

HEPATITIS B AWARENESS AMONG NURSING STAFF AND THEIR VACCINATION

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Abstract: The present study is to design about the hepatitis B awareness among nursing staff and their vaccination. Nursing staff are at high risk of hepatitis B Virus (HBV) infection during treatment of their patents. The present study is cross-sectional by nature. The study also investigate the HBV vaccination coverage in Jhang city, nursing to look into their attitudes towards the importance of vaccines and to reveal reasons associated with not being vaccinated. The objective of the study were; To study the Knowledge ,attitude and practice regarding hepatitis B awareness among nursing staff and their vaccination, to identify the perception of nursing staff towards hepatitis B awareness among nursing staff and their vaccination. To identify the factors that affect the hepatitis B awareness among nursing staff and their vaccination. The population of the study were all nursing staff in Jhang city. A well-managed self-contractor questionnaire distributed to 120 nursing staff in different hospital in Jhang City. Descriptive statistics and using suitable statistical techniques used by data analyzed. After the collection of data, the researcher analyzed the data by T Test. Primary information was also collected in this regard and compared to assess the probability and significance of this study. The result shows that highly significant ($P < 0.05$) ** difference was found between awareness and vaccination among nursing staff. The above result shows that significant ($P < 0.05$) difference was found between young age would have low level of awareness and their vaccination as compare to old age nursing staff.

Keywords: Hepatitis B, Awareness, Nursing Staff, Vaccination.

1. INTRODUCTION

Hepatitis B is a well-known global public health problem. There is evidence that 360 million people are chronically infected, of whom almost one million people die annually of hepatitis B virus (HBV)-related liver disease. Recognizing that healthcare workers are in high occupational risk of HBV infection due to their potential contact with blood or body fluids, and possible needle stick injuries, European countries have adopted recommendations for their protection (Emeka 2016).

Since students of health professions (medical, nursing, and paramedical) are the future healthcare workers that are early exposed to the risk of HBV infection during their clinical training, it is recommended that they should also be immunized against HBV (Recommended Vaccines for Health Care Workers, 2016).

However, healthcare students' vaccination coverage against HBV has received limited research attention internationally, especially for the paramedical students. The National Immunization Program in Greece recommends HBV vaccination in healthcare professionals and students, although it is not mandatory, as in infants from 1998. Recognizing the importance of the knowledge of the vaccination coverage in the high risk group of healthcare students, only one study has been previously conducted in a single nursing school (Nauman, 2015).

However, no statistical data on students' HBV vaccine coverage are available at a national level in Greece. The aim of this cross-sectional study was to investigate the HBV vaccination coverage in the students of the six largest schools of health professions in Greece. Furthermore, this study aimed to look into the attitudes of healthcare students towards the importance of vaccines and to reveal reasons associated with not being vaccinated.

HBV infection poses a grave public health problem worldwide, with over 2 billion people infected. An estimated 387 million are suffering from chronic HBV infection, with a rate of around 10 million new carriers each year (Samuel et al., 2009, and Baars et al., 2009). About 90% of these cases live in developing countries and 50 million of which are in Asia. It is the tenth leading cause of death worldwide accounting for an estimated one million deaths per year worldwide. HBV may be the cause of up to 80% of all cases of hepatocellular carcinoma worldwide, second only to tobacco among known human carcinogens (Schmidt et al., 2013).

Statement of the Problems:

Health care workers are constantly exposed to the dangers of acquiring hepatitis B due to contact with blood and body secretions of patients. It is also a well-established fact that an unvaccinated individual stands the risk of 6% to 30% to acquire the infection on exposure to HBV contaminated blood or body fluids. The vaccine prevents HBV infection in 90%-100% of people who produce sufficient antibody responses. In a study in Jhang City, only 12.8% of nursing staff had received vaccination prior to the study signifying a low vaccine uptake among the nursing staff in Pakistan.

Objectives of the Study:

The objectives of the study were to:

- 1) To study the Knowledge, attitude and practice regarding hepatitis B awareness among nursing staff and their vaccination,
- 2) To identify the perception of nursing staff towards hepatitis B awareness among nursing staff and their vaccination.
- 3) To identify the factors that affect the hepatitis B awareness among nursing staff and their vaccination.

Research Questions:

Following research questions have been formed to achieve the objectives of the study.

- 1) What is the importance of hepatitis B awareness among nursing staff and their vaccination?
- 2) What is the difference of old age and young age nursing staff about hepatitis B awareness and their vaccination?
- 3) What is the perception of nursing staff towards hepatitis B awareness among nursing staff and their vaccination?
- 4) What are the factors that affect the hepatitis B awareness among nursing staff and their vaccination?

Significance of the study:

This is the first research of its kind being conducted on this topic no such research has been done before. The study will elaborate the perception of nursing staff among hepatitis B awareness and their vaccination.

Delimitation of the study:

The researcher having limited time and available sources for the study. So, the study was delimited in following areas;

The sample was delimited only to 120 nursing staff

The sample was delimited to Jhang City.

2. REVIEW OF RELATED LITERATURE

This part of the research presents the review of previous researches regarding the variables of the study of the literature will itself point to the hepatitis B awareness among nursing staff and their vaccination. The main purpose of the study was to provide important insights into the hepatitis B awareness among nursing staff and their vaccination.

Noreen, (2015) studied that the Pakistan is considered as an intermediate zone of hepatitis B virus (HBV) infection, with an estimated population prevalence of 2–7%. This study assessed knowledge about HBV and vaccination among women of childbearing age in a rural setting of Punjab province, Pakistan. In 2012 a cross-sectional, community-based survey of 430 women was conducted using a semi-structured questionnaire. Less than half of the women (43%) surveyed had correct knowledge about HBV vaccination, and knowledge was especially poor among the low socioeconomic groups. Age, level of education and obstetric history of the respondents were significantly associated with knowledge about HBV and its vaccination. The main sources of information regarding HBV vaccination were lady health workers (53%) and traditional birth attendants (22%). Health promotion and behaviour change campaigns highlighting the importance of hepatitis B vaccine need to be designed to meet the needs of rural areas where women have little exposure to the mass media.

Baars et al., (2009) studied that the Hepatitis B, an infectious disease of the liver caused by the hepatitis B virus (HBV), is a major public health problem worldwide. It is a highly resilient, blood-borne and sexually transmitted virus, which in chronically infected individuals can be found in high concentrations in blood, vaginal secretions and semen. It is known to remain viable for seven (7) days or longer on environmental surfaces at room temperature and acute hepatitis B has a long incubation period of up to 90 days on average during which the individual is infective.

CDCP, (2006) reported that the HBV is the prototype member of the Hepadnaviridae family, genus Orthohepadnavirus of animal viruses (Carreno et al., 2008, Hubschen et al., 2009). The infection is highly prevalent in Africa and Asia, and in the different countries, the infection rate ranges from 5% to 20% (Shin et al., 2006). Global epidemiology of HBV infection is based on prevalence of HBV surface antigen (HBsAg) in the population. Countries are classified into three categories of HBV endemicity: low (HBV infection is a major global public health problem, warranting a high priority for prevention and control (Baars et al., 2009). Over 2 billion of the world's population has been exposed to HBV and an estimated 387 million of these are now chronically infected with a rate of around 10 million new carriers each year. Approximately 17% of the carriers will die from the consequences of the HBV infection with an overall annual mortality rate of about one million. In Sub Saharan Africa (SSA), HBV infection is endemic. The average carrier rate of the virus in the SSA region is 10% (Baars et al., 2009).

Sydnor and Perl, (2011) stated that the Injection safety and appropriate use of injections has been considered as a priority issue in the control of HBV. The estimated risk of infection following a needle prick from an infected source is 30% compared to only 3% for HCV and 0.3% for HIV. To prevent the adverse effects of unsafe injection practices the United Nations, NGOs, governments, donors and universities joined their forces in Safe Injection Global Network (SIGN) which is to enable identification of strategies for development of large scale initiative to ensure safe injection as a priority. The Kenya National Vaccination (Draft) Policy has also recommended Monovalent Hepatitis B vaccine for prevention of hepatitis B infection in health workers and other special risk groups (MoPHS, 2008).

It has been observed that there is a strong association between age and HBV infection (Quaglio et al., 2008). 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., 2008). 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.

Quaglio et al., (2008) stated that the nurses have an increased risk of HBV with respect to other jobs. 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).

Kesieme et al., (2011) observed that it is easy to assume that health care workers should have adequate knowledge about diseases and other health conditions, by virtue of their training and proximity to health facilities. Assessing people's

knowledge is a useful step to assess the extent to which an individual or community is in a position to adopt a disease-free behavior for this disease. Knowledge regarding HBV and safety precautions is needed to minimize the health care settings acquired infections among health personnel. Health care personnel should have complete knowledge of HBV infections, importance of vaccinations are practice of simple hygienic measures apart from that of specific protective measures (Othman et al., 2013).

Setia et al., (2013) Knowledge of the clinician plays a key role in prevention of spread of infection. People particularly health care workers who lack adequate knowledge about HBV might ignore the importance of vaccination (Othman et al., 2013). Unfortunately, 16 researchers have also not shown enough interest in evaluating the knowledge of Healthcare Workers on hepatitis B virus infection or the vaccine. Most previous studies in health care workers in developing countries have revealed inadequate knowledge of hepatitis B virus infection and inadequate practice of preventive measures against the disease (Kesieme et al., 2011).

Immunization among HCW has two purposes, both which allow for better prevention. First purpose is to protect HCW from several infectious diseases they may be exposed to through professional activities. Secondly to minimize the odds of infecting the patients they are taking care of. It should be clear that both objectives are extremely important and should be a priority to any health system (Talas, 2009).

The USA Food and Drug Administration (FDA) licensed the first 25 hepatitis B virus (HBV) vaccine in 1982 for infant immunization programs worldwide (Kao et al., 2009). Since then, safe and effective HBV vaccines have been available as the most effective means of preventing HBV disease and its consequences worldwide (Herck et al., 2008). Despite the existence of an effective vaccination program, up to 400 million people worldwide are chronically infected with HBV currently (Fe'rir et al., 2008; Talas, 2009). Only relatively recently has mass childhood vaccination begun to be implemented and vaccination of high-risk groups, other than HCW, is still not a general policy worldwide (Talas, 2009).

Other factors attributed to continued persistence of HB in the developed world include limited use of the vaccine by those recommended for vaccination, current vaccination schedules require multiple (at least three) injections and a protracted immunization period of 6 or 12 months before completion, and regimens are inherently leading to a lack of compliance. For example, highly educated health care professionals never finish their vaccination course (Young et al., 2001). Furthermore, unlike HIV, HBV has not captured sufficient attention from policymakers, advocacy groups, or the general public: a major challenge for the future (Herck et al., 2008).

Occupational exposure occurs through percutaneous injury such as needle stick or cut with sharps, contact with the mucus membrane of eyes or mouth of an infected person, contact with non-intact skin exposed with blood or other potentially infectious body fluids (CDC, 2003). The risk of non-percutaneous exposure has not been well quantified, but it may account for a significant proportion of HBV transmission in the healthcare setting (CDC, 2001). HBV can survive in dried blood for up to a week and thus may be transmitted via discarded needles or fomites, even days after initial contamination. Blood and serous fluid are known to contain the highest viral concentrations. Although HBV DNA has been detected in other body fluids, such as saliva, nasopharyngeal secretions, semen, or vaginal fluid, occupational transmission of HBV from these fluids has not yet been documented. The available data suggests that transmission is unlikely to occur through contact with urine or feces (Kidd-Ljunggren *et al.*, 2006).

Two HBV vaccines are approved for use in adults; administration of three separate injections into the deltoid muscle is required (Table 3.1). It provides protection against HBV, both pre- exposure and post-exposure. In pre-exposure vaccination, three intramuscular doses of HB vaccine are given resulting in protective efficacy of 90%-95% in healthy recipients (Mast, 2006; Varghese *et al.*, 2003).

A survey conducted in Kuwait revealed that knowledge of the various aspects of HBV was generally high. Their attitude towards HBV infections was encouraging, since a high percentage of respondents reported positive beliefs toward various attitude questions. Particularly, 80.5% indicated that their job puts them at risk of HBV infection, 87.1% reported their need to be protected from HBV infection, and 86.3% considered it necessary to receive the vaccine. About three quarters of the respondents (74.7%) have actually received HB vaccine. Among them, 84.0% completed the vaccination doses. Amongst those who have never received any dose of vaccine, 79.3% had no specific reason for not receiving the vaccine (Soad *et al.*, 2012).

In a cross sectional study conducted in Italian public hospitals, the overall vaccination coverage was 85.3%. Logistic regression analysis showed that place of residence of HCWs (odds ratio 4.2; 95% confidence interval 2.6–6.7) and age (odds ratio 4.5; 95% confidence interval 2.6–7.8), both were independent predictors of vaccine acceptance (Stroffolini *et al.*, 2008). A study done in USA that assessed predictors of HB vaccine acceptance in HCWs showed that independent predictors of initiating the vaccine series encompassed; younger age (95% CI, 0.96-0.997), occupation (95% CI, 1.0-4.3) and increased blood exposure frequency (95% CI, 1.6-3.5) (Doebbeling *et al.*, 1996).

3. METHODOLOGY

This was descriptive research in which survey method was used for the purpose of this research. Research methodology was aim to describe the research design, population, selection of sample, instruments used to collect data and procedure of the study. Merriam Webster online dictionary (2009) methodology is the analysis of the principal of the methods, rules and postulates employed by a discipline or a particular procedure or set of procedure. The systematic study of methods that are, can be or have been applied within a discipline. Commonly used methodological approaches are: quantitative, qualitative and mixed method approach. In this chapter, the research methodology adopted for conducting research on the study topic has been elaborated under the following headings.

Research Design:

It is a process of collecting, analyzing and interpreting the data. It enables a researcher to draw logical inferences, concerning causal relationship among the variables under investigation. Research design also determines the domain of generalization (Nachmias and Nachmias, 1992:97). This present study concerned quantitative statistics investigation and was explanatory in character. For feedback questionnaires were adapted and utilized in this research, therefore, survey method was used to gather the information.

Population:

The population of the study were all nursing staff in Jhang city. It is one of the rapidly grown district of Pakistan. 45.7% of people live in urban area and remaining 54.3% lives in rural area (Government of Punjab, 2015). Literacy rate (estimated for 2015) is 70.1% for males and 64.1% for females (UNESCO 2012).

Sampling Technique and sample:

The researcher selected a sample of nursing staff through simple random sampling from Jhang City. Simple random sampling was also used for the teachers. Due to shortage of time and financial resources it was not feasible for researcher to gather data from all the district. So the researcher applied simple random sampling technique to justify the sample of the study.

Research Instrument:

To know the hepatitis B awareness among nursing staff and their vaccination researcher developed a questionnaire for nursing staff based on five-points rating scale after going through the connected literature, i.e., books, journals, articles, reports magazines with the consultation of supervisor. Questionnaires contained 41 items. The questionnaire prepared for this study is given in Appendix A.

Pre-Testing of Research Instrument:

For the purpose of making questionnaire valid it was pilot tested. Fifteen nursing staff from Jahng city were taken in this regard. The researcher himself visited and administrated the questionnaires among relevant respondents. They were asked for giving their judgment freely for the protection of the questionnaire. They were also requested to modify the questions, if necessary in arrangement and language to mark questions easy and understandable. The researcher used data collection instruments for teachers. Validity and reliability of the instrument judged through pilot testing. Whole research was carried out by data collection, data analysis and interpretation of data. Pilot study was carried out with small size sample. The main purpose of the study was to determine the validity and reliability of the instrument. Consequently, questionnaire was revised by incorporating their suggestions. Then the final shape of questionnaire was emerged. Cronbach's alpha was used to estimate the reliability of questionnaire.

Scoring Procedure:
Table 3.1 Scoring procedure for statement

Positive and negative Statements	
Category	Scores
Strongly agree	5
Agree	4
Undecided	3
Disagree	2
Strongly disagree	1

Table 3.2 Scoring procedure for gender

Gender	Score
Male	1
Female	2

Table 3.3 Scoring Procedure for Qualification

Age	Score
21-30	1
31-40	2
41-50	3
51-60	4

Data Collection:

The researcher himself visited the hospitals and made the demographic sheets filled from the nursing staff. Before the process of data collection, researcher obtained institutional support letter from Independent College of Nursing Faisalabad. The researcher visited the sample hospitals personally. The questionnaires were distributed among respondents and help them where they got confused and gave them maximum time to fill in the questionnaire. The questionnaires were received back after filling up by the nursing staff.

Data Analysis:

Data was analyzed with SPSS software and statistical analysis was made with the help of descriptive statistics. Description of the data was done in the form of tables and phrases. After collection of data entered it according to upper mentioned scoring procedures and then it was tabulated, scored, analyzed and interpreted by means of suitable descriptive and inferential statistics. The data obtained from this technique was analyzed statistically by applying Descriptive statistics and T test. Secondary information were also collected in this regard and compared to assess the probability and significance of this study.

4. RESULTS

The purpose of this chapter is to present analysis and interpretation of data. The data obtained from teachers randomly and analyzed statistically by applying Descriptive statistics and t- test. The data was collected from nursing staff who belong to Jhang City.

Demographic Variable:
Table 4.1 Classification of Respondents according to gender

Gender	Frequency	Percent
Male	0	0
Female	120	100.0
Total	200	100

The table 4.1 indicates that percentage according to sample of the study 100.0% were female from gender.

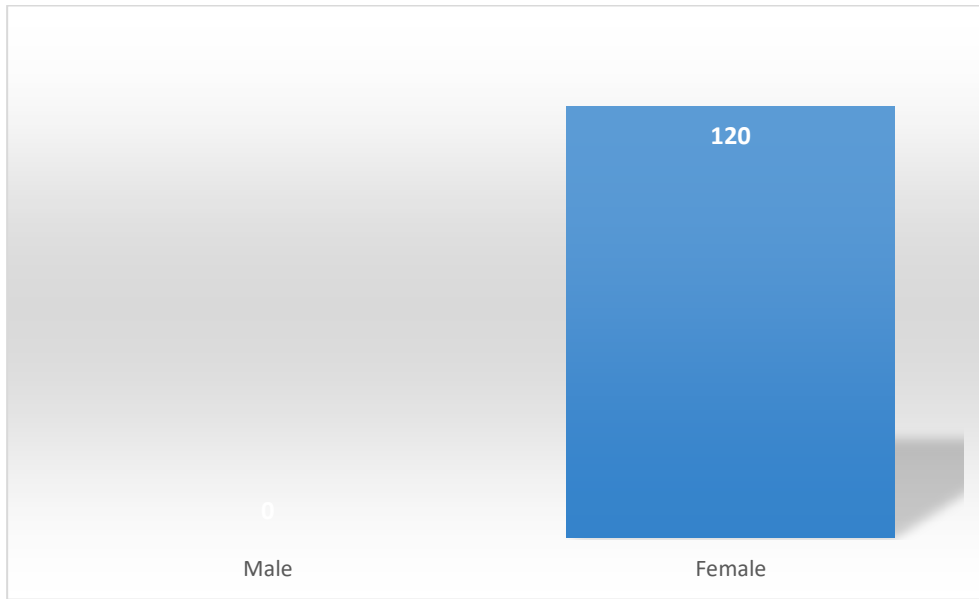


Fig 4.1 Classification of Respondents according to gender

Table 4.2 Classification of Respondents according to Age

Age	Frequency	Percent
21-30	24	20.0
31-40	46	38.5
41-50	35	29.0
51-60	15	12.5
Total	120	100.0

The table 4.2 shows that age of teachers between 21-30, 31-40, 41-50 and 51-60 years was 24(12 %), 46(23 %), 35(29.0 %) and 15(12.5 %) respectively.

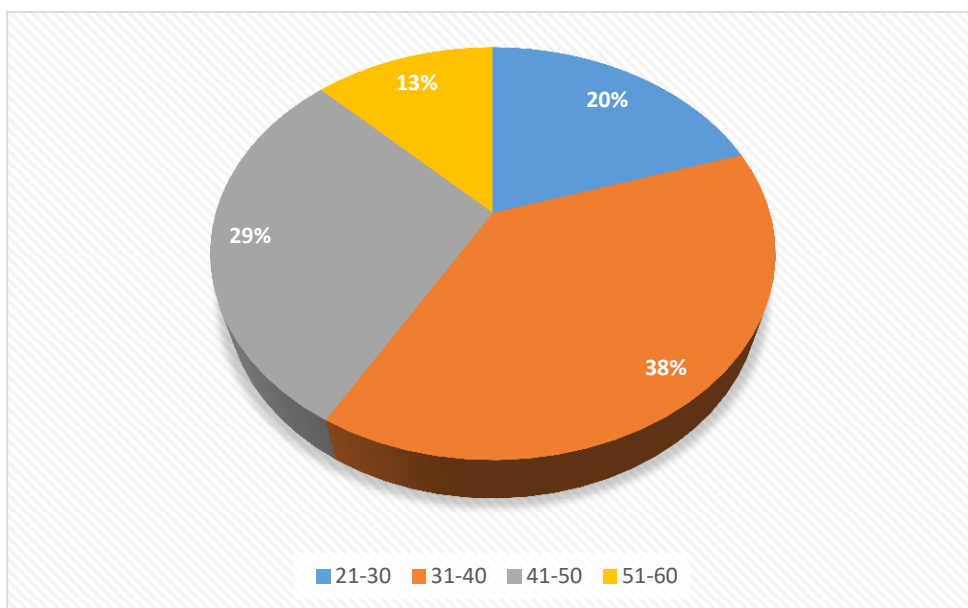


Fig 4.2 Classification of Respondents according to Age

Table 4.3 Classification of Respondents according to Experience

Year	Frequency	Percent
1-10	41	30.5
11-20	43	31.5
21-30	25	32.5
31-40	11	5.5
Total	120	100.0

The table 4.3 shows that experiences of respondents. The respondents who have experiences 1-10, 11-20, 21-30, 31-40 years were 41 (30.5%), 43(31.5%), 25(32.5%) and 11(5.5%) respectively.

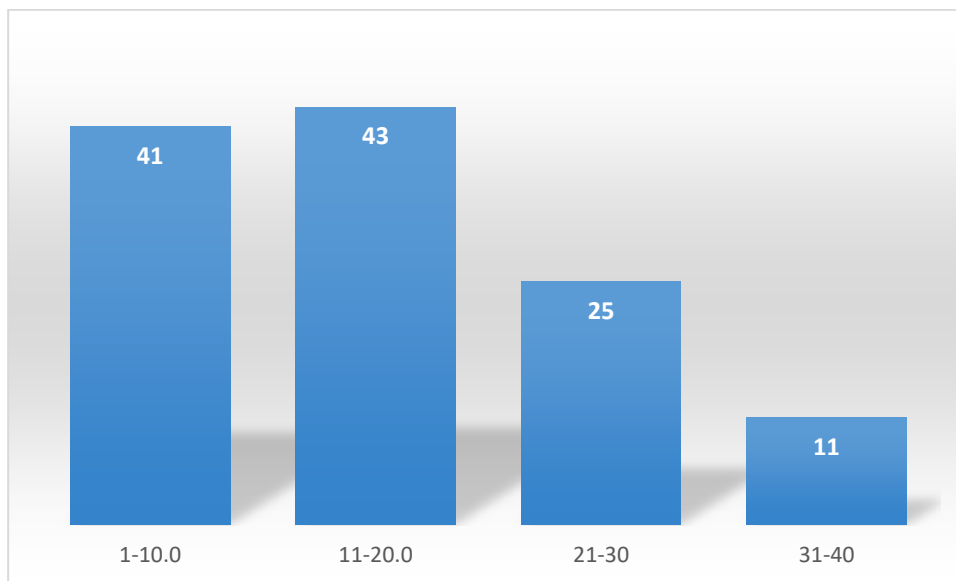


Fig 4.3 Classification of Respondents according to Experience

RQ 1 What is the importance of hepatitis B awareness among nursing staff and their vaccination?

Table 4.4 Relationship about awareness and vaccination among nursing staff (N = 120).

Variable	Awareness
Vaccination	0.465**

= Highly significant (P<0.01) **

The above table shows that highly significant (P<0.05) ** difference was found between awareness and vaccination among nursing staff.

RQ 2 What is the difference of old age and young age nursing staff about hepatitis B awareness and their vaccination?

Table 4.5 Score range of old age and young age nursing staff about hepatitis B awareness and their vaccination (N = 120).

Variable	Group	Mean	SD	t-value	p
awareness and vaccination	Young age	157.90	12.74	0.00	0.01
	Old age	181.52	14.49		

df = 118, = Significant (P<0.05)

The above table shows that significant (P<0.05) difference was found between young age would have low level of awareness and their vaccination as compare to old age nursing staff.

5. CONCLUSIONS AND RECOMMENDATIONS

This is the cross-sectional study about the hepatitis B awareness among nursing staff and their vaccination. The result shows that highly significant ($P < 0.05$) ** difference was found between awareness and vaccination among nursing staff. The above result shows that significant ($P < 0.05$) difference was found between young age would have low level of awareness and their vaccination as compare to old age nursing staff. The knowledge of HBV infection and its vaccination for majority of our respondents was ranged from moderate to high, and larger percentage of HCPs had negative or neutral attitudes on HBV and its vaccination. In spite of this, the vaccination status was encouraging as greater proportion of HCPs had been screened and received HB Vaccine. However, some areas of KAP of HCPs need to be corrected or improved. Areas where HCPs had knowledge deficiencies were: whether HBV infection is curable or not, number of doses of the vaccine required for complete protection, expected interval between the doses of the vaccine, the effectiveness of the vaccine when used as PEP, and requirement of post-vaccination serological testing. Knowledge score was significantly associated with: education level, type of profession and area of practice. Profession and history of training were the only significant predictors of vaccination status. Vaccination status was not significantly associated knowledge and attitudes score; there was no statistically significant association between knowledge and attitude score as well.

Recommendations:

Based on the study findings, this study recommends;

- i. Ministry of Health should come up with measures to increase the knowledge of hepatitis B.
- ii. Though advocacy mechanisms did not prove to affect vaccination, there is need for the health institutions to put in place advocacy mechanisms because a minority (13.3%) had advocacy measures in place. The measures may improve the completion of the doses and post-vaccination test check for immunity.
- iii. The attitude of nursing staff towards hepatitis B and vaccination is critical in uptake of the hepatitis B vaccination. The institutions should put in place programmes to keep promoting the positive attitudes of the nursing staff towards the HB.
- iv. The government and the health institutions should make hepatitis B vaccine available for free or at a cost that most nursing staff can afford. Nursing staff should be encouraged to get vaccinated and to take all the recommended doses.

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