



Original Research Article

Hepatitis B Related Knowledge and Perception of Nursing Students: An Institutional Based Study in Kathmandu, Nepal

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ABSTRACT

Background: Hepatitis B is the world's most common blood borne viral infection. Millions of people are affecting and dying each year from hepatitis B. It is transmitted through direct contact. Clinical Health Professionals (Laboratory technicians, nursing staffs and medical surgeons) are most at risk population of hepatitis B. The main objective of this study was to explore the knowledge and perception of nursing students about Hepatitis B.

Methods and materials: This descriptive cross-sectional study was conducted during January to May 2010 among 385 nursing students in five nursing colleges of Kathmandu. Data were collected by using self administrated questionnaires. Level of knowledge was established by compiling all related information. Data were analyzed by SPSS (version 13). Descriptive and inferential statistics were applied. Results were disseminated in tabular, graphical and narrative appearance.

Results: All participants were female with mean age 18.54 ± 2.001 years. About 39.5% were studying in 1st year whereas 31.7% in 2nd and 28.8% in 3rd years. Majority (96.4%) heard about Hepatitis B and used radio/television (83.6 %) as potential source of information. Almost; 92.2% and 82.6% had the good understanding about causative agents and sign/symptoms respectively. About 97.7% understood 'infected blood transfusion' as common means of disease transmission. Majority (85.7%) perceived 'liver damage' as major complication. About 97.4% reported 'infected blood receivers' are the high risk population. Almost; 99.7% mentioned that vaccination is the effective preventive measure.

Conclusion: Level of knowledge was significantly associated with age and academic grade of participants. Overall knowledge was found to be high.

Key words: Hepatitis B, nursing students, knowledge, perception

INTRODUCTION

Hepatitis B is the world's most common infectious viral disease transmitted through infected blood, serum and body fluid. Globally, more than two billion (1 out of 3) people have been infected of those;

350 million remained as chronic carriers. An estimated one million people die each year from hepatitis B and its complications. [1, 2] Potential complications of Hepatitis B (HB) infection are chronic hepatitis, cirrhosis of liver and hepato-cellular

carcinoma. [3] The risk of infection by Hepatitis-B virus (HBV) ranges from 6% to 30%, if no prophylactic measure is adopted; however, a combination of vaccines and gamma globulin can reduce this risk 90-95%. [4]

The principal causes HBV transmission are pricking of skin with infected/contaminated needles and syringes or through accidental inoculation of minute quantities of blood and other body fluids during surgical, laboratory and patient caring procedures. In addition, those not wearing gloves while doing any of these procedures were at greater risk of contracting infection. Transmissions of HBV infection by blood transfusion and in other medical interventions are common in the countries like Nepal, India and other South East Asia Region (SEAR). [5]

The carrier rate of HBs Ag in hospital personnel, particularly operating room staff, dialysis unit staff, laboratory technicians and nurses who directly exposed to the infected blood, body fluid and sharp instruments have been increased. The risk of occurrence of accidental hepatitis B has been found to be higher (10.87%) than in voluntary blood donors (6.00%) and in the general population (5.00%). [6] Medical and nursing students are more vulnerable to HB as they are in direct contact with the patients for medical care and surgical instrumentation etc. [7] So, knowledge regarding the Hepatitis B and safety precautions are essential to minimize the health care settings of acquired infections among health personnel.

MATERIALS AND METHOD

This descriptive cross sectional study was carried out in five (out of 16) randomly selected Nursing colleges in Kathmandu, Nepal. Kathmandu is the capital and largest city of the country. It is the cosmopolitan heart of Himalaya kingdom which is situated as a bowl shaped valley in central

development region of Nepal. The kingdom extends about 885km east to west and 193 Km. north to south. There are 52 Nursing Colleges in Nepal among which 19 are in the Kathmandu valley; 16 of them were registered in Council for Technical Education and Vocational Training (CTEVT) and remaining three are directly controlled by Ministry of Education, Government of Nepal. Nearly 500 nursing students pass out each year in Kathmandu valley only.

Students of Proficiency Certificate Level (PCL) in nursing were study participants. The study was conducted from January to July 2010. Sample size was calculated by using the proportion based statistical formula; $n = z^2 p (1-p) / d^2$ with considering 5% absolute error at 95% Confidence Interval (CI) level. On the basis of 35% proportionate level of good knowledge in similar type of previous studies, the minimum sample size was 349. For the benefit of the study, all (385) students from five selected nursing colleges were taken as study participants. The participation in the study was voluntary and informed consent was obtained. Participants were briefed about aim of the study and instructed to avoid putting of any mark that can identify them as guaranteed confidentiality. Pre tested self administratiive questionnaires were distributed to collected the information. Data were checked thoroughly and entered into the computer on the same day of collection by using Statistical Package of Social Science (SPSS) version 13. Both descriptive and bivariate analysis was done. Descriptive statistics were calculated for all variables. Bivariate analysis using chi-square (X^2) tests were applied to examine the association between mean measures of understanding with associated factors. To find out the level of knowledge, all the information related to understanding about

HB compiled and analyzed as low and high level of knowledge with compare to average cutoff point at 60%. Perceived behavior was measured at perception of participants on risk population, curability and vaccination

RESULTS

1. Socio demographic profile:

Descriptive results consist on age, sex, marital status, academic grade, family type and monthly family income of the participants. All together; 385 female students with mean age 18.54 ± 2.001 (mean \pm SD) years were participated in the study. As illustrated by Table-1; 60.5% of the participants were age of 18 to 20 years followed by below 18 years (31.2%) and 20+ years (8.3%). Nearly two –fifth (39.5%) were studying in the first year of PCL Nursing where as nearly one–third (31.7%)

pattern of HB. The criterion for statistical significance was set at test value ($P < 0.05$). Analyzed data were disseminated in tables, graphs and narrative description as per necessity.

in the second the year and remaining 28.8% in the third year. Almost (97.7%) were unmarried whereas minimum (2.3%) were married. About 87.5% were belonging to the Hindu religion followed by the Buddhist (10.1%) and the Christians and others (2.3%). About 42.3 % of the participants had a monthly family income (NRs.) 10000 – 15000 followed by less than (NRs) 10,000 /month (35.3%) and more than (NRs) 15000/month (22.3%). Nearly three quarter (71.42%) of the participants were belonging to the nuclear type of family.

Table1: Socio Demographic profile of the participants (N=385)

Socio-demographic characteristics	Frequency	Percent
Age		
< 18 years	120	31.2
18- 20 years	233	60.5
>20 years	32	8.3
[Mean age \pm SD : (18.54 \pm 2.001) years]		
Gender		
Female	385	100
Education		
PCL Nursing 1st year	152	39.5
PCL Nursing 2nd year	122	31.7
PCL Nursing 3rd year	111	28.8
Marital status		
Married	9	2.3
Unmarried	376	97.7
Religion		
Hinduism	337	87.6
Buddhism	39	10.1
Christian	5	1.3
Others	4	1.0
Monthly Family income		
Less than Rs.10000	136	35.3
Rs.10000-15000	163	42.3
More than Rs.15000	86	22.3
Types of family		
Nuclear	275	71.42
Joint	110	28.58

2. Sources of information:

Most of the respondents (96.4%) had heard about hepatitis B and used different sources for gathering the information of HB. The most potential source of information was radio/television (83.6 %) followed by poster / booklets (46.8%), newspaper (40.8%), teachers (39.7% and friends (37.1%) as illustrated in figure- 1.

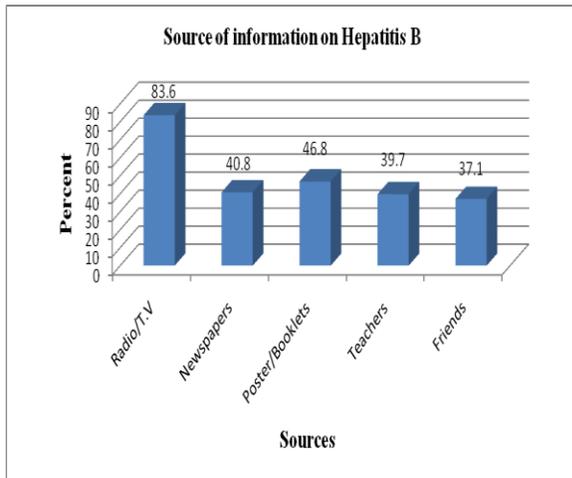


Figure 1: Sources of information on hepatitis B used by participants

3. Knowledge and perception on Hepatitis B:

Regarding knowledge on Hepatitis B, the researcher put some queries related to understanding of HB as illustrated in Table-2. More than nine out of ten participants (92.2%) had the good understanding about causative agent i.e., Hepatitis B virus. Most of the respondents (97.7%) had replied that 'Infected blood transfusion' is the common means of mode of transmission of hepatitis B followed by sharing injecting needle (93.8%), infected mother to child (84.4%) and so on. More than three quarter (82.6%) of the participants had the good knowledge on sign and symptoms of hepatitis B as the

yellowish coloration in the eye followed by anorexia (71.7%), abdominal pain (67.8%) and nausea and vomiting (53.3%).

Regarding the perception on high risk group of HB, most of the participants (97.4%) perceived that the infected blood receivers are the high risk population followed by babies born from the infected mother (84.2%), intravenous drug user (81.3%), health workers (69.1%) and person with multiple sexual partners (67.5%). Regarding the organ affected by HB, most of the participants (89.0%) had perceived that 'liver' is the most affected organ followed by kidney (57.6%), heart (56.3%) and brain (55.2%) whereas 18.1% participants had replied that none of the body organ is affected by HB. About complication of HB; majority of the participants (85.7%) had reported that 'liver damage' is the major complication followed by death (84.7%), heart damage (75.3%), cirrhosis of liver (73.0%) and kidney damage (55.8%). More than half (54.6%) perceived that the disease is not curable and very few (9.6%) didn't have any idea about the curability of the disease. Similarly, regarding the understanding on preventive measure, almost-all (99.7%) replied 'vaccination against HB' is the effective preventive measure followed by 'avoiding of sharing needle' (93.5%), 'using of sterilized needle and instruments' (81.3%), 'screening of blood before transfusion' (80.8%), 'avoiding unsafe sexual contact' (72.2%) and avoiding sharing of razor and tooth brush (69.9%). Most (98.9%) knew that require minimum dose of vaccination is three to prevent the hepatitis B. Majority (56.9%) understood about the ideal age of vaccination (the infancy period).

Table 2: Understanding and perceived behavior of participants on Hepatitis B

Characteristics	Frequency	Percent
Causative agent of Hepatitis B		
Virus	355	92.2
Bacteria	9	2.3
Protozoa	1	0.3
Don't know	20	5.2
Mode of transmission		
Unsafe sexual contact	260	67.5
Infected blood transfusion	376	97.7
Sharing common needle to inject drug	361	93.8
Infected mother to child	325	84.4
Saliva	262	68.1
Tattooing/piercing	237	61.6
Understanding about Sign and Symptoms		
Anorexia	276	71.7
Nausea / vomiting	205	53.3
Yellowish discoloration of eyes	318	82.6
Abdominal pain	261	67.8
Joint pain	69	17.9
Understanding about High risk group *		
Infected blood receivers	375	97.4
Person with multiple sexual partners	260	67.5
Intravenous drug users	313	81.3
Health workers	266	69.1
Babies born with infected mothers	324	84.2
Most affected organ by HB *		
Liver	325	89.0
Heart	217	56.3
Kidney	222	57.6
Brain	209	55.2
No organ affected	70	18.1
Understanding on complication of Hepatitis B *		
Cancer/Cirrhosis of liver	281	73.0
Liver damage	330	85.7
Heart damage	290	75.3
Kidney damage	215	55.8
Death	326	84.7
Curability of hepatitis B		
Yes	138	35.8
No	210	54.6
Don't know	37	9.6
Understanding on Preventive measures *		

Avoiding unsafe sex	278	72.2
Avoiding sharing needle to drug use	360	93.5
Screen blood transfusion	311	80.8
Hepatitis B vaccination	384	99.7
Avoiding sharing razor and tooth brush	269	69.9
Sterile needles for tattooing and piercing	313	81.3
Dose vaccine Prevent the disease?		
Yes	384	99.7
No	1	0.03
Does of hepatitis B Vaccine		
One	3	0.8
Two	1	0.3
Three	381	98.9
Ideal age of Vaccination		
Infancy	219	56.9
Youth	107	27.8
Adult	59	15.3

* Denotes the multiple response variable

4. Level of Knowledge:

To find out the level of knowledge, all the information related to understanding about HB and perceived behavior were compiled and analyzed as low and high level of knowledge with compare to average cutoff point at 60%. Majority (85.20%) participants had the high level (>60%) of knowledge whereas only 14.80% participants had the low level (<60%) as illustrated in Table-3.

Table 3: Level of knowledge on Hepatitis B

Level of knowledge	Frequency	Percent
High	328	85.20
Low	57	14.80

5. Factors associated with level of knowledge and perceived behavior on HB:

Knowledge on HB is a dependent phenomenon which is directly and indirectly affected by different socio demographic factors and sources of information (Table - 4). The level of knowledge is highly significant with the age of the participants ($X^2 = 21.65$ at $df.=2$, $p < 0.01$) and academic grade ($X^2 = 40.98$ at $df.=2$, $p < 0.001$). But the level of knowledge is not affected by the other demographic factors ($p > 0.05$) such as religion marital status, type of family and family income of participants.

Table 4: Relation between level of Knowledge and socio demographic factors

Characteristics	Level of Knowledge				Total		Test value
	Low knowledge		High knowledge		N	%	
	N	%	N	%			
Age of the participants							
Below 18 years	16	4.16	104	27.01	120	31.17	$X^2=21.65$ at $df. =2$, $p<0.001$
18 years to 20 years	5	1.30	228	59.22	233	60.52	

	More than 20 years	0	0.00	32	8.31	32	8.31	
	Total	21	5.45	364	94.55	385	100.00	
Education of participants								
	Nursing 1st year	56	14.55	96	24.94	152	39.48	X ² =40.98 at df. =2, P<0.001
	Nursing 2nd year	22	5.71	100	25.97	122	31.69	
	Nursing 3rd year	5	0.01	106	27.53	111	28.83	
	Total	83	20.26	302	78.44	385	100.00	
Marital status of participants								
	Married	0	0.00	9	2.34	9	2.34	Fisher's Exact test =1, p>0.05
	Unmarried	21	5.45	355	92.21	376	97.66	
	Total	21	5.45	364	94.55	385	100.00	
Religious preference of participants								
	Hindu	21	5.45	316	82.08	337	87.53	X ² = 3.16 at df. = 3, p>0.05
	Buddhist	0	0.00	39	10.13	39	10.13	
	Christian	0	0.00	5	1.30	5	1.30	
	Others	0	0.00	4	1.04	4	1.04	
	Total	21	5.45	364	94.55	385	100.0	
Monthly family income of participants								
	Less than Rs.10000	10	2.60	126	32.73	136	35.32	X ² =1.68 at df.=2, p>0.05
	Rs.10000-15000	8	2.08	155	40.26	163	42.34	
	More than Rs.15000	3	0.78	83	21.56	86	22.34	
	Total	21	5.45	364	94.55	385	100.0	

Note: df. indicates the degree of freedom

DISCUSSION

Knowledge on HB among the nursing students is influenced by many factors such as socio demographic, sources of information, perceived behavior on HB etc. Total 385 nursing students had been participated in this study; all of them (100%) were female with mean age 17.54 ± 2.001 years. Level of knowledge on HB was significantly differing according to different age groups ($p < 0.001$). Study conducted in North India showed that the mean age of the study population (medical and Nursing Student) was 22.36 ± 23 and understanding on HB was also differs in different age

group. [8] Academic grade of the students is also the major factor contributing to enhance the knowledge. Present study showed that the level knowledge had been significantly increased ($p < 0.001$) according to the increasing in grade of the students (24.94% in first year to 27.53% in third year). Study conducted among medical students in Gujarat, India showed that the knowledge was found to be less among first and second year students as compared to third year's students. [9]

Hearing about the disease and sources of information is also the highly prominent aspect of influencing knowledge.

In present study, most of the participants (96.4%) had heard about the hepatitis B and used more than one means of information (Figure 1). More than four –fifth were using radio/TV as major means of information followed by books and Newspaper (>9/10) and less than two – fifth by teacher. Similar study did in North India and Karachi Pakistan revealed that 100% of the medical students and 51.19% of nursing students heard about the HB and the major source of information on hepatitis B infection was books (85%) and media / Internet (85%), followed by teachers (84%) and friends/relatives (70%). [8, 10] The means of information gathering are differ according to the place and availability of the resources.

Study showed that about 92.2% had the good understanding about the causative agent of Hepatitis B. Similar study carried out in North India showed that only 42% knew that virus is a cause of hepatitis B. [8] Most of the participants (97.7%) had understood that ‘ infected blood transfusion’ is the common means of mode of transmission of hepatitis B followed by sharing injecting needle (93.8%), infected mother to child (84.4%) and so on. Similar study in Aristotle University, Greece showed 86.2% medical students had the good understanding about the proper mode of virus transmission as blood and serum. [3] Similar study conducted among medical students in New Delhi also revealed that majority (92.2%) had good understanding about blood and blood products as the major mode of transmission followed by mother to child (62.7%), unsafe sexual contact (59.30%) and IV drug use (49.7%). [11] Likewise a study on Knowledge and Attitude of HB and HIV/AIDS among the nurses in Bangladesh showed most of the respondent (86%) had good understanding about infected blood as the proper mode of HB transmission followed by shearing of syringe(68%), unsafe sexual contact (60%)

and very less (17%) as trans-placental.¹² similar study in Karachi, Pakistan showed the contradictory result on spreading of HB via blood transfusion (28%), through use of injection (21%), close physical contact (8%) and un-hygienic conditions (18%). [11] More than three quarter (82.6%) of the participants in this study had the good knowledge on sign and symptom (S/S) of HB as the yellowish coloration in the eye followed by anorexia, abdominal pain, nausea and vomiting. Understanding about actual S/S has been useful in early diagnosis and proper management of HB in time.

Regarding on high risk group of HB, most of the students (97.4%) perceived the infected blood receiver was the high risk population followed by babies born from the infected mother (84.2%), intravenous drug user (81.3%), health workers (69.1%) and person with multiple sexual partners (67.5%). Study in Bangladesh showed that the prostitutes are the high risk group of HB (20%) followed by health workers including doctors and nurses (15%). [13] Similar study in Bangladesh reported that the most vulnerable group of HB are closed relatives (79%) followed by 50% and 45% health workers and prostitutes, respectively. [12] Study from Karachi identified about the understanding on the population could be at risk of getting the disease HB as the poor people living in unhygienic conditions (34%) followed by surgeons (32%), barbers (12%), Intravenous drug users (8%), recipient of blood transfusion (6%) and uneducated people (6%) and very less (2%) as sex workers. [14]

Present study revealed that most (89.0%) had perceived liver as most affected organ by HB followed with kidney (57.6%), heart (56.3%) brain (55.2%). Similarly 85.7% had understanding on liver damage as a complication of HB followed by death (84.7%), heart damage (75.3 %), cirrhosis of liver (73.0 %) and kidney damage (55.8%).

Similar study in Karachi Pakistan showed that nearly three-fifth of the students (57.1%) had perceived about cancer/cirrhosis of liver as the major complication followed by chronic carrier without symptoms (53.2%) and failure liver failure (47.1%).^[14] Likewise a study in India revealed that 53.2% students perceived about liver as the most affected organ and cirrhosis of liver is major complication.^[11] Study in Bangladesh reported that 77% health workers were unaware about the complication of hepatitis B infection.^[12]

Understanding on curability and preventive measure of HB in this study, more than half of the participants (54.6%) had perceived that the disease is not curable and almost-all (99.7%) replied that vaccination against HB is the effective preventive measure, followed by avoiding sharing needle, using of sterile needles for tattooing and piercing, screening before blood transfusion, avoiding of unsafe sex and avoiding of sharing razor and tooth brush (with the value of 93.5 %, 81.3%, 80.8% , 72.2% and 69.9%) respectively. Previous study showed that 46.8% of the medical students had understanding on similar type of preventive measure; provision of clean water, improvement in hygiene, restriction to single sex partner, avoidance of sharing syringes and needles, screening blood before transfusion and vaccination with response value 24%,27%,6%,19%, 9% and 15% respectively.^[3, 14]

Almost of all (98.9%) knew 'three' minimum dose of vaccination is required to prevent the hepatitis B. Nearly three-fifth of the respondent (56.9%) understood about the ideal age of vaccination. Similar study conducted in New Delhi, India showed that majority of the students (90.4%) had the idea about minimum three doses of vaccination to be complete dose for

Hepatitis B and nearly one –third (34.2%) had an idea about the proper age of vaccination of HB as infancy period.^[11]

CONCLUSION

In the light of present study the existing level of knowledge is lesser among the first year nursing students with compare to second and third year's. The overall understanding level on HB was higher than average level of 60 percent and perception was matched with understanding. This increasing pattern of knowledge and relative perception on HB supports to minimize the gap between knowledge and real practice and be an opportunity for targeted training and education to improve hepatitis B prevention and medical management of infected population.

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