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Original Article

Knowledge, Health Practices and Policies for Hepatitis for Midwifery and Nurses in Allied and District Hospital Faisalabad

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ABSTRACT

Background:

Hepatitis B Virus (HBV) is a critical global health concern with significant morbidity and mortality. Nurses and midwives, as frontline healthcare professionals, are particularly vulnerable to HBV infection. This study focuses on evaluating the knowledge, attitudes, and practices (KAP) related to HBV among these groups in Faisalabad, Pakistan, a region with limited existing research on this topic.

Methods:

A descriptive, cross-sectional study was conducted in two major public maternity hospitals in Faisalabad (District and Allied hospitals). A structured questionnaire, pre-tested for validity, was administered to assess the KAP towards HBV. Statistical analysis was performed using SPSS Version 21, applying chi-square tests to explore associations between categorical variables.

Results:

The study sampled 110 healthcare workers (nurses and midwives). Key findings included Knowledge to be 58.2% of participants had an average level of HBV knowledge, Attitudes to be A majority displayed a positive attitude towards HBV prevention, Practices to be 65.5% reported adhering to safe practices. However, a clear percentage of 51.8% had experienced needlestick injuries. Vaccination and PEP found to be only 40.9% completed the HBV vaccination series, and 50% held misconceptions regarding HBV post-exposure prophylaxis.

Conclusion:

The study reveals a considerable awareness of HBV among nurses and midwives in Faisalabad hospitals, yet highlights critical gaps in both knowledge, particularly concerning PEP, and practices, as evidenced by high rates of needlestick injuries and low vaccination completion. These findings call for intensified efforts in occupational safety, education on HBV, and increasing vaccination coverage among healthcare workers.

Keywords:

Hepatitis B Virus, Healthcare Workers, Knowledge Attitude Practice, Nurses, Midwives, Faisalabad, Post-Exposure Prophylaxis, Needlestick Injury, Vaccination, Public Health.

INTRODUCTION

The hepatitis B virus (HBV) is a significant global health concern, leading to acute and chronic infections, including cirrhosis, hepatocellular cancer, and chronic hepatitis, all contributing to substantial morbidity and mortality (1). Worldwide, the prevalence of HBV has been notable, with 240 million individuals identified with hepatitis B surface antigen (HBsAg) in 2005, an increase from 223 million in 1990 (2-5). In Pakistan, various studies have reported differing rates of HBV prevalence across different groups (6). A comprehensive systematic review and meta-analysis highlighted a significant variation in HBV seroprevalence in Pakistan, ranging from 5.1% to 26.8%, with an average prevalence of 12.1% based on 14 studies encompassing 5848 individuals. Notably, Punjab State exhibited the highest incidence of HBV in Pakistan at 12.7% (7), surpassing rates observed in countries like Nigeria (5%) and Ethiopia (7%). Key risk factors for HBV infection include mother-to-child transmission (MTCT) and transfusion of contaminated blood (8). Pregnant women with chronic hepatitis B can manage their pregnancies effectively, though there are risks associated with active hepatitis and elevated liver enzymes, particularly concerning postpartum immunological reconstitution (9). HBV MTCT can occur during any of the three pregnancy stages:

intrauterine, intrapartum, or postpartum. High maternal viral load, HBeAg positivity, preterm labor, prolonged labor, and failed immunoprophylaxis in siblings are key contributors to this risk (10). Currently, preventing MTCT of HBV involves both active and passive immunoprophylaxis, typically including HBV immunoglobulin and vaccination for newborns of HBsAg-positive mothers immediately after birth, coupled with maternal referral to hepatology clinics for ongoing evaluation and monitoring (9, 11-15).

For healthcare workers (HCWs), such as nurses and midwives, the risk of contracting HBV is heightened if appropriate personal protective measures are not diligently followed (7, 10, 16). A lack of awareness regarding HBV prevalence and workplace safety protocols, including post-exposure prophylaxis (PEP), HBV vaccination, training, and the adoption of safer workplace practices, can contribute to the spread of HBV. Particularly for unvaccinated HCWs, handling sharps and needle stick injuries (NSI) poses a significant risk for infection from various pathogens, including HBV (17-19). In this context, nurses and midwives play a crucial role in caring for HBV-infected patients. They provide support throughout the treatment process and offer critical information regarding the nature of the disease, diagnosis, prevention, and timely administration of immunoglobulins. A comprehensive understanding of the disease and its various implications for patients is essential for nurses and midwives to devise effective management strategies. Research indicates that knowledge, attitude, and practice (KAP) significantly influence health-related behaviors (6). However, there has been limited research on the KAP levels of HCWs in relation to HBV infection in Pakistan. KAP surveys are a widely utilized tool in health-seeking behavior research, extensively applied in public health studies. These surveys gather data on participants' knowledge, attitudes, and behaviors concerning specific topics. Knowledge refers to the understanding of a particular subject, attitudes encompass feelings, preconceived notions, behavioral inclinations, and reactions towards a subject, while practice represents how individuals act based on their knowledge and feelings (20-23).

Given this backdrop, the objective of this study was to examine the knowledge, attitudes, and practices of nurses and midwives in Faisalabad, Pakistan, regarding HBV infection. This investigation aims to identify gaps in understanding and areas for improvement, which can inform the development of targeted preventive and control strategies for HBV infection in this region. By enhancing the KAP levels among these healthcare professionals, the study seeks to contribute to reducing HBV transmission and improving patient outcomes.

MATERIAL AND METHODS

A cross-sectional study using a descriptive design, between August 18 and September 2, 2021, was conducted in District and Allied Hospitals in Faisalabad, Pakistan. These hospitals were chosen for their status as public health tertiary care facilities, serving a significant portion of the Faisalabad state population (6, 10, 24, 25). They offer specialized clinical inpatient and outpatient services, with a focus on obstetrics and gynaecology, making them primary referral centers in the region. Faisalabad, with over 5 million inhabitants according to the 2008 census, is the most populous state in Pakistan, characterized by rapid urbanization and diverse demographics (12).

The study encompassed 55 nurses and 30 midwives from District Hospital and 57 nurses and 10 midwives from Allied Hospital. All employed nurses and midwives at these institutions were eligible, except those who chose not to participate. Data were collected using a 31-item structured questionnaire divided into four sections. The questionnaire, designed to assess knowledge, attitudes, and practices regarding HBV infection, comprised six demographic questions, fifteen knowledge-related questions, four on attitudes, and six on practices (3, 26). It included specific questions on HBV etiology, natural history, transmission routes, complications, and post-exposure prophylaxis (PEP). The responses were binary (yes/no), with positive attitudes identified by responses acknowledging the importance of vaccination, glove use, tool sterilization, and suggesting PEP for HBV exposure. Practice-related questions focused on vaccination status, tool sterilization, glove usage, and, for those with a history of non-surgical wound infection (NSI), practices like handwashing, wound sterilization, and PEP administration (26-28).

A scoring system was implemented where each correct answer was awarded one point, leading to an overall Knowledge, Attitude, and Practice (KAP) score derived from the sum of correct responses across the 15 knowledge, 4 attitude, and 6 (or 3, if no NSI history) practice items. Median scores were used to establish cutoff points: 12 or

higher for average knowledge, 3 or higher for positive attitude, and 5 or higher (or 3 for no NSI history) for safe practice (14).

The questionnaire underwent a rigorous development process, including expert consultations and a pilot study with 14 respondents to ensure clarity and acceptability. However, data from the pilot study were excluded from the final analysis. Statistical Package for Social Sciences (SPSS) version 21 was employed for data analysis, using descriptive statistics for variable distribution and frequency tables, and a Chi-square test to explore associations between categorical variables and the primary outcomes (knowledge, attitude, and practice regarding HBV infection). The significance threshold was set at a p-value of ≤.05 (13). Ethical considerations were meticulously addressed. Prior to commencement, approvals were obtained from the general directors of the District and Allied hospitals, the institutional review board of the University of Agriculture Faisalabad's Faculty of Medicine, and the State Ministry of Health of Pakistan's Faisalabad state. Informed written consent was secured from each participant after a detailed explanation of the study, with stringent measures taken to ensure confidentiality.

RESULTS

The first table shows demographic and professional characteristics of the respondents. Age-wise, the majority (62.72%) were between 20-30 years, followed by 31-40 years (13.64%), 41-50 years (11.82%), and above 51 years (11.82%). In terms of hospital employment, 59.1% were from District Hospital Faisalabad and 40.9% from Allied Hospital Faisalabad. Regarding occupation, 75.46% were nurses and 24.55% were midwives. For education level, 70% had education above university level, while 30% had education below or equal to university level. Experience-wise, 53.64% had below 2 years of experience, and 46.37% had above 2 years.

Table 1 Demographic and Professional Characteristics

Variable	Category	Number	Percent
Age	20-30 Years	69	62.72
	31-40 Years	15	13.64
	41-50 Years	13	11.82
	Above 51 years	13	11.82
Hospital	District Hospital Faisalabad	65	59.1
	Allied Hospital Faisalabad	45	40.9
Occupation	Nurse	83	75.46
	Midwife	27	24.55
Education level	Below or equal to University	33	30
	Above University	77	70
Experience Years	Below 2 years	59	53.64
	Above 2 years	51	46.37

The second table examines correlations between different variables and HBV-related knowledge, attitude, and practice (KAP) scores. In District Hospital, 30 participants had high KAP scores compared to 35 with low KAP scores (p-value: 0.043). Allied Hospital showed 25 with high and 20 with low KAP scores. Among nurses, 50 completed vaccination versus 33 who did not (p-value: 0.034), while among midwives, 15 completed it versus 12 who did not. Regarding education, those with education below or equal to university level had 15 with good knowledge and 18 with poor knowledge (p-value: 0.056).

Table 2 Hospital, Occupation, Education, and Experience Correlations

Hospital	High KAP Score	Low KAP Score	p-value
District Hospital	30	35	0.043
Allied Hospital	25	20	

Hospital	High KAP Score	Low KAP Score	p-value
Occupation	Vaccination Completed	Vaccination Not Completed	p-value
Nurse	50	33	0.034
Midwife	15	12	
Education Level	Good Knowledge	Poor Knowledge	p-value
Below or equal to Univ.	15	18	0.056
Above University	40	37	
Experience Years	NSI Occurred	NSI Not Occurred	p-value
Below 2 years	35	24	0.039
Above 2 years	20	31	

Those above university level had 40 with good and 37 with poor knowledge. For experience, among those with below 2 years, 35 experienced a needlestick injury (NSI) and 24 did not (p-value: 0.039); above 2 years had 20 with NSI and 31 without.

Table 3 HBV Knowledge Items

Item	Frequency (Percentage)
The virus can cause acute hepatitis	105 (95.46%)
There are several types of hepatitis	108 (98.12%)
Hepatitis B is a viral infection	96 (87.28%)
The virus can cause chronic hepatitis	104 (94.55%)
The virus can cause liver cirrhosis	98 (89.10%)
The virus can cause hepatocellular carcinoma	91 (82.73%)
The infection can cause death	107 (97.27%)
The virus doesn't cause peptic ulcer	87 (79.10%)
The virus can be transmitted by transfusion of infectious blood	107 (97.27%)
The virus can be transmitted by sexual intercourse	98 (89.10%)
The virus can be transmitted by MTCT	104 (94.55%)
The virus isn't transmitted by all kinds of contact with infected persons	104 (94.55%)
The virus can be transmitted by NSI	99 (90.00%)
The virus is not transmitted through air	108 (98.18%)
Post-exposure prophylaxis includes IG & vaccination	104 (94.55%)

Table 4 HBV Knowledge Attitude Items

Item	Frequency (Percentage)
Wearing gloves is important to prevent transmission	76 (69.10%)
Instrument sterilization is important to prevent transmission	81 (73.64%)
Vaccination could prevent transmission	74 (67.27%)
Recommend PEP for those who had been exposed to HBV	69 (62.73%)

Table 5 HBV Knowledge Practice Items

Item	Frequency (Percentage)
Always sterilize instruments	47 (42.73%)
Always wear gloves	80 (72.73%)
Completed the HBV vaccination schedule	76 (69.10%)
History of NSI	75 (68.18%)
Washing hands with water & soap after NSI	88 (80.00%)
Sterilized the wound site after NSI	74 (67.27%)
Check if the patient has a blood-borne disease after NSI	67 (60.91%)

The final set of tables details HBV knowledge, attitude, and practice items. For knowledge items, high awareness was noted about the virus causing acute hepatitis (95.46%), chronic hepatitis (94.55%), liver cirrhosis (89.10%), and hepatocellular carcinoma (82.73%). The transmission modes like through transfusion of infectious blood (97.27%), sexual intercourse (89.10%), and MTCT (94.55%) were well recognized. In attitude items, the importance of wearing gloves (69.10%), instrument sterilization (73.64%), and vaccination (67.27%) for preventing transmission was acknowledged. Regarding practice items, 72.73% always wore gloves, 69.10% completed the HBV vaccination schedule, and 80% washed hands with water and soap after NSI. However, only 42.73% always sterilized instruments, indicating a gap in practice.

DISCUSSION

This study, conducted in two public hospitals in Faisalabad, Pakistan, specializing in obstetrics and gynecology, reveals critical insights into the knowledge, attitude, and practices (KAP) related to Hepatitis B Virus (HBV) among nurses and midwives. While the majority of participants exhibited a positive attitude towards HBV prevention measures, the study uncovers a concerning gap in knowledge and safe practices, with only 58.2% and 65.5% of participants displaying average knowledge and safe practice levels, respectively. These findings underscore the urgent need for targeted HBV health promotion, focused education, and comprehensive training for nurses and midwives (29).

The study highlights a significant knowledge gap among healthcare workers (HCWs), particularly in understanding post-exposure prophylaxis (PEP) for HBV, a critical intervention in preventing the virus's spread. Only half of the participants were found to have adequate knowledge of PEP. This gap is alarming, especially given that nearly 52% of the participants had a history of needlestick injuries (NSIs), a common route of occupational exposure to HBV. Additionally, the study found a low level of HBV vaccination coverage and PEP awareness, emphasizing the need for better education on blood-borne diseases like HBV (13).

The study did not find a significant correlation between the level of HBV awareness and demographic factors such as age, marital status, occupation, education level, or length of employment. However, there was a notable difference in knowledge levels based on the workplace, with Allied Hospital, a semi-private teaching hospital affiliated with a university, showing a higher knowledge base. This variation suggests the influence of institutional factors, such as the adequacy of hospital-based educational programs and the availability of resources like vaccinations and safety equipment (30).

The high rate of NSIs among HCWs in this study mirrors findings from other studies in Pakistan, pointing to the need for improved training on blood-borne infection prevention and the necessity of HBV vaccination. Healthcare organizations should prioritize standard precautions, make HBV vaccinations readily available, and ensure the availability of essential protective equipment. Furthermore, there is a need to establish or enhance protocols for rapid reporting, assessment, counseling, and treatment following occupational exposures (31).

Underreporting of exposure to HBV infection and the risk of exposure is a significant challenge in developing countries, complicating appropriate post-exposure care. Despite the availability of a safe and effective HBV vaccine globally, many HCWs in these regions remain unvaccinated, continuing to put them at risk (32).

The study's cross-sectional nature and its confinement to two specific hospitals in Faisalabad may limit the generalizability of its findings. More research is needed to explore the risk factors influencing HCWs' KAP levels regarding HBV infections across different settings (33).

CONCLUSION

In conclusion, while there is an awareness of HBV infection among the majority of nurses and midwives in the studied hospitals, a significant portion lacks knowledge about PEP and occupational exposure prevention. The study reveals a high rate of NSI and a deficient HBV vaccination coverage rate. Therefore, implementing additional measures to prevent occupational exposure, conducting training programs focused on PEP for HBV infection, and enhancing the vaccination rate among all HCWs are strongly recommended.

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