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KAP SURVEY ON HEPATITIS B AMONG MBBS, NURSING, AND AHS STUDENTS AT A TERTIARY CARE HOSPITAL.

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ABSTRACT

BACKGROUND: Hepatitis B remains a notable public health concern accounting for 1.1 million fatalities worldwide in 2022. It requires sufficient knowledge for specific prevention and control. This study aimed to evaluate the knowledge, attitudes, and practices among MBBS, Allied Health Sciences (AHS), and nursing students regarding Hepatitis B infection.

METHODOLOGY: This cross-sectional study was conducted at Sheikh Zayed Medical College/Hospital from September 2023 to February 2024 with 320 participants, using non-probability consecutive sampling. MBBS, Allied Health Sciences, and Nursing students were screened for Hepatitis B and completed a questionnaire assessing knowledge, attitude, and practices. Data were analyzed in SPSS 29. Stratification by study program and gender was performed, followed by post-stratification Chi-Square testing ($p < 0.05$) to assess significance. **RESULTS:** Out of 320 students, 124 (38.75%) were MBBS, 134 (41.88%) were AHS, and 62 (19.38%) were nursing students. The overall gender distribution was 188 (58.75%) females and 132 (41.25%) males. The study revealed that a significant proportion of students recognized contact with open wounds ($p = 0.000$) and sharing needles as sources of Hepatitis B transmission. A majority believed Hepatitis B could lead to liver cirrhosis ($p = 0.006$). Attitudes towards vaccination were positive, with 90% acknowledging its importance, though concerns about Hepatitis B were higher among nursing students ($p = 0.000$). Vaccination rates were lower among AHS (16.4%) and nursing students (32.3%) compared to MBBS students (66.6%) ($p = 0.000$). **CONCLUSION:** The study revealed knowledge gaps about Hepatitis B among nursing students compared to MBBS and AHS students. While awareness of transmission and vaccination importance was high, vaccination rates were lower among nursing students. Targeted educational interventions are essential to improve Hepatitis B awareness and practices across all healthcare disciplines.

KEYWORDS: Hepatitis B; Screening; Vaccination; Knowledge; Practices

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INTRODUCTION

Hepatitis B (HB) stands as a formidable threat, claiming approximately 0.6 million lives annually.[1,2] Across Asia, a staggering 10 to 15 million individuals grapple with HB.[3,4] In Pakistan, HB prevalence spans from 7 to 20%, varying across different regions.[5,6] Notably, urban areas show a significantly lower prevalence of 2-5%, in contrast to rural regions, where rates rise to 30-35%.[6]

Knowledge, Attitude, and Practice (KAP) studies serve as invaluable tools for gaining insights of specific populations' perceptions and behaviors regarding health issues. These studies delve into what is known, believed, and practiced concerning a particular topic. Knowledge gauges' comprehension of biomedical concepts, encompassing causes, symptoms, transmission, and treatment.[7] Attitude reflects learned susceptibility towards given objects or classes of objects.[8] Practices inquiries focus on preventive measures and healthcare utilization, offering insights into actual behaviors or hypothetical scenarios.

In Pakistan's healthcare landscape, both public and private sectors play pivotal roles. The public sector comprises dispensaries, basic health units, rural health centers, and hospitals.[9] Conversely, the private sector witnesses a proliferation of medical practitioners and complementary and alternative medicine (CAM) options.[9] Despite the accessibility and affordability of CAM therapies, their widespread usage often leads to inappropriate or delayed healthcare, exacerbating undesirable health outcomes.[9] Moreover, such practices contribute to the transmission of infections within communities.

As HB prevalence escalates in Pakistan, there's a glaring lack of information regarding KAP among HB patients and students of healthcare system of Pakistan. Hence, the concerned study aims to assess KAP among MBBS, AHS, and nursing students of Sheikh Zayed Medical and nursing college, laying the foundation for tailored information, education, awareness and communication initiatives for patients and communities. These efforts are crucial in the prevention and control of HB, particularly in developing countries like Pakistan.

OBJECTIVE

To assess the knowledge, attitude and practices of MBBS, AHS and Nursing students regarding Hepatitis B

METHODOLOGY

By using of cross-sectional study design, a multi-sectional descriptive type study was conducted at Sheikh Zayed Medical College/Hospital in Rahim Yar Khan from September 2023 to February 2024 following the approval of the synopsis by the Institutional Review Board of SZMC/H. The sampling technique was non-probability consecutive sampling. A sample size of 320 was determined using Qualtrics, based on a population size (N) of 1500, an error margin (e) of 0.05, a proportion (p) of 0.5, and a Z-score of 1.96. Inclusion criteria encompassed all MBBS, Allied Health Sciences (AHS), and Nursing students at Sheikh Zayed Institute, while exclusion criteria included students from other disciplines, students from medical colleges other than SZMC/H RYK, and doctors or paramedical staff.

Participants were selected from Sheikh Zayed Medical College, Sheikh Zayed Nursing College, and the Allied Health Sciences Program. Those meeting the inclusion criteria were included after obtaining informed written consent and were categorized into three groups: MBBS, AHS, and Nursing students. Data collection involved inviting participants to a Hepatitis screening camp where they were screened for Hepatitis B. Following the screening, students were asked to fill out a pre-designed questionnaire that assessed their knowledge, attitude, and practices regarding Hepatitis B.

Additionally, students' bio-data were recorded on the Performa.

Collected data were entered and analyzed using SPSS version 29. Qualitative variables, such as knowledge, attitude, and practices, were summarized using frequencies and percentages. To control for effect modifiers like age and gender, stratification was performed, followed by a post-stratification Chi-Square test with a significance threshold of $p < 0.05$.

RESULTS

The study highlights variations in knowledge regarding Hepatitis B transmission and its consequences among MBBS, AHS, and nursing students. A significant proportion of students from all three groups identified contact with open wounds and sharing needles or syringes as major transmission routes, with statistical significance ($p = 0.000$). However, uncertainty existed regarding transmission through sharing clothes, particularly among nursing students. Awareness of Hepatitis B complications was high, with most students recognizing its link to liver cirrhosis ($p = 0.006$), while a comparatively lower percentage associated it with respiratory failure. Regarding contraindications to vaccination, a majority acknowledged vaccine allergies as a severe contraindication ($p = 0.001$), whereas opinions on low immunity as a contraindication varied significantly across groups ($p = 0.000$). Additionally, most MBBS and AHS students disagreed with prepubertal age being a contraindication, whereas a considerable proportion of nursing students believed otherwise ($p = 0.007$). (Table 1)

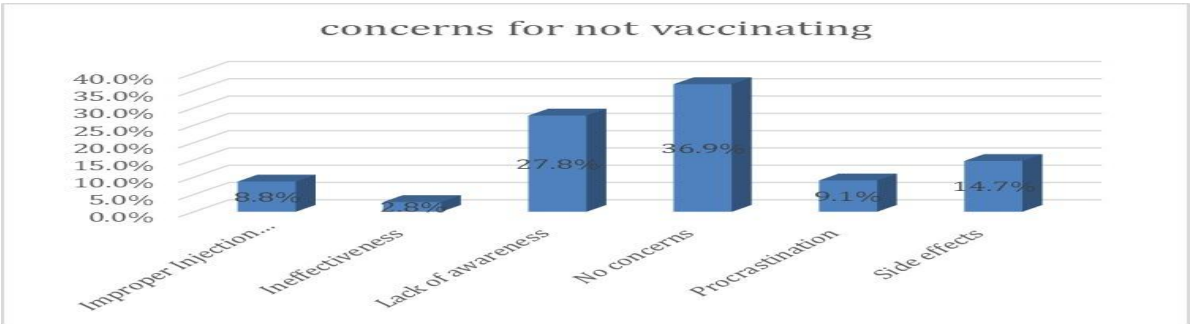

TABLE 1: SHOWING THE KNOWLEDGE OF MBBS, NURSING AND AHS STUDENTS REGARDING TRANSMISSION, COMPLICATIONS AND CONTRAINDICATIONS OF HEPATITIS B

	MBBS (124)			AHS (134)			Nursing (62)			P Value
	Yes	No	Uncertain	Yes	No	Uncertain	Yes	No	Uncertain	
Transmission of HB										
Mother to child	99(79.8%)	10(8.06%)	15(12.0%)	117(87.3%)	9(6.71%)	8(5.97%)	51(82.2%)	8(12.9%)	3(4.84%)	.171
Sexual contact	98(79.0%)	17(13.7%)	9(7.26%)	121(%) 90.2	3(2.24%)	10(7.46%)	53(85.5%)	7(11.3%)	2(3.22%)	.011
Sharing needles and syringes	117(%94.3)	4(3.22%)	3(2.41%)	128(95.5%)	4(2.98%)	2(1.49%)	60(96.7%)	0(0.0%)	2(3.22%)	.628
Sharing shaving	108(87	10(8.	6(4.84	109(8	13(9.	12(8.9	49(79.	10(	3(4.84	.27

kits	.1%)	06%)	%)	1.3%)	70%)	5%)	0%)	16.1%)	%)	6
Contact with open wounds	92(74.2%)	19(15.3%)	13(12.1%)	102(76.1%)	12(8.95%)	20(14.9%)	28(45.2%)	23(37.1%)	11(17.7%)	.000
Sharing Clothes	10(8.1%)	98(79.0%)	16(12.9%)	20(14.9%)	88(65.7%)	26(19.4%)	6(9.7%)	44(70.9%)	12(19.3%)	.174
Coughing, sneezing	29(23.4%)	79(63.7%)	16(12.9%)	43(32.1%)	71(52.9%)	20(14.9%)	23(37.1%)	30(48.4%)	9(14.5%)	.246
Kissing	46(37.1%)	52(41.9%)	26(20.9%)	54(40.3%)	56(41.8%)	24(17.9%)	15(24.2%)	30(48.4%)	17(27.4%)	.243
Drinking tap water	43(34.6%)	57(45.9%)	24(19.3%)	59(44.0%)	54(40.1%)	21(15.7%)	27(43.5%)	27(43.5%)	8(12.9%)	.520
Eating unhygienic food	52(41.9%)	53(42.7%)	19(15.3%)	70(52.2%)	48(35.8%)	16(11.9%)	35(56.4%)	17(27.4%)	10(16.7%)	.222
Mosquitoes	23(18.5%)	80(64.5%)	21(16.9%)	25(18.6%)	83(63.2%)	26(19.4%)	11(17.7%)	42(67.7%)	9(14.5%)	.930
Complications of HB										
Respiratory failure	40(32.2%)	51(41.1%)	33(26.6%)	55(41.0%)	49(36.6%)	30(22.4%)	30(48.38%)	25(40.3%)	7(11.2%)	.098
Stroke	25(20.2%)	70(56.4%)	29(23.4%)	37(27.6%)	68(50.7%)	29(21.6%)	10(16.1%)	42(67.7%)	10(16.1%)	.185
Congestive Heart Failure	40(32.2%)	53(42.7%)	31(25.8%)	38(28.3%)	57(42.5%)	39(29.1%)	24(38.7%)	27(43.5%)	11(17.7%)	.461
Liver Cirrhosis	119(95.9%)	3(2.42%)	2(1.61%)	130(97.0%)	2(1.5%)	2(1.5%)	52(83.8%)	6(9.67%)	4(6.45%)	.006
Colorectal Cancer	43(34.6%)	48(38.7%)	33(26.6%)	48(35.8%)	57(42.5%)	29(21.6%)	21(33.8%)	20(32.2%)	21(33.8%)	.450
Spine and Bone fracture	15(12.1%)	83(66.9%)	26(20.9%)	22(16.4%)	89(66.4%)	23(17.2%)	3(4.83%)	43(69.3%)	16((25.8%)	.183
Contraindications of HB vaccine										

Pregnancy	66(53.2%)	40(32.2%)	18(14.5%)	81(60.44%)	40(29.8%)	13(9.70%)	25(40.3%)	27(43.5%)	10(16.1%)	.112
Breastfeeding	49(39.5%)	56(45.2%)	19(15.3%)	80(59.7%)	39(29.1%)	15(11.2%)	26(41.9%)	29(46.8%)	7(11.3%)	.013
Extremes of ages	36(29.0%)	63(50.8%)	25(20.2%)	46(34.3%)	51(38.0%)	37(27.6%)	26(41.9%)	20(32.2%)	16(25.8%)	.100
Pubertal Teenagers	31(25%)	76(61.3%)	17(13.7%)	37(27.6%)	66(49.2%)	31(23.1%)	28(45.2%)	23(37.1%)	11(17.7%)	.007
Immunocomprised	66(53.2%)	36(29.0%)	22(17.7%)	83(61.9%)	26(19.4%)	25(18.6%)	15(24.2%)	22(35.5%)	25(40.3%)	.000
Severe Allergic	85(68.5%)	20(16.1%)	19(15.3%)	97(72.4%)	27(20.1%)	10(7.5%)	28(45.2%)	24(38.7%)	10(16.1%)	.001
Guillain Barre Syndrome	35(28.2%)	52(41.9%)	37(29.8%)	22(16.4%)	48(35.8%)	64(47.7%)	12(19.34%)	21(33.8%)	29(46.7%)	.025
High Grade Fever	71(57.2%)	31(25%)	22(17.7%)	80(59.7%)	24(17.9%)	30(22.4%)	35(56.4%)	18(29.0%)	9(14.5%)	.356

Table 2 summarizes individuals' attitudes toward vaccination. Overall, recognition of the importance of the hepatitis B vaccine was high among all student groups, with the highest acknowledgment among AHS students (98.5%). Acceptance of colleagues with hepatitis B varied, with MBBS students showing the most accepting attitude (63.7%), while AHS and nursing students demonstrated lower acceptance rates (p = 0.056). Concerns regarding hepatitis B were significantly higher among nursing students (41.9%) compared to MBBS and AHS students (14.5% and 16.4%, respectively; p = 0.000). Additionally, a considerable proportion of students across all groups did not believe hepatitis B could become chronic, with slightly higher skepticism among AHS and nursing students.

TABLE 2: THE ATTITUDES OF RESPONDENTS TOWARDS VACCINATION

	MBBS			AHS			Nursing			P-Value
	Agree	Disagree	Uncertain	Agree	Disagree	Uncertain	Agree	Disagree	Uncertain	
Vaccine mandatory	112(90.3%)	8(6.45%)	4(3.22%)	132(98.5%)	1(0.75%)	1(0.75%)	59(95.2%)	2(3.22%)	1(1.61%)	.069
Do you Accept	79(63.	35(28.2%)	10(8.1%)	66(49.	56(41.8%)	12(8.95%)	27(43.5%)	27(43.5%)	8(12.9%)	.056

Colleague with HB	7%)			2%)						
Do you have concern regarding HB	97(78.2%)	18(14.5%)	9(7.25%)	93(69.4%)	22(16.4%)	19(14.2%)	27(43.5%)	26(41.9%)	9(14.5%)	.000
HBV infection is shameful	21(16.9%)	90(72.5%)	13(10.4%)	12(8.95%)	111(82.8%)	11(8.21%)	7(11.3%)	50(80.6%)	5(8.06%)	.316

The data summarized in Table 3 highlights strong recognition of the importance of the hepatitis B vaccine among healthcare students, with the highest acknowledgment among AHS students (98.5%). Attitudes toward colleagues with hepatitis B varied, with MBBS students being the most accepting (63.7%), while AHS and nursing students showed lower acceptance levels ($p = 0.056$). Concerns about hepatitis B were significantly higher among nursing students (41.9%) compared to MBBS and AHS students (14.5% and 16.4%, respectively; $p = 0.000$). Additionally, a substantial proportion of students across all groups did not believe hepatitis B could become chronic, with AHS students showing the highest skepticism (82.8%).

Table 3: The Immunization Practices Of Mbbs, Ahs, And Nursing Students

	MBBS		AHS		Nursing		P-Value
	Yes	No	Yes	No	Yes	No	
Screened for HB vaccination.	93(75%)	31(25%)	38(28.4%)	96(71.6%)	21(33.9%)	41(66.1%)	.000
Vaccinated Against HB	83(66.9%)	41(33.1%)	22(16.4%)	112(83.6%)	20(32.3%)	42(67.7%)	.000
Experienced Needle Stick Injury	24(19.3%)	100(80.6%)	15(11.2%)	119(88.8%)	10(16.1%)	52(83.9%)	.188
Post Exposure prophylactics	15(12.1%)	109(87.9%)	7(5.22%)	127(94.8%)	6(9.68%)	56(90.3%)	.143

DISCUSSION

This study aimed to evaluate the knowledge, attitudes, and practices (KAP) related to hepatitis B among MBBS, AHS, and nursing students to identify gaps and enhance awareness strategies. 45.2% of nursing students failed to recognize contact with open wounds as a mode Hepatitis B transmission, compared to 74.2% and 76.1% in MBBS and AHS students respectively. Liver Cirrhosis was widely accepted as a potential complication but only 32.2% MBBS, 41% AHS and 48.4% nursing students recognized respiratory failure as a complication of Hepatitis B. AHS (16.4%

vaccinated) and nursing (32.3% vaccinated) students showed significant lower vaccination rates as compared to MBBS students (67% vaccinated). MBBS, AHS and nursing students displayed low uptake rates for adoption of post-exposure prophylaxis with the percentage of 12.1%, 5.2% and 9.7% respectively; underscoring a notable gap in preventive practices.

The study regarding the knowledge and attitude of medical, AHS and nursing students towards Hepatitis B and its vaccination is suggestive of the fact that they are well aware about its transmission source as with contact with open wound and prick from syringes and needles. These sources being the most common in the hospital settings and health care centers. Similar findings were reported in following study regarding hepatitis B virus and hepatitis c virus infection in healthcare workers. [10]

Another study on Blood-borne viruses and healthcare workers shows that needle stick injuries among the healthcare workers being in range of 40% to 80%. [11]

A study conducted in Nepal suggests that nearly 93% students had good knowledge about hepatitis B. This aligns with our study which showed that healthcare students being aware about hepatitis B have higher percentage being vaccinated. The numbers being 16.4% AHS, 32.3% nursing and 66.6% MBBS students. [12]

Another study done in Vietnam, Parents' attitudes towards hepatitis B vaccination for their children, shows beforehand knowledge about the disease and its prevention brings positive viewpoint regarding the prophylactic approach and measures that includes immunization via vaccine of their children.[13]

The screening of hepatitis B virus among the students is suggestive of the fact that early diagnosis played a major role in prompt treatment of the disease as well as leads to positive attitude of students towards vaccination administration for prophylactic purposes. As in our study 66.6% out of 75% MBBS students getting screened for the hepatitis B virus had been administered hepatitis B vaccination. Similarly, lack of screening in AHS and nursing students are suggestive of their lower percentages (16.4% and 32.4%) being vaccinated. Similar research, Hepatitis B Screening of At-Risk Immigrants seen at Primary Care Clinics: A Quality Improvement Project shows the importance of screening in population for monitoring disease prevalence, preventing transmission, and initiating treatment and cancer surveillance.[14]

A study conducted in Nepal reported that needle stick injuries were commonly reported among healthcare workers (HCWs), with 60.1% experiencing at least one exposure. Notably, 3.7% of HCWs suffered substantial injuries (more than 10 times). Among nursing students, 21.3% had experienced needle stick and sharps injuries (NSSI), reflecting a concerning occupational hazard. Vaccination coverage among HCWs was significant, with 71.7% having received at least one dose of the hepatitis B vaccine, while 61.9% (44.5% of total HCWs) completed the full three-dose regimen. These findings highlight the importance of vaccination as a preventive strategy against hepatitis B transmission in healthcare settings. [15]

In this study, a significant majority of MBBS, Allied Health Sciences (AHS), and nursing students—95.9%, 97%, and 83.8%, respectively—recognized the potential of Hepatitis B to cause liver cirrhosis. Additionally, existing research indicates that Hepatitis B virus (HBV) is a leading cause of liver cirrhosis, with 15% of individuals with chronic HBV infection (CHB) developing cirrhosis within five years. The rising incidence of liver cirrhosis is associated with the increasing prevalence of its risk factors, particularly infections with HBV and HCV. [16]

Regarding vaccine allergies as a significant contraindication to vaccination, 68.5% of MBBS students (85), 72.4% of AHS students (97), and 45.2% of nursing students (28) recognized this issue, with a

statistically significant p-value of 0.001. Similar results were found in the study titled "Allergic Reactions to Vaccines in Children: From Constituents to Specific Vaccines." A review of literature on adverse reactions to the Hepatitis B vaccine noted that anaphylactic reactions occur in fewer than 1 in 100,000 vaccinations for Hepatitis B.[17] In this study, low immunity was identified as a significant contraindication to vaccination, with 53.2% of MBBS students (66), 61.9% of AHS students (83), and 24.2% of nursing students (15) acknowledging this concern (p=0.000). Similarly, previous research indicated that a diminished or absent response to vaccination occurs in 4% to 10% of healthy individuals. Factors such as age, smoking, obesity, and male gender have been associated with this impaired response, and it is also observed in individuals carrying specific human leukocyte antigen (HLA) molecules, including DQ2 and DQ8, which are common in immunocompromised patients.[18]

In our study of Pakistani medical students, 63.7% of MBBS students showed an accepting attitude towards colleagues with hepatitis B, compared to 49.2% of AHS and 43.5% of nursing students (p=0.056). Similarly, a Japanese study of 992 nurses found that 16% believed HBV/HCV-infected colleagues should not have patient contact, with knowledge of HBV/HCV and female gender positively influencing acceptance.[19]

In this study, among those screened, only 22 (16.4%) AHS students, 20 (32.3%) nursing students, and 83 (66.6%) MBBS students received vaccinations (p = 0.000). Another study conducted in Greece in 2013-2014 in which medical, paramedical, and nursing students were included, reported that analysis of HBV vaccination coverage by the school of health sciences training indicated that medical students showed higher HBV vaccination coverage (88.1%) compared to nursing students (81.4%) and paramedical students (80.1%). In general, 83% of students received vaccination after screening while 17% were not vaccinated. The major reason for no vaccination was inertia (60%) or fear (30%) over HBV vaccine safety.[20]

This study has several limitations. First, the use of self-reported questionnaires may introduce response bias, as participants might inaccurately assess their own knowledge and practices. Additionally, the non-probability consecutive sampling method could limit the generalizability of the results to the wider student population. Being a single-center study conducted at one tertiary care hospital also restricts the external validity, making it difficult to apply the findings to other institutions. Furthermore, the cross-sectional design only provides a snapshot of students' knowledge, attitudes, and practices at one point in time, without allowing for the evaluation of changes over time. Lastly, the study's scope is somewhat narrow, as it does not account for other potential influencing factors, such as socioeconomic background or prior exposure to hepatitis B education.

CONCLUSION

The study revealed significant variability in knowledge, attitudes, and practices regarding Hepatitis B among MBBS, AHS, and nursing students. While a majority demonstrated awareness of key transmission routes and the importance of vaccination, gaps were noted, particularly in nursing students' understanding of vaccine contraindications and attitudes towards colleagues with Hepatitis B. Immunization practices varied across disciplines, with MBBS students showing higher vaccination rates. These findings highlight the need for targeted educational interventions to improve Hepatitis B awareness and practices across all healthcare disciplines.

Strength and Limitations:
A key strength of this study was the one-on-one interaction with each student during a vaccination program, aided through the distribution of a specific structured questionnaire. Since our study included medical students, the results cannot showcase the true insights of non-healthcare students and professionals, being a limitation of our study. The structured questionnaire has access to limited depth of assessment which opens doors for future studies.

FUTURE RECOMMENDATIONS:
Active promotion of Hepatitis B through screening camps, vaccination programs, and training sessions by experienced healthcare professionals can notably increase knowledge and practices of Hepatitis B in general population. Providing targeted treatment of Hepatitis B to high-risk population can decrease the mortality and global burden due to this fatal infection.

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DISCLAIMER:
This manuscript has not been presented or published in a conference or abstract book.

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Authors declare that there is no conflict of interest.

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All persons who meet authorship criteria are listed as authors, and all authors certify that they have participated in the work to take public responsibility of this manuscript. All authors read and approved the final manuscript.

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