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Research Article

**HEPATITIS B VACCINATION COVERAGE AMONG
STUDENTS OF MEDICAL COLLEGE IN TAXILA**Sana Shafique¹, Ambreen Shafqat², Roohi Saghir²¹ Shaheed Zulfiqar Ali Bhutto Medical University, Islamabad² Federal Medical and Dental College (FM&DC), Islamabad

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Abstract:

Introduction: Hepatitis B virus causes mortality and morbidity worldwide. HBV prevalence in Pakistan is 2.5% and medical students represent a population that is high risk group for acquiring and spreading hepatitis B virus infection. Despite effective vaccine availability; vaccinated coverage is not satisfactory due to lack of obligatory vaccination program.

Methods: A cross sectional questionnaire-based study conducted among N=189 (94.5%) (Males=n 84, 44.44% and Females= n 105 ,55.55%). Questionnaire contains Three parts. The sociodemographic, hepatitis B immunization status and reasons of not getting vaccinated.

Result: Response rate of the study is 94.5% n= 189, The number of completely vaccinated medical students were n 78, 41.26% partially vaccinated n=40, 21.1% and unvaccinated are n=71, 37.5% respectively. The reason behind being unvaccinated are lack of motivation n=75, 40%; some don't see need n=62, 33%; no knowledge about where to get n=21, 11%; 3%, n=6 think its costly and 13%, n=25 didn't mark the reason.

Conclusion: low rate of vaccine coverage despite authority guidelines calls for policy amendments. Vaccine supply and mandatory implementation of vaccine has to be taken into consideration to prevent occupational exposure among medical institution in Pakistan.

Keywords: Hepatitis B virus, Medical Students, Vaccine Coverage.

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INTRODUCTION:

Hepatitis B virus (HBV) is one of the major causes of chronic hepatitis, a precursor to liver cirrhosis and hepato cellular carcinoma.¹ Hepatitis B virus is partially double stranded that belong to hepadna virus.² The virus is carried by blood stream to liver. The hepatitis B infection may manifest as Asymptomatic infection, self limited acute hepatitis, or fulminant hepatitis that require liver transplantation.³

Its Vaccine was discovered in 1963, since 1982 over 1 billion doses of hepatitis B vaccine have been used worldwide. The vaccine has excellent record of safety and effectiveness (world health organization). hepatitis B virus infection is transmitted from person to person by contact with infected body fluids and transfusion of contaminated blood or blood products or by use of contaminated needle/syringe⁴. Hepatitis B virus is an important occupational hazard for health care workers and is preventable with currently available vaccine.⁵ The Pakistan medical research council undertook a national general population survey in 2007-08 on prevalence rate of HBsAg that came out 2.5%. In Pakistan it is estimated that nearly four million have been exposed to hepatitis B virus.⁶ EPI in collaboration with world health organization recommends hepatitis B virus vaccine for all infants at birth, (at 6,10 and 14 weeks) children up to age 18 and high risk adult at zero, three and six months respectively.⁶

Risk of occupationally acquired hepatitis B virus infection among unvaccinated individual is 32-67%.⁷ As it remains stable on environmental surfaces for up to 7 days it is thus great threat of infection for health care professional.⁸ medical students are also at high risk due to lack of obligatory vaccination programme.⁹ Timely vaccination is the most effective measure for prevention against acquiring infection.

Safe and effective hepatitis B virus vaccine is available since 1982 that contain HBsAg protein and aluminum phosphate or aluminium hydroxide adjuvant.¹⁰ In 1992 global advisory group to world health organization recommended that all countries integrate hepatitis B virus vaccine into their national immunization programmed by 1997. It was incorporated in Pakistan. EPI programmed in 2009. Although advisory committee on immunization recommend vaccination for high risk adult but no mandatory policy or formulation was made for routine vaccination of high-risk adult (medical students and HCP). In Pakistan the prevalence of HBsAg positively among health care preferent range from 5.2%-7.5%.¹¹ study conducted at north west Pakistanis health care workers showed only 40% complete vaccination uptake.¹²

similarly studies conducted among the medical colleges of Pakistan showed their complete vaccination coverage as 33% in Islamabad; 50.7% in Lahore and 87.8% in a mirpurkhas medical college.^{9,13,14}

The present study was conducted among the medical students of HITEC-IMS targeting their vaccination coverage. The aim was to estimate vaccination coverage and to define possible causes for not getting vaccination.

MATERIALS AND METHODS:

A description cross sectional survey was conducted over one-month period between 3rd January 2020 to 3rd February 2020 among medical students of HITEC-IMS (heavy industries taxila education city- institute of medical sciences) Taxila. All enrolled medical students undergoing clinical rotations were invited to participate n=200; year wise breakup was third year (n=100) and fourth year (n=100) participants were explained the nature and purpose of study. The institutional review board approved study design and each participant was provided a written consent in which anonymity and voluntary participation was assured. A self-administered pretested questionnaire was distributed to all participants in written in English language which includes three demographic questionnaires about gender, academic year and age. Five questions about vaccination coverage and a question assessing reasons of not getting vaccinated.

Complete vaccination was defined as three doses of vaccine. Incomplete vaccination was defined less than three vaccine doses. No vaccination as having received was No dose of vaccine. Data was collected, coded and entered into Microsoft excel percentage were calculated and results were presented in the form of tables, bar graph and pie chart. Test of significance was assessed using chi-square test, Statistical significance was set at P=0.05 or less.

RESULTS:

Out of 200 medical students 189 responded. The Response rate was 94.5%. A Demographic characteristics of qualitative survey respondents is shown in table (1). Proportion or frequency distribution of hepatitis B virus vaccination coverage of medical students is shown in table (2). It also shows higher percentage of complete vaccination in fourth year as compared to third year. Rate of vaccine intake is higher in males as compared to females which is statistically significant. P=0.014 as represented in bar graph (figure 1). Among students who were not vaccinated the reasons for no vaccination uptake are represented in pie chart (figure 2).

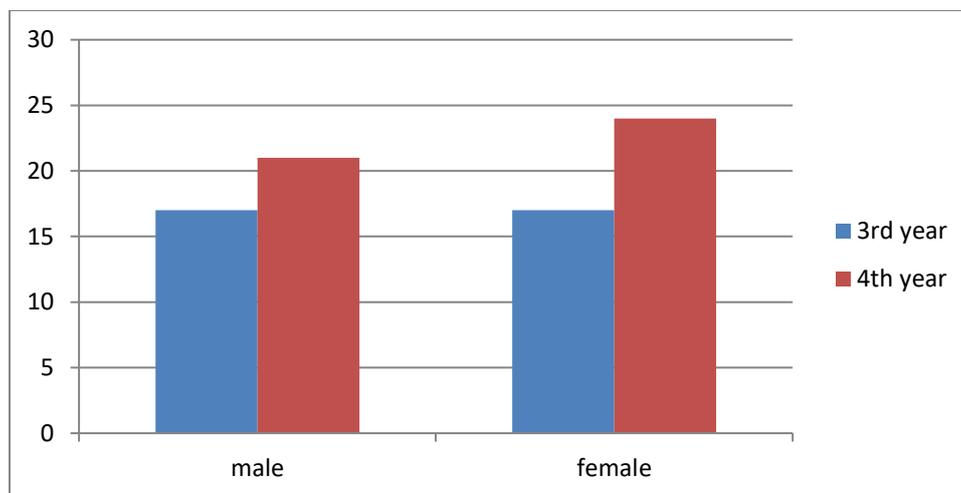
Table 1- Demographic characteristics of quantitative survey respondents

Factors	Characteristics	Frequency (n) (%)
Gender	Male	N=84 44%
	Female	N=105 55%
Academic year	3 rd year	N=94 49%
	4 th year	N=95 5%
Age year Mean +-SD	21.5 +-	1.07

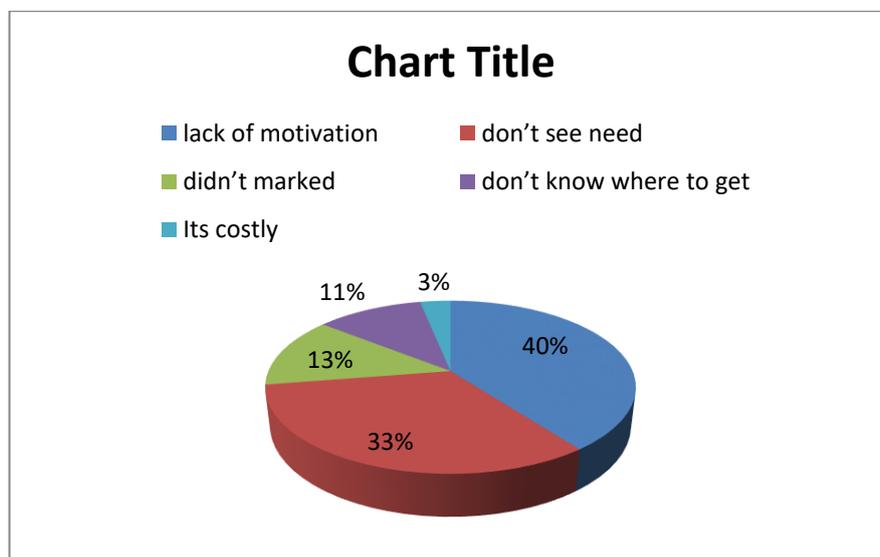
Table 2- Prevalence of hepatitis B vaccination status among medical students

Academic year	Num (n) of students	Complete vaccination (n)	Partial vaccination (n)	No vaccination (n)
3 rd year	94	33	16	45
4 th year	95	45	24	26
Total	189	78	40	71

Bar graph

Figure 1- Representation of complete vaccination of male and female

Pie chart

Figure 2- Reasons for no partial vaccination

DISCUSSION:

Medical students are well known to be at increased risk of contracting hepatitis B virus.¹⁵ The need for hepatitis B virus vaccination in this group should be a priority. This study assessed the vaccination coverage and the reasons behind poor compliance to vaccination among medical students undergoing clinical rotation at a medical college in Taxila.

Results of study show that only 41.3% (n 78) are vaccinated against hepatitis B virus; similar to the results of studies conducted at Lahore and north Indian medical college where complete vaccination rate was 50.7% and 59%.^{13,16} vaccination coverage in our study is high the IMDC Islamabad medical and dental college where complete vaccinated was 33%. In our study higher rate of complete vaccination is observed in boys 44% than girls 39% similar to the study result reported from Mirpurkhas where complete vaccinated boys and girls are 55.6% and 44.3%. similarly, proportion of fourth year students are more completely vaccinated compared to third year. Which is similar to the above study.¹⁴ despite availability of safe and effective vaccine its coverage is not satisfactory as per ACIP (Advisory committee on immunization practice) and world health organization guidelines. The most frequent reasons behind noticed in our study are lack of motivation followed by no need felt. Such negative attitude is baseless and need to be improved by obligatory vaccination policy by college administration or government for medical students.

Limitations in our study are self report of vaccination status assessment rather than serological guidance which could have biased the outcome and small sample size on the other hand. Therefore, research on this subject must be conducted to include a large sample size along with vaccination coverage assessment based on serological evidence.

It is recommended that beside health promotion and awareness. National or institutional policy legislation must be formulated to ensure vaccination provision and obligatory uptake among high risk adults.

CONCLUSION:

Despite safe and effective vaccine availability and world health organization immunization guidelines; given the prevalence of hepatitis B virus in Pakistan and medical students as a high risk occupational group; vaccine coverage is not satisfactory. It is recommended that a national institutional policy must be formulated to ensure vaccine supply uptake among medical institutions across Pakistan to prevent this occupational hazard.

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