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Assessment of Knowledge, attitude, and practices towards hepatitis B infection and immunization status among nursing students at University of Tabuk- Saudi Arabia

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Abstract

Background :The World Health Organization wants to eradicate viral hepatitis by 2030, and one of the main obstacles to achieving this objective appears to be a lack of broad awareness about the illness. The purpose of this study was to assess Tabouk University nursing students' knowledge, attitudes, and practices (KAP) on the hepatitis B virus (HBV).

Subjects and Method: This research is a cross-sectional. On designated occasions, students were invited to the department to receive a hepatitis B vaccination and raise awareness. With the use of an online self-administered questionnaire, their KAP was evaluated. When comparing subgroups pairwise, the chi-square test was utilized. Lasso regression and logistic regression were employed to examine the factors that influenced KAP's knowledge of HBV. A structural equation model was developed to investigate the connections between HBV's KAP.

Results: more than half of students had a good level of knowledge (50.3%) with higher mean score (M = 25.6, SD = 1.6, P = .001*). Students' attitudes about the Hepatitis B virus were categorized as "unfavorable" (86.8%) and "favorable" (13.2%) based on the total attitude scale categories and the students' practices regarding the Hepatitis B virus were categorized as "unfavorable" (45.7%) and "favorable" (54.3%) based on the total practice scale categories. The findings showed that nursing students' attitudes and practices are impacted by their knowledge of the Hepatitis-B virus (OR: 4.7, 95% CI: 1.5 – 14.9 & OR: 12.2, 95% CI: 5.6 - 26.4). Additionally, the nursing students' attitudes and practices were positively correlated with their knowledge of the Hepatitis-B virus (Co. =.361, R =.896 & Co. =.735, R =.718).

Conclusion: The University of Tabouk nursing students were still far from having a thorough understanding of HBV treatment and prevention. It is recommended that college and university officials focus more on educating students about HBV and use multi-channel preventive and management strategies.

Keywords: hepatitis B virus, knowledge attitude and practice, Lasso-logistic regression, structural equation model

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Introduction:

Infection with the hepatitis B virus (HBV) is one of the world's most serious public health issues. Roughly one-third of people on the planet are thought to be HBV positive, according to recent estimates [1, 2]. Approximately 360 million individuals are chronic carriers of these, putting them at risk for liver conditions such as cirrhosis and hepatocellular carcinoma (HCC). Worldwide, the prevalence of chronic HBV infection varies widely (0.5–20%) because of variations in the age of infection and manner of acquisition. [3,4].

In healthcare settings, there is a significant risk of HBV infection for healthcare workers (HCWs). HCWs have a prevalence rate of HBV that is between two and ten times higher than that of the global population [5, 6]. Among healthcare workers, contact with non-intact skin, using medical equipment that has not been properly sanitized, and percutaneous or mucosal exposure to contaminated blood or bodily fluids are risk factors for HBV infection [6]. According to estimates, the typical chance of contracting HBV infection following percutaneous contact to contaminated blood is between 6 and 30% [7].

The high rate of infection transmission can be primarily linked to poor waste disposal, insufficient sanitation of medical equipment, and negligent handling of infectious materials.[8] Because of their inexperience, lack of training, or simple negligence, the danger may be significantly higher if the HCW is a trainee, intern, or merely a student.[5] Nevertheless, research has shown that health professions trainees clearly lack awareness of the dangers of occupational exposure to HBV infection.[10,9]

By following general precautions, such as wearing protective barriers like gloves, sterilizing medical equipment, maintaining an appropriate hospital waste management system, and getting vaccinated, it is possible to avoid contracting the hepatitis B virus [11]. Healthcare professionals may consider getting vaccinated against HBV because they are susceptible to needle stick injuries and encounter bodily fluids that are infected [12]. According to a meta-analysis research, 43% of health professionals had needle stick injuries [13]. Healthcare workers should receive the vaccination since HBV is a bloodborne infection that affects them at a rate that is two to ten times greater than the

general population [14]. In addition, post-exposure prophylaxis can be used to prevent HBV following unintentional contact with tainted bodily fluids or blood [11].

Studying knowledge, attitudes, and practices identifies important beliefs, inclinations, or abilities that members of a society frequently have in common regarding specific topics. It has proven to be a helpful research method for creating public health policies that consider the at-risk population's awareness, beliefs, and health-seeking behavior. [7] One important tactic for stopping the spread of the disease is raising public awareness of the warning signs, symptoms, and causes of HBV infection [15]. Consequently, a multitude of investigations have been carried out globally to evaluate the knowledge, attitudes, and practices (KAP) of healthcare students regarding HBV and its associated variables [16–19]. To improve their health and teach them to be more sensitive and careful with both them and their patients, healthcare students undergoing clinical rotations should be adequately informed about HBV infection, the modes of transmission, the primary symptoms, complications, and preventive measures [20–22].

By 2030, the World Health Organization hopes to have eradicated viral hepatitis.[23] Increasing public knowledge is one of the key components in the elimination of viral hepatitis [24], and educational interventions are required to raise awareness and knowledge. Before starting these educational activities, we require a precise assessment of the target groups' current knowledge, attitude, and practice (KAP) regarding hepatitis. The purpose of this study is to determine the level of KAP towards HBV among nursing students at University of Tabuk, so as to provide targeted suggestions and scientific references for future prevention and control of HBV among certain population.

Significance of the study:

Every year, around 3 million healthcare workers worldwide are exposed to HBV infection. This exposure can potentially lead to up to 66 thousand cases of HBV infection, resulting in 261 deaths among healthcare workers globally [25].recent data and modeling analysis indicated that the rate of Hepatitis B Virus (HBV) infection in Saudi Arabia is approximately 1.7% [26].Following health education, high knowledge and a favorable attitude toward disease prevention have been shown to be positively connected to good practice of disease prevention, which is hypothesized to result in desired disease

prevention outcomes. These factors are tempered by pertinent sociodemographic. Although Healthcare workers have a higher risk of contracting hepatitis B compared to the general population, the trainees, including nursing students, have been recognized as having a higher susceptibility to HBV infection because of their lack of experience, insufficient training, and lack of attentiveness [5]. Before clinical rotation at the University of Tabuk, students must undergo specific requirements, such as testing for hepatitis B antibodies. This analysis checks their immunity to the hepatitis B virus by assessing anti-HBs levels. Confirming immunity is essential to ensure students are protected against HBV infection before entering clinical activities. This precautionary measure is vital in healthcare training programs, safeguarding both students and the patients they may encounter during their clinical experiences.

Statement of the problem

Despite nursing students undergoing hepatitis B testing before clinical rotations, there remain significant infection risks due to insufficient experience and training. There is a need to evaluate current protocols to ensure effective protection for both students and patients. Furthermore, assessing students' understanding and adherence to disease prevention practices, particularly regarding hepatitis B, is essential for comprehending their immunity dynamics. While students receive the hepatitis B vaccination prior to clinical rotations, some fail to complete the full vaccination schedule, potentially compromising their immunity and putting themselves and others at risk.

Aim of the study: This study aimed to assessed the knowledge, attitudes, practices and vaccination status among Nursing Students at University of Tabuk,Saudi Arabia .

Research Question

Q1: What is the level of Knowledge, attitude, and practices towards hepatitis B infection among nursing students?

Q2: What is the relationship between Knowledge, attitude, and practices towards hepatitis B infection and immunization status?

Study Variables:

Independent Variables:

a.Demographic Characteristics (age, gender, field of study).

b. Hepatitis B Vaccination Status (vaccinated, doses received, reasons for non-vaccination).

Dependent Variables: (Knowledge, Attitude and Practices).

Study Hypothesis:

H1: There is a significant association between Knowledge, attitude, and practices regarding hepatitis B infection among nursing students.

H2: There is a significant association between Knowledge, attitude, and practices towards hepatitis B infection and immunization status.

1. METHOD

Research design:

Descriptive-across section study was conducted among nursing students at university of tabuk. Convenience sampling technique was used to recruit the student participants in this study.

Setting of the study:

The study was conducted in the nursing department at university of tabuk ,saudi Arabia.

Study Population & Target Group:

The study population comprised all nursing students at university of tabuk from all the years (first year, second year, third year, final year, and intern).

Inclusion criteria

All students who were present during the study's data collecting period and gave their consent to participate in it met the inclusion criteria for the sample and were chosen.

Exclusion criteria

Those who unwilling to participate and unable to give the required information during data collection period.

Sample size:

The sample size was estimated using the Raosoft Sample Size Calculator(http://www.raosoft.com/sample_size.html) based on a margin of error of 5%, a confidence level of 95%, The number of nursing students at the University of Tabuk, from first-year students to interns, totals 494, and a response distribution of 50%. The calculated sample size was 217. A total of 217 questionnaires were distributed among all nursing students. After accepting the drop factors, the final study sample comprised of

151 students accepted the invitation to participate, thus contributing to a 100% response rate.

Study tools:

A self-administered online questionnaire

Nursing students' knowledge, attitudes, and practices about Hepatitis-B infection were gathered through the use of a questionnaire.

The researcher obtained previous approval via email and the questionnaire was approved based on another published article [27]. It contained the following sections:

Section 1: Individual and demographic information: age, gender, year level, and Hepatitis B vaccination status of the student nurses.

Section 2: Hepatitis B Virus Knowledge Among Student Nurses

Using sex-related questionnaires and a five-point Likert scale, where 1 represents the least acceptable response to a question and 5 represents the most acceptable response, the knowledge of student nurses regarding the Hepatitis B virus was assessed. The knowledge score was determined using a 5-point Likert scale, where a score of 1 to 5 represented strongly disagree to strongly agree. A favorable attitude was defined as having a mean score of ≥ 24 (strongly agree or agree), whereas an unfavorable attitude was indicated by a score of 6 to 18 (strongly disagree, disagree, or neutral).

Sections 3 and 4: Student Nurses' Views and Experiences with Hepatitis-B Infection

There were five possible answers to the questions about attitude and practice, with a minimum of five and a maximum of twenty-five. The attitude score is based on five criteria. Likert Scale: 1 to 5 represents strongly disagree to strongly agree on a specific point scale. A favorable attitude and practice were indicated by a mean score of ≥ 20 (strongly agree or agree), while an unfavorable attitude and practice was indicated by a score of 5 to 15 (strongly disagree, disagree, or neutral).

Tool reliability:

Every scale showed a valid and trustworthy Cronbach's Alpha, indicating that the scales are dependable. The current study's internal reliability was found to be 0.698, showing that our scale's internal consistency for this particular sample was high.

Study procedure:

- ▣ Data was gathered to design the research tool, which used a self-administered questionnaire to assess students' nurses' knowledge, practice, and attitude regarding infection prevention. The tool was based on recent and scientific research.
- ▣ A pilot study involving 10% of the study sample was carried out to ensure the questionnaire's applicability.
- The University of Tabuk's nursing faculty dean granted the researcher permission to carry out the investigation. In which the participants were asked about the prospect of participating in the study through college groups on Facebook, Twitter, and WhatsApp, and the researchers explained the goal of the study.
- After uploading the self-questionnaire to Google Drive, the researcher asked the students to complete it thoroughly and honestly. Then, the researcher circulated the questionnaire electronically over the students' WhatsApp platforms. It was made clear that taking part in the study would not have an impact on their assessment results. Subsequently, the researcher obtained the student nurses' questionnaire.

Outcome measures:

Using a Google Forms online questionnaire platform, a survey was administered to nursing students in March 2024. The researchers used social media sites to send out the invitation.

Ethical

The University Ethics Committee granted ethical approval (REC reference number 361). A cover letter outlining the purpose of the study and participants' rights is attached to the research instruments. Completing the survey signifies consent to take part in the research. Confidentiality and anonymity were guaranteed both during and after the study. The participants were told that their participation in the study is optional and that they are free to leave at any time without facing any repercussions. The researcher did not require any name or other identifying information from them.

Considerations:

Consent:

Before the beginning of the survey, participants voluntary is taken and the participants wereinformed that they would not be asked about their personal information and that they can withdraw from participating in the study at any time.

Expected Results Utilization:

The outcome of this study provided valuable perspectives on nursing students' knowledge, attitudes, practices, and vaccination status concerning Hepatitis B infection. The overall goal of the study was to explore the knowledge, attitudes, practices, and vaccination status among Nursing Students at University of Tabuk in order to improve students' awareness and raise the level of preventive behaviors such as vaccination.

Data analysis:

Researchers entered data using a suitable personal computer. The statistical analysis was conducted utilizing the SPSS computer program (Version, 22). Excel is a statistical software program for figures. The researcher first examined, classified, and coded each tool's material. Descriptive statistics, such as means and standard deviations for quantitative variables and frequencies and percentages for qualitative variables, were used to tabulate and analyze the gathered data. When $p < 0.05$, the P-value is deemed statistically significant.

Results: -

The results below report on all data collected from the revised questionnaire following reliability analysis.

Sample Characteristics:

Table (1): Demographic characteristics of the study sample, (n = 151):

- Frequencies (Number & percentage).

The dominant gender was female (62.9%), with highest percent of participants had

Characteristic		Frequency (N)	Percentage (%)
Gender	Male	56	37.1%
	Female	95	62.9%
Age group	18-20 years	67	44.4%
	21-22 years	63	41.7%
	23 years and above	21	13.9%
Level of school year	First year student	33	21.9%
	Second year student	34	22.5%
	Third year student	41	27.2%
	Fourth year student	38	25.2%
	Interns	5	3.3%
Vaccinated against Hepatitis B	Yes	105	69.5
	No	46	30.5
Doses of Hepatitis B vaccine received	Not vaccinated	47	31.1%
	One	42	27.8%
	Two	10	6.6%
	Three	51	33.8%
	Three or more	1	.7%
Reasons for not being vaccinated against Hepatitis B	No vaccination program offered	38	25.2%
	Low risk of Hepatitis B	66	43.7%
	Not sure about the vaccination status Lack of knowledge	29	19.2%
	Efficacy doubted	18	11.9%

18-20 years' age group (44.4%). More students in third level of school year participated in current study (27.2%). Majority of the participating students vaccinated against

Hepatitis B (69.5%), almost one third of these students received third dose of Hepatitis-B vaccine. While low risk of Hepatitis-B become the most common reason for not being vaccinated against Hepatitis B (43.7%) (**Table 1**).

knowledge related to Hepatitis B virus:

Table (2): Percent distribution of correct and incorrect responses of the students for each knowledge question (N = 151):

Questionnaires	Poor		Good	
	N	Percent	N	Percent
1. A virus is the cause of hepatitis B.	45	29.8%	106	70.2%
2. Contaminated blood, bodily fluids, and unprotected sex can all spread hepatitis B.	45	29.8%	106	70.2%
3. Contaminated food or drink, coughing, sneezing, and hand-to-hand contact can all spread hepatitis B.	110	72.8%	41	27.2%
4. Liver cancer can result from hepatitis B.	64	42.4%	87	57.6%
5. Healthcare professionals are more likely than the general public to contract Hepatitis B.	56	37.1%	95	62.9%
6. Wearing gloves, avoiding sharp objects like needles, and avoiding syringe injuries can all help prevent hepatitis B.	49	32.5%	102	67.5%

- Frequencies (Number & percentage).

The students' total knowledge scores varied from 6 to 30, with a mean score of 21.4 (SD = 5.7) overall. Just 4 students (2.6%) out of the 151 who accepted the invitation to participate received a score of 30, the highest achievable. Conversely, just 6 pupils (5.3%) received a score of 6, which is the lowest possible. For the 25th, 50th, and 75th percentiles, the quartiles for the overall knowledge score of the students were 18, 24, and 25, respectively. The participant students' knowledge about the Hepatitis B virus was categorized as "poor" (49.7%) and "good" (50.3%) based on the total knowledge scale categories. For both the first and second questions (Hepatitis B is caused by a virus &

Hepatitis B can be transmitted via contaminated blood, body fluids, and unprotected intercourse.), most students (70.2%) provided satisfactory responses. However, when it came to the third question—which asked if hepatitis B might be spread by handshakes, coughing or sneezing, or contaminated food or water—72.8% of the students gave a poor response (Table 2).

Attitude towards Hepatitis B virus:

Table (3): Percent distribution of good and poor responses of the students for each attitude question (N = 151):

Questionnaires	Unfavorable		Favorable	
	N	Percent	N	Percent
1. I find it awkward to sit next to someone who has hepatitis B.	76	50.3%	75	49.7%
2. I have no problem hugging or shaking hands with someone who has hepatitis B.	97	64.2%	54	35.8%
3. The Hepatitis B vaccine is, in my opinion, both safe and effective.	52	34.4%	99	65.6%
4. I think hepatitis B vaccinations should be administered to healthcare personnel.	46	30.5%	105	69.5%
5. Since I'm not at risk, I don't need to get the Hepatitis B vaccine.	126	83.4%	25	16.6%

- Frequencies (Number & percentage).

Students' overall attitude scores varied from 5 to 25, with a mean of 16.2 (SD = 4.0) across the board. Just two students (1.3%) out of the 151 who accepted the invitation to participate achieved the maximum score of 25. Only six pupils (4.0%) achieved the lowest possible score of five. For the 25th, 50th, and 75th percentiles, the quartiles for the overall attitude score of the students were 15, 17, and 18, respectively. Students' attitudes about the Hepatitis B virus were categorized as "unfavorable" (86.8%) and "favorable" (13.2%) based on the total attitude scale categories. Regarding the fourth issue, the great majority of students (69.5%) expressed a positive attitude (I believe healthcare workers should obtain Hepatitis B vaccination.). On the other hand, (83.4%) had unfavorable

attitude toward fifth question (I don't need Hepatitis B vaccination because I'm not at risk) (**Table 3**).

Practice towards Hepatitis B virus:

Table (4): Percent distribution of good and poor responses of the students for each practice question (N = 151):

Questionnaires	Unfavorable		Favorable	
	N	Percent	N	Percent
1. I request or use a fresh blade for hair cutting or shaving.	61	40.4%	90	59.6%
2. Prior to injecting, I request a fresh syringe.	51	33.8%	100	66.2%
3. I request sterilised tools for nose and ear piercings.	55	36.4%	96	63.6%
4. I'll report any sharp or needle-related injuries.	51	33.8%	100	66.2%
5. I participate in awareness initiatives about Hepatitis B.	77	51.0%	74	49.0%

- Frequencies (Number & percentage).

Students' cumulative practice scores varied from 5 to 25, with 18.5 (SD = 5.6) serving as the mean. Just 19 students (12.6%) out of the 151 who accepted the invitation to participate received a score of 25, which is the highest achievable. On the other hand, just 8 pupils (5.3%) received a score of 5, which is the lowest. In terms of the 25th, 50th, and 75th percentiles, the quartiles for the overall knowledge score of the students were 15, 20, and 23, respectively. Students' practices regarding the Hepatitis B virus were categorized as "unfavorable" (45.7%) and "favorable" (54.3%) based on the total practice scale categories. For the second and fourth items (I request a fresh syringe before injecting and I will report any needle pricks or sharp injuries), most students (66.2%) reported having positive experience. On the other hand, (51.0%) of the students had unfavorable practice for the fifth item (I attend Hepatitis-B related awareness campaigns) (**Table 4**).

Table (5): Comparison of frequency, percent and mean \pm SD among knowledge, attitude and practice scales categories, (n = 151):

Hepatitis-B virus		N	Percent	Mean \pm SD	P-Value
Knowledge	Poor	75	49.75	17.2 \pm 5.1	.001*
	Good	76	50.3%	25.6 \pm 1.6	
Attitude	Unfavorable	131	86.8%	15.4 \pm 3.6	.001*
	Favorable	20	13.2%	21.5 \pm 1.8	
Practice	Unfavorable	69	45.7%	13.6 \pm 4.6	.001*
	Favorable	82	54.3%	22.6 \pm 2.0	

- Frequencies (Number & percentage).

- Independent-Samples T Test for (Mean \pm SD) * Statistically significant difference (P-Value < 0.05).

Results showed that according to the scale category for knowledge, just more than half of students had a good level of knowledge (50.3%) with higher mean score (M = 25.6, SD = 1.6, P = .001*). The vast majority of participant students had unfavorable attitude (86.8%), with mean score (M = 15.4, SD = 3.6, P = .001*).

The highest percentage of students were performed with favorable practice (54.3%) with higher mean score (M = 22.6, SD = 2.0, P = .001*) (**Table 5**).

Table (6): Correlation between demographic characteristics with knowledge, practice and attitude scores, (n = 151):

Characteristic	Knowledge		Attitude		Practice	
	Co.	P-value	Co.	P-value	Co.	P-value
Gender	.117	.151	-.020	.804	.013	.871
Age group	.334	.001*	.250	.002*	.390	.001*
Level of school year	.480	.001*	.335	.001*	.491	.001*
Vaccinated against Hepatitis B	-.529	.001*	-.405	.001*	-.570	.001*

- Pearson correlation, Co. means correlation.

Results announced, Age group of participant students had positive significant correlation with knowledge (.334; P = .001*), attitude (.250; .002*) and practice (.390; .001*). Also, level of school year had positive significant correlation with knowledge (.480; P = .001*), attitude (.335; .001*) and practice (.491; .001*) (**Table 6**).

Table (7): Distribution of studied nurses according to association between knowledge about Hepatitis-B virus with their attitude and practice, n = 151

Variable	Knowledge about hepatitis-B infection					
	Poor	Good	P-	Odds Ratio (95%	Correlation- Value	R - value
	Mean ± SD	Mean ± SD	Value	CI)		
Attitude	14.3 ± 4.5	18.1 ± 2.2	.001*	4.7 (1.5, 14.9)	.671	.896
Practice	15.0 ± 5.8	21.9 ± 2.6	.001*	12.2 (5.6, 26.4)	.735	.718

- Independent-Samples T Test for (Mean ± SD) * Statistically significant difference (P-Value < 0.05).
- Chi-Square Test for (odd's ratio).
- Pearson correlation and regression analysis.

This table demonstrated that Mean ± SD of attitude and practice scores toward Hepatitis-B virus were lowest (14.3 ± 4.5 & 15.0 ± 5.8 , respectively) in poor knowledge group compared with highest (18.1 ± 2.2 & 21.9 ± 2.6) in good knowledge group (P = .001* & .001*). The results revealed that knowledge of nursing students about Hepatitis-B virus affect their attitude and practice (OR: 4.7, 95% CI: 1.5 – 14.9 & OR: 12.2, 95% CI: 5.6 - 26.4). Also, this table demonstrated that knowledge about Hepatitis-B virus had positive correlation and relationship (Co. = .361, R = .896 & Co. = .735, R = .718) with attitude and practice of nursing students (**Table 7**).

Discussion:

Our study's findings demonstrated that, in terms of knowledge scale category, just over half of the university of Tabouk's student body possessed a decent degree of knowledge. Despite being the HBV [28] sensitive population, they had not yet drawn much attention. According to our study, which was consistent with certain other studies in this area, students were not aware of HBV [29-31]. This suggested that insufficient publicity and insufficient university and college promotions for HBV prevention and treatment may exist. The results should cause directors of local health departments and school administrators to pay greater attention.

This study found that most of the participating students had received a vaccination against hepatitis B. Although most respondents were aware that vaccination can effectively prevent hepatitis B, only 33.8% of respondents were able to confirm that they had received a full dose of the HBV vaccine. Despite this awareness, the vaccination coverage was higher than in previous studies. [32,33] They are susceptible to hepatitis B because, nevertheless, the vaccination rate is substantially lower than that required by the "China Viral Hepatitis Prevention and Control Program (2017–2020)"[34]. It clearly serves as a warning to the ministry of health to develop and put into effect pertinent policies as soon as feasible to advance HBV vaccination efforts and raise students' awareness of HBV immunizations.[35] Additionally, to give students vaccination certificates at the time of admission, colleges and institutions must streamline their vaccination programs. In addition, it is still crucial to guarantee that the vaccine is accessible to and available to non-vaccinated students [36], and to urge them to acquire the HBV immunization [37].

The great majority of students who took part in the study felt negatively about HBV. This is corroborated by additional study findings, which demonstrated that students' perceptions about those who live with HBV were unfavorable. The level of discriminating is higher than we could have ever imagined.[38] It also revealed a lack of understanding of HBV transmission. Humans can lessen stigma and discrimination toward HBV by being well-informed and adopting a positive outlook on the virus.[39] To build an equitable and peaceful campus environment for HBV carriers, schools must swiftly offer positive guidance, step up efforts to undertake peer education, and promote pertinent information of HBV transmission pathways.

Ultimately, the structural equation model concluded that nursing students' attitudes and practices are impacted by their knowledge of the Hepatitis-B virus (OR: 4.7, 95% CI: 1.5 – 14.9 & OR: 12.2, 95% CI: 5.6 – 26.4). The knowledge of the Hepatitis-B virus also showed a positive connection and relationship (Co. =.361, R =.896 & Co. =.735, R =.718) with nursing students' attitudes and practices, according to these data. It might rectify their prejudice against those who carry the hepatitis B virus. To lower the infection rate and morbidity of hepatitis B, it is important that they develop early

prevention awareness and positive behaviors such voluntary vaccination and hepatitis B detection.[24]

This is consistent with the findings of other investigations. [40,41] Unlike the conventional "knowledge, attitude, and practice" model, this study included preventative motivation as a latent variable in the model-building process. The model's evaluative indicators would be optimized with the rise of some latent variables. This serves as a reminder that, in future health education initiatives, we should highlight the development of prevention motivation and its critical function, even as we pay attention to the interaction between "knowledge, attitude, and practice. "However, to further investigate the relationship between attitudes and behaviors, it will be necessary to include attitudes about diseases other than discrimination in the questionnaire design stage going forward. Additionally, we must consider the process of behavior dynamic development in its entirety to obtain detailed information about attitudes and behaviors.

Conclusions

Our research revealed that a sample of Tabouk health sciences students did not have satisfactory HBV-related KAP. To raise and aid in the reduction of hepatitis related KAP, educational activities are required. The findings also showed that certain universities, early educational years, and particular topic areas had lower KAPs than others. Potential uses of this data include future educational interventions. Subsequent research endeavors must be replicated with a randomly chosen subset of pupils.

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