

A STUDY OF KNOWLEDGE AND PRACTICE REGARDING HEPATITIS B AMONG NURSING STUDENTS

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Date of Received: 05/06/2019

Date of Acceptance: 15/07/2019

ABSTRACT

Background: Objective: To determine the knowledge and practices of HBV, its vaccine, frequency of vaccination among nursing students in Independent University, Faisalabad. **Study Design:** Cross sectional study. **Setting:** Independent University Hospital Faisalabad. **Period:** Jan 2018 to Mar 2018. **Material and Method:** This research was quantitative; a self-administered questionnaire was the tool to analyze the knowledge and practice regarding hepatitis B among nursing students of Independent University, Faisalabad. The sample of current study was comprised of One hundred and fifty (150) nursing students. The researcher designed a self-constructed questionnaire for quantitative research. Descriptive statistics i.e. Cross tabulation and Frequency Distributions were used for the description of trends in the data. **Results:** This study showed that 84.7% respondents categorized as having good knowledge. About 82.3% respondents categorized as having good practice. This study shows that 81.33% respondents identify the hepatitis B as a virus and 84.7% have the knowledge about the specific treatment of Hepatitis B. **Conclusion:** In the light of present study the existing level of knowledge and preventive practice is satisfactory among the nursing students in nursing students in Independent University Faisalabad.

Key words: Hepatitis B, determine, knowledge, awareness, practice

Article Citation: Kousar S. A Study of knowledge and practice regarding Hepatitis B among Nursing Students. *IJAHS*, Jul-Sep 2020;03(181-188):01-08.

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INTRODUCTION

Hepatitis B infection is a serious blood-borne disease, caused by the hepatitis B virus (HBV) which attacks the liver, and although in acute cases rarely results in liver failure and death, the main public health problem is that this can lead to lifelong chronic HBV infection, which may be followed by cirrhosis and/or liver cancer. Chronically infected HBV carriers are able to transmit HBV through contact with their body fluids, which includes occupational exposure to their blood and secretions, sexual intercourse. People at risk include health care workers (HCWs) in contact with blood and human secretions, hemodialysis staff, oncology and chemotherapy nurses, all personnel at risk of needle stick/sharps injuries, which includes those working in operating rooms and clinical laboratories, respiratory therapists, surgeons, doctors, dentists, as well as medical, dental and nursing students.¹ There is a highly efficacious

vaccine that protects against HBV infection, and it is recommended by the South African Department of Health (DOH) that all HCWs should be vaccinated against HBV before being exposed to patients.

Serological studies indicate that more than 2 billion people have been infected with HBV worldwide. This includes 350 million chronic carriers of the virus.² Pakistan is highly endemic with HBV with 9 million people infected with the virus and the incidence of HBV infection is rising steadily.³ The reasons may include the lack of proper health facilities, poor economic status, and poor public awareness about the transmission of major communicable diseases including HBV, HCV, and HIV.⁴ Pakistan lies in the "Intermediate zone" of the WHO zones of viral hepatitis. The 3 major modes of its transmission are hematogenous, sexual, and vertical. Reuse of contaminated needles and syringes is also a

major source for spread. There is a high incidence of hepatocellular carcinoma associated with this infection. However, HBV infection can be prevented through vaccination.⁵

Infection with HBV may result in acute or chronic disease, both of which can be asymptomatic. If symptoms are present, onset of acute disease is usually insidious, with loss of appetite, vague abdominal discomfort, nausea, vomiting, and sometimes arthralgias and rash, often progressing to jaundice. Fever may be absent or low-grade. Liver enzyme levels are markedly elevated. Severity of the disease ranges from unapparent cases (detectable only by liver function tests) to fulminant, fatal disease. The case-fatality rate in hospitalized patients is about 1%. Disease tends to be worse and mortality higher in those over 40 years old. Asymptomatic infections are common in children <10 years of age. Approximately 30–50% of older children, adolescents, and adults have asymptomatic infections.⁶

The risk of chronic infection decreases with age at infection. More than 90% of infants infected at birth (perinatally) will develop chronic HBV infection, compared to between 25–50% of children infected between 1–5 years of age and 6–10% of those acquiring infection as older children or adults. Chronically infected persons are at increased risk for developing chronic liver disease (e.g., cirrhosis or chronic hepatitis) or liver cancer (primary hepatocellular carcinoma) later in life. Up to 25% of those infected during early childhood will ultimately die at an early age from the complications of cirrhosis and liver cancer. Patients who develop acute HBV infection while immunosuppressed and patients with an underlying chronic illness have an increased risk of developing chronic infection.⁷

Resolved hepatitis B is defined as the clearance of HBsAg and normalization of serum transaminase concentrations; development of antibody to HBsAg (anti-HBs), which provides protection

from HBV infection, may also be noted. Chronically infected adults clear HBsAg and develop anti-HBs at the rate of 1–2% annually; during childhood, the annual clearance rate is <1%. Reactivation of inactive chronic infection is possible with immunosuppression. Vectors and Reservoirs is Humans are the only natural host for HBV. HBV is transmitted through blood or body fluids, including wound exudates, semen, vaginal secretions, and saliva. Blood and serum contain the highest concentrations of the virus; saliva contains the lowest. Common modes of transmission include percutaneous and permucosal exposure to infectious body fluids, sharing or using nonsterilized needles or syringes, sexual contact with an infected person, and perinatal exposure from an infected mother.

Person-to-person spread of HBV can occur in settings involving interpersonal contact over extended periods, such as when a chronically infected person resides in a household. In household settings, nonsexual transmission occurs primarily from child to child, and young children are at highest risk for infection. The precise mechanisms of transmission from child to child are unknown; however, frequent interpersonal contact of non-intact skin or mucous membranes with blood-containing secretions or saliva are the most likely means of transmission. Sharing of personal items such as wash cloths, towels, razors, or tooth brushes, are behaviors that could facilitate transmission. Fecal-oral transmission does not appear to occur. Approximately one-third of infected persons do not have a readily identifiable risk factor.

Nursing students in Pakistan have poor knowledge and practices about hepatitis B disease, including its modes of transmission and the option of vaccination. Lack of knowledge contributed significantly to their negative attitudes towards those suffering from the disease, which has the potential to considerably affect the quality of patient care and the doctor-patient relationship. Major steps should be taken

towards improving the curriculum followed at medical colleges in Pakistan. More emphasis should be laid on providing knowledge during early academic years and increasing the amount of clinical exposure. Frequent workshops and seminars should be organized in order to provide up-to-date knowledge about HBV infection and means of prevention to both healthcare professionals and students.⁸

Nurses are at increased risk of contracting blood borne pathogens due to their occupational exposure to blood and body fluids. When compared to other health personnel, the nursing staff is the group that is most frequently victimized by accidents with cutting and piercing objects, since these professionals are also the ones who most often handle such material while performing their tasks. Thus their chance of accidental exposure to hepatitis B is high and they are considered as high risk group. Particularly nursing students are at a greater risk due to their limited clinical experience. Knowledge and practice of nursing students and all nurses about transmission of hepatitis B virus, incubation period, high risk groups, signs and symptoms of HBV and vaccination can limit the spread of HBV in a large scale. If proper preventive measures are not followed it may accidentally cause rapid spread of hepatitis B virus. Furthermore, not all hepatitis B infections are symptomatic, meaning a person may spread hepatitis virus without knowing it. Knowledge and Practice of the health care workers plays a key role in prevention of spread of infection. Thus this study was conducted with the objective to assess knowledge and practices of nurses regarding hepatitis B in Independent University Faisalabad.

Research Questions

1. What is the level of knowledge about HBV among nursing students in Independent University, Faisalabad?
2. What is the level of practices regarding HBV among nursing students in Independent

University, Faisalabad?

MATERIAL AND METHOD

This research was quantitative; a self-administered questionnaire was the tool to analyze the knowledge and practice regarding hepatitis B among nursing students of Independent University, Faisalabad. One hundred and fifty (150) nursing students at Independent Hospital, Faisalabad were target population of the current study. To analyze the knowledge and practice regarding hepatitis B among nursing students of Independent University, Faisalabad, the researcher designed a self-constructed questionnaire for quantitative research.

The questionnaire was used for collecting data from nurses and patients. Some of demographic information was required to collect from the nurses and patients. The demographics were consisted of following information: Name (optional), Gender, Locality, Class, Arts/Science, Age and Name (optional). The researcher collected data by visiting each targeted nurse and patient for solving questionnaire. The data of current research study analyzed with the help of statistical software which known as SPSS (Statistical Package for Social Sciences) version 21. Descriptive statistics i.e. Cross tabulation and Frequency Distributions were used for the description of trends in the data.

RESULTS

In table I, demographic characteristics of the nursing students are given, i.e., marital status, education, shift rotation, etc.

Table 1. Demographic Characteristics of the Nurses					
Marital Status	Single		Married		Total
	142 (94.67)		8 (5.33%)		150 (100.0%)
Year of Study	1 st Year	2 nd Year	3 rd Year	4 th Year	Total
	45 (30.0%)	28 (18.7%)	61 (40.7%)	16 (10.7%)	150 (100%)
Knowledge of Hepatitis B	Yes		No		Total
	147 (98.0%)		3 (2.0%)		150 (100%)
Training of Hepatitis B	142 (94.7%)		8 (5.3%)		150 (100%)

Table 2. Nurses' knowledge regarding Hepatitis B virus

Knowledge regarding Hepatitis B Virus	Yes	No	Total
Hepatitis B is a virus	122 (81.3%)	28 (18.7%)	150 (100%)
Hepatitis Foundation of Tripura	66 (44.0%)	84 (56.0%)	150 (100%)
Knowledge about specific available treatment of Hepatitis B	127 (84.7%)	23 (15.3%)	150 (100%)
Vertical transmission is possible of Hepatitis-B	112 (74.7%)	38 (25.3%)	150 (100%)
Vaccination at birth can prevent hepatitis B	101 (67.3%)	49 (32.7%)	150 (100%)
Hepatitis B known as Serum Hepatitis	112 (74.7%)	38 (25.3%)	150 (100%)
Knowledge about the doses of Hepatitis B Vaccine	96 (64.0%)	54 (36.0%)	150 (100%)
Hepatitis B causes liver disease	106 (70.7%)	44 (29.3%)	150 (100%)
HBV surface Antigen used for screening	111 (74.0%)	39 (26.0%)	150 (100%)
Patient undergoing surgery need for screening	75 (50%)	75 (50%)	150 (100%)
Doctor, nurse, lab & technician are at high risk of Hepatitis B	128 (85.3%)	22 (14.7%)	150 (100%)
Knowledge about possibility of Hepatitis B transmission through Needle sticks injuries	123 (82.0%)	27 (18.0%)	150 (100%)
Hepatitis B not transmitted by hand shaking	116 (77.3%)	34 (22.7%)	150 (100%)
Hepatitis B preventable by vaccine	123 (82.0%)	27 (18.0%)	150 (100%)
Incubation period of Hepatitis B infection is 30-180 days	120 (80.0%)	30 (20.0%)	150 (100%)
World hepatitis day is celebrated on 28 July	126 (84.0%)	24 (16.0%)	150 (100%)
Knowledge about Diagnostic test of Hepatitis B	130 (86.7%)	20 (13.3%)	150 (100%)
Knowledge about availability of Hepatitis B vaccine which prevent from Hepatitis B	118 (78.7%)	32 (21.3%)	150 (100%)
Before giving blood must act test of hepatitis virus infection before infusion to prevent infection	133 (88.7%)	17 (11.3%)	150 (100%)

Table 4 shows that majority of the nursing students who were in 3rd year were having more knowledge with the percentage of 40.67% and 30.0% percent nursing students have the knowledge about the hepatitis B.

Table 3. Nurses' practices regarding Hepatitis B virus

Practice regarding Hepatitis B Virus	Yes	No	Total
Vaccinated with Hepatitis B	128 (85.3%)	22 (14.7%)	150 (100%)
Recap needles after use	100 (66.7%)	50 (33.3%)	150 (100%)
Use needle destroyer	127 (84.7%)	23 (15.3%)	150 (100%)
Accidental injuries occur	68 (45.3%)	82 (54.7%)	150 (100%)
Hepatitis B diagnosing test in case of accidental injuries	102 (68.0%)	48 (32.0%)	150 (100%)
Use sterile syringe on regular basis	121 (80.7%)	29 (19.3%)	150 (100%)
Using sterile gloves while injecting or drawing bloods	117 (78.0%)	33 (22.0%)	150 (100%)
Use of sterile equipments before using	125 (83.3%)	25 (16.7%)	150 (100%)

Table 4. Cross Tabulation

Year of Study	Knowledge of Hepatitis B	
	Yes	No
1st Year	45 (30.0%)	0
2nd Year	26 (17.33%)	1 (0.67%)
3rd Year	61 (40.67%)	1 (0.67%)
4th Year	15 (10.0%)	1 (0.67%)
Tota1	147 (98.0%)	3 (2.0%)

DISCUSSION

Nurses are at risk of exposure to a variety of blood borne pathogens by needle prick and injuries by sharp objects or mucocutaneous contamination, in particular hepatitis B virus (HBV), hepatitis C virus (HCV), and HIV (Djeriri et al., 2008; Davanzo et al., 2008; Zhang et al., 2009; Talas, 2009). According to the World Health Organization's, approximately 3 million percutaneous exposures to blood-borne pathogens occur annually in the roughly 35 million HCW worldwide (WHO. 2002; Kuruuzum et al., 2008, Maher, 2008).

The risk for HBV after percutaneous exposure to a non-immune person depends on the presence of hepatitis Be antigen (HBeAg). It can be as high as 30% in the case of an HBeAg-positive source and as low as < 6% with an HBeAg-negative source (Kuruuzum et al.,). Chronic hepatitis B (CHB) can lead to life-threatening conditions like cirrhosis

and hepatocellular carcinoma (HCC). Cirrhosis develops in approximately 20% of chronically infected patients, subsequently leading to hepatic insufficiency and portal hypertension. Hepatocellular carcinoma (HCC) is a highly aggressive cancer with rapid progression and only 10–20% of HCC patients are candidates for curative resection (Kim et al., 2009). Certain mutations in the molecular structure of the hepatitis B virus (HBV) appear to predispose people to liver cancer (Kukka,). Moreover, the World Health Organization (WHO) estimates a death rate of 1 million people annually. In a minority of the cases, an HBV infection can lead to acute fulminant hepatitis (WHO, 2009).

It has been observed that there is a strong association between age and HBV infection (Quaglio et al.,). In one study, it was found that occupational exposures were most common among the cleaning staff, and the most frequent cause of exposure was handling of garbage bags. Other common causes of exposures were needle recapping and invasive interventions performed by nurses, physicians, and interns (Kuruuzum et al.,). Interestingly, the incidence density of exposures in interns was almost as high as that in physicians. This finding underscores the need for improved education programs for interns regarding standard precautions (i.e., safety device use, record keeping) and the risk of occupational exposures.

In addition, nurses have an increased risk of HBV with respect to other jobs (Quaglio et al., 2008). This is because nurses perform more bedside procedures than other HCW (Talas, 2009). In a recent survey, it has been observed that HCW still have a poor perception of the risk of HBV infection with regard to occupational blood exposure, such as needlestick injuries (Djeriri, et al., 2008). Further they lack complete information on the standard procedures, on the necessity to report all biologic exposures, and on the importance of the follow-up for their own and public health (Davanzo et al., 2008).

Studies on nurses in the USA, Australia and Pakistan, among middle and high grade medical doctors and surgeons in China and Iran, found that knowledge about transmission of HBV is low.⁹ (Knight and Bodsworth 1998:747;,¹⁰ Samayoa et al 2006:51;,¹¹ However, the Saudi Arabia study found that nurses and paramedical staff were more knowledgeable than student doctors regarding the fact that needle stick injuries can transmit HBV.¹⁰ Different findings were identified among nurses working in high risk and dental areas, dental and young medical students on their understanding in aetiology of HBV infection and infectivity.¹² 1998:529; MacGrane and Stein 2003:349;,^{13,14} Ciesla et al 2006:28; Yang et al 2006:414; Kagan et al 2008:585).

Studies in Australia and Poland found that good knowledge of occupational risk reduces the risk of occupational exposure.^{9,15} More training camps, formulation of rules and standing orders, outlining of precautionary measures, conducting of educational talks to enhance protective measures was also realised in Saudi Arabia, China and Iran and as a solution to preventing occupational risk.^{10,16} (Yang et al Moghimi et al 2008). Study in South Africa support the view that good knowledge is associated with confidence in adoption of safe practise among HCWs.¹⁷ Thus poor knowledge about occupational risk is associated with increased occupational risk.¹¹ (Samayoa et al 2006). This is also supported by the findings from Canada and US, that poor knowledge and poor adherence in senior doctors is also related to resistance to change and misconception.¹⁷

Hepatitis B is the most common serious liver infection in the world. Worldwide, about 350 million people are chronic carriers of HBV, of whom, more than 250,000 die from liver-related disease each year. Even in the United States, hepatitis B is largely a disease of young adults aged 20-50 years. About 1.25 million people are chronic carriers, and the disease causes about

5000 deaths each year. But the good news is that infection with HBV is almost always preventable. Anyone can protect himself and loved ones from hepatitis B if it is identified properly, and preventive measures can be taken within quickest possible time.

Hepatitis B is caused by infection with the hepatitis B virus (HBV). This infection has 2 phases: acute and chronic. Acute (new, short-term) hepatitis B occurs shortly after exposure to the virus. A small number of people develop a very severe, life-threatening form of acute hepatitis called fulminant hepatitis. Chronic (ongoing, long-term) hepatitis B is an infection with HBV that lasts longer than 6 months. Once the infection becomes chronic, it may never go away completely. It is also a striking information that, About 90-95% of people who are infected are able to fight off the virus so their infection never becomes chronic. Only about 5-10 percent of adults infected with HBV go on to develop chronic infection. HBV infection is one of the most important causes of infectious hepatitis.

The study sought to evaluate knowledge & preventive practice towards HBV among the nursing students in Independent University Faisalabad. Results of the study showed satisfactory knowledge & preventive practice towards HB. Results show that 84.7% respondents categorized as having good knowledge. About 82.3% respondents categorized as having good practice. Similarly in Bolan Medical Complex Hospital, Quetta, Pakistan, about 90.7% nurses had acceptable knowledge about HBV infection and vaccine. A dissimilar finding was given in the study among healthy population done in Quetta, Pakistan where the respondents demonstrated a very low knowledge of hepatitis B infection¹⁸ and also in Ethiopia similar picture that is, poor knowledge and practice towards HB was found among medical & health science students (Mesfin et al., 2013). In Nigeria 13 65.2% had good knowledge but only 37.6% put the measures into practice.

This study shows that 81.33% respondents identify the hepatitis B as a virus and 84.7% have the knowledge about the specific treatment of Hepatitis B. Regarding vaccination status majority (85.3%) received vaccination against HBV. More or less similar studies were found among nurses of different public & private hospitals of Dhaka city, Bangladesh,¹⁸ where 59% reported vaccinated and also 65.7% reported vaccinated in a multicenter study among health care workers in Ibadan, Nigeria. In Ahmedabad, India study among medical students reported that only 29.3% were not vaccinated against HBV & also among nursing students of Bolan Medical Complex Hospital, Quetta, Pakistan (Mengal et al.,) reported 25% had not been vaccinated at all.

In our study among nurses 43.5% were not vaccinated. This indicates that the study populations are not aware of HBV. Again among general population like married women in reproductive age group done in Dhaka city, Bangladesh 16 reported only 4% women were fully immunized against HBV. Very poor vaccination status was also found at Haramaya University, Ethiopia.¹⁹ These studies are very alarming & measures should be taken quickly both from concerned government as well as from society.

The present study shows that more than half (88.7%) had done blood test for HBV. This practice is not matched with the respondents of the study done by Haq et al., (2012) in Quetta, Pakistan where 96.9% never went for HB screening. In the study done in Haramaya University, Ethiopia, (Mesfin et al.,) similar picture was found where 85.7% never screened for HB. Study conducted by Mehrabin et al., among nurses in Dhaka city, Bangladesh is consistent with our study where 69% respondents tested blood for hepatitis B. This is surely a good practice.

Present study revealed some good preventive

practices among respondents against HBV. Of them 83.3% use sterilized surgical instruments, 78.0% use sterilized gloves & gowns, 66.7% recap syringe after use, 74.0% screen for HBV before blood transfusion. These results are in line with the findings from studies reported from different hospitals in Dhaka city, Bangladesh.¹⁸ among nurses, where 92.7% used sterilized instruments, 46.3% used gowns. More or less similar preventive practices were found among health care workers in Ibadan, Nigeria & also among nursing students of Bolan Medical Complex Hospital, Quetta, Pakistan (Mengal et al.), where 80.4% used disposable gloves. But poor practice was found among medical students who were starting clinical attachment in Haramaya University, Ethiopia, (Mesfin et al.) where 31.7% never asked for screening of blood before transfusion, 16.5% never asked for a new syringe. The positive correlations between knowledge and practice in this study reaffirm the relationship between knowledge & practice with infection control measures. It is concluded that adequate knowledge can lead to good practices.

CONCLUSION

In the light of present study the existing level of knowledge and preventive practice is satisfactory among the nursing students in nursing students in Independent University Faisalabad. Most of them have good knowledge about causative agent of HBV and its mode of transmission. Majority receives vaccination for HBV and they know the complications of HBV. But nearly half of the respondents are not aware of risk among themselves by hepatitis B. It may be due to lack of participation in health education program regarding hepatitis B. Nursing staffs are the first level of contact between patients and medical care and always exposed to blood and blood products in their professional practice. By all means, we should make sure the nursing staff is kept up-to-date and very well educated, starting from their formal educations at the nursing college.

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