provinces, Cambodia. *BMC Infectious Diseases*, 24(1), 658.
13. 13. Wibabara, Y., Banura, C., Kalyango, J., Karamagi, C., Kityamuwesi, A., Amia, W. C., & Ocama, P. (2019). Hepatitis B vaccination status and associated factors among undergraduate students of Makerere University College of health sciences. *PLOS ONE*, 14(4), e0214732. <https://doi.org/10.1371/JOURNAL.PONE.0214732>.

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