

EVALUATION AND IMPROVING NURSING STUDENTS' KNOWLEDGE ABOUT HEPATITIS B - AN EFFECTIVE WAY TO PREVENT INFECTION IN FUTURE CLINICAL PRACTICE

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ABSTRACT

Hepatitis B is a disease caused by the hepatitis B virus, which is spread all over the world. Among the main ways of transmission of the virus are sexual contact, vertical transmission, transmission through body fluids such as blood or semen and vaginal fluids, or unsafe injections and contaminated surgical instruments. Healthcare staff are at increased risk because during various manipulations in clinical practice they come into contact with blood, blood products or other body fluids of patients. Also, during clinical practice there is the risk of needlesticks injuries with contaminated needles. The purpose of this study is to identify the role of monitoring the knowledge of health students regarding hepatitis B. This study was conducted based on a literature review of articles from the last ten years regarding the topic under discussion. Studies related to knowledge monitoring, generally indicate satisfactory knowledge about Hepatitis B. Students are well aware of the transmission routes of the infection and preventive measures against Hepatitis B, but the vaccine coverage is low. A review and update of the teaching curricula related to infectious diseases is also recommended, with the aim of students being even better prepared to face the challenges associated with these diseases in clinical practice.

Key words: Hepatitis B, knowledge and attitude, vaccination, prevention, occupational risk.

INTRODUCTION

Hepatitis B is a disease caused by the hepatitis B virus, which is spread all over the world. Hepatitis B affects all people who come into contact with the virus in one of its possible ways of spreading. Among the main ways of transmission of the virus are sexual contact, vertical transmission, transmission through body fluids such as blood or semen and vaginal fluids, or unsafe injections and contaminated surgical instruments [1]. Diagnosis of hepatitis B in the early stages is often impossible because clinical signs may not be visible and do not lead to strong suspicion of hepatitis B. As a result, many patients are diagnosed at a stage where hepatocyte damage has occurred, and this complicates the prognosis [2]. Hepatitis B in the chronic form progresses to hepatic cirrhosis and over the years to

hepatocellular carcinoma and at this stage leads to the death of the patient. Based on World Health Organization data, in 2022, about 1.1 million people worldwide died from Hepatitis B [3].

Vaccination for hepatitis B is carried out in many countries of the world, and an increase in new affected cases is observed. With the vaccination, there is a significant decrease in infections by almost 95%, and this has further resulted in a decrease in hepatic involvement from hepatitis B [4]. Healthcare workers are at increased risk of contracting hepatitis B than the rest of the population, and this risk is about four times higher [5].

Healthcare staff are at increased risk because during various manipulations in clinical practice they come into contact with blood, blood products or other body fluids of patients. Also, during clinical practice there is the risk of needlesticks injuries with contaminated needles [6]. Healthcare personnel, by respecting the rules of work practice, taking protective measures, such as avoiding contact with contaminated blood, increasing attention in practice, and immediate interventions after possible exposure, can reduce the possibility of becoming infected with the hepatitis B virus [7].

Even students who are part of studies in medical schools, such as medicine, nursing, midwifery or laboratory, are at risk as well as health personnel, especially during the years when they carry out the relevant practices in hospital wards [8]. Students will not only perform clinical manipulations during professional practices, but being future workers of the health system, they need to have an increase in awareness, knowledge about Hepatitis B and the role of the vaccine to be protected from infection [9]. Conducting studies on the knowledge, attitudes, and practices of medical students regarding hepatitis B is not widespread in many countries around the world, even though these types of studies are a very good way to reduce hepatitis B infections among future healthcare workers [10].

The purpose of the study

The purpose of this study is to identify the role of monitoring the knowledge of health students regarding hepatitis B. The importance of studies that identify the appropriate level of knowledge among students, with their attitudes and practices towards hepatitis B and vaccination against it, as an effective way to be protected as future health care workers.

MATERIAL AND METHODOLOGY

This study was conducted based on a literature review of articles from the last ten years regarding the topic under discussion. The articles were all in English and were selected based on the keywords "Hepatitis B", "Knowledge and attitude of students on Hepatitis B", "Occupational exposure", "Vaccination and Prevention". Throughout all stages of the study, were applied the guidelines regarding the systematic review of the literature [11]. The articles included in the study were only full papers and not abstracts, book chapters or dissertation topic papers. 9 articles that were clearly related to the topic under discussion were included in the review and all articles have been published in scientific journals within the last 5 years. The studies were reviewed for their methodology and main findings. The studies were also categorized by author and year of publication, methodology and main findings.

RESULTS

Author and year of publication	Methodology	Main findings
Rudramurthy K. et al., 2024 [12]	A cross-sectional study involving first-year medical students in Haveri, South India.	Students' knowledge about Hepatitis B was at optimal levels, but there was an evident lack of information regarding vaccination and there was also a lack of accurate data regarding the documentation of vaccinations that students had received over the years.
Elizabeth Abban et al., 2024 [13]	Cross-sectional study which included 386 female students Garden City University College, Kumasi, Ghana, from February to June 2022.	Regarding the students' knowledge, it is at a satisfactory level and awareness about vaccination and testing is low. It was found that students who had family members with Hepatitis B were both more informed and more aware of vaccination.

Anastasia Statiri et al., 2024 [14]	The study was cross-sectional and included nursing students from two universities in Greece, who responded to a self-administered questionnaire regarding Hepatitis B.	Vaccination status varies among students and is related to factors such as knowledge about Hepatitis B, attitudes towards the disease, and also with the passage of higher years of study, the approach was positive.
Osama M.I. Mohamed et al., 2025 [15]	The study aimed to include all medical students in five universities in the Northern and River Nile states of Sudan and a structured questionnaire was distributed to the students who participated in the study, from January to June 2023.	In general, medical students had optimal levels of knowledge about hepatitis B, but their vaccination was low, creating a gap between theory and practice.
Dhan Bahadur Shrestha et al., 2020 [16]	The study was based on a self-administered questionnaire that was emailed to students of a medical college in Nepal, in July 2020.	Regarding the responses on knowledge of hepatitis B, only half of the 180 students had good knowledge. Also, medical students had not completed the vaccine and their approach to practice was not positive.
Sumaiya Sultana Tamanna et al., 2024 [17]	A cross-sectional study was conducted among nursing students in Bangladesh during the period January-April 2023.	The overall results of the study showed that the level of knowledge about Hepatitis B was unsatisfactory and that prevention practices were more appropriate in the 23-year-old age group compared to those 19 or 20 years old.
Thi Thuy Linh Nguyen et al., 2021 [18]	The cross-sectional study was conducted at eight universities in Vietnam that had medical departments and lasted from May to November 2020.	Medical students have low confidence in the hepatitis B vaccine and this leads to a decrease in counseling or management of patients in clinical practice. Also, the level of knowledge about Hepatitis B is not sufficient, even though they are students who develop the subject of infectious diseases.
Divya C. V. et al., 2024 [19]	This cross-sectional KAP (knowledge, attitude and practice) study on Hepatitis B vaccination was conducted among nursing, medical, physical therapy and dentistry students at a tertiary health care facility in Kerala's Kozhikode district.	76.4% of students responded that they were vaccinated and about 70% did not have the necessary knowledge about hepatitis B. Students with the necessary knowledge had a better attitude and practice towards hepatitis B.
Ayla Acikgoz et al., 2021 [20]	This study involved 5,451 medical students who answered a questionnaire regarding their vaccination status, knowledge and attitudes towards hepatitis B.	Students had sufficient knowledge about hepatitis B and had a positive approach to preventive behaviors, but vaccination rates were low.

Discussion

World Health Organization data indicate that approximately 5.9% of healthcare workers worldwide are exposed to Hepatitis B Virus (HBV) infections annually, primarily through blood transmission [21]. It is crucial that awareness of Hepatitis B and its prevention begins during medical university studies. Students of medicine, nursing, midwifery, dentistry, and laboratory sciences commence professional clinical practices during their education and must develop consolidated knowledge about HBV, its transmission, and the importance of vaccination.

Medical staff should undergo periodic testing for anti-HBs antibody titers, as their concentration declines 15-18 years after vaccination. Medical students should be informed of the necessity for booster doses of the HBV vaccine [22]. Adequate knowledge about Hepatitis B, its transmission modes, clinical manifestations, disease progression, and preventive measures is essential for reducing new infections, particularly among healthcare workers. However, reviewed studies indicate a gap in knowledge regarding occupational exposure risks.

In the study conducted by Rudramurthy K. et al. [12], 80.2% of students acknowledged their increased risk of HBV infection and understood transmission routes. Statiri et al. [14] found that second- and third-year nursing students exhibited better vaccination attitudes and practices than first-year students, with third-year students being 1.69 times more likely to be fully vaccinated due to increased exposure to infectious disease education.

Regarding vaccination, Shrestha et al. [16] reported that over one-quarter of students had not been vaccinated against Hepatitis B, attributing this to ineffective vaccination awareness programs. Notably, 3.9% of students believed they were not at risk and thus did not seek vaccination. Furthermore, Tamanna et al. [17] found that nursing students demonstrated low levels of prevention practices due to inadequate knowledge of safety measures in clinical practice.

Hepatitis B remains a significant global health concern, particularly for healthcare professionals and students in medical fields. WHO reports that approximately 5.9% of healthcare workers worldwide face HBV exposure, primarily through occupational transmission [21]. Given this heightened risk, it is essential that medical and nursing students develop strong knowledge and preventative practices regarding Hepatitis B early in their training.

Knowledge and Awareness Among Medical Students: Studies suggest that while medical students generally possess satisfactory knowledge about HBV, gaps persist in their understanding of vaccination and preventive measures. Rudramurthy et al. (2024) found that 80.2% of first-year medical students in South India recognized their HBV infection risk [12]. However, despite this awareness, many lacked documentations of their vaccination status. Similarly, Statiri et al. (2024) found that second- and third-year nursing students exhibited better vaccination attitudes than first-year students, indicating that infectious disease education enhances vaccination rates [14].

Despite awareness, a gap exists between knowledge and vaccination coverage. Shrestha et al. (2020) found that over a quarter of medical students were not vaccinated against HBV, with some believing they were not at risk [16]. Similarly, Tamanna et al. (2024) found that poor HBV knowledge correlated with inadequate prevention practices among nursing students, emphasizing the need for targeted education programs [17].

Vaccination Coverage and Preventive Practices: Although effective vaccines are available, HBV vaccination coverage remains suboptimal among medical students. Mohamed et al. (2025) reported that despite strong theoretical knowledge about HBV, Sudanese medical students had low vaccination rates, highlighting a gap between knowledge and practice [15]. Similarly, Nguyen et al. (2021) found that Vietnamese medical students had low confidence in the HBV vaccine, which impacted their ability to counsel patients and manage potential exposures effectively [18].

Preventive measures beyond vaccination, such as adherence to standard precautions and proper needle handling, are crucial. Tamanna et al. (2024) found that younger students (aged 19-20) exhibited poorer prevention practices than older students (aged 23), underscoring the need for improved training in clinical safety practices from the outset of medical education [17].

Addressing these gaps through curriculum improvements, mandatory vaccination policies, and ongoing awareness programs will ensure that future healthcare professionals are adequately protected against HBV exposure. A comprehensive approach, integrating education, vaccination, and safe clinical practices, is necessary to mitigate HBV risks in healthcare settings.

Recommendations for Improved HBV Education and Prevention

To enhance HBV prevention among healthcare students, several measures should be adopted:

Incorporating HBV Education in Curricula: A systematic review by Korfitsen et al. (2022) suggests that evidence-based guidelines and Cochrane reviews should be integrated into medical education to improve student knowledge on HBV and vaccination [11].

Mandatory Vaccination Policies: Medical schools should implement policies requiring proof of HBV vaccination before students commence clinical rotations, as recommended by WHO guidelines [21].

Regular Antibody Titer Testing and Booster Doses: Since antibody levels decline 15-18 years post-vaccination, periodic testing for anti-HBs titers and revaccination with booster doses should be considered [22].

Enhanced Awareness Programs: Awareness campaigns emphasizing the risks of HBV exposure, benefits of vaccination, and importance of safe practices in clinical settings should be strengthened [13, 17].

CONCLUSIONS

Increasing the awareness of students about Hepatitis B is an efficient, feasible, and simple method to enhance infection prevention. Studies related to knowledge monitoring generally indicate satisfactory knowledge about Hepatitis B. Students are well aware of the transmission routes of the infection and preventive measures against Hepatitis B. However, gaps exist in their knowledge regarding the risk of serious complications, and their attitude toward vaccination is not always optimal.

Many studies report that students have not completed the full vaccination schedule or have not been revaccinated for Hepatitis B. Identifying the factors influencing low vaccination coverage is crucial, and practical measures should be implemented to revaccinate medical students as soon as they begin their respective clinical practices. Public health interventions play a vital role in increasing education, awareness, and vaccination coverage through information

sessions on the role of vaccines and ensuring that future healthcare workers receive the necessary protection against occupational exposure to Hepatitis B.

A review and update of the teaching curricula related to infectious diseases is also recommended to better prepare students for the challenges associated with these diseases in clinical practice. Increasing awareness and vaccination coverage among healthcare students is essential for preventing HBV infections. Although knowledge about HBV transmission is generally satisfactory, gaps in vaccination coverage and adherence to protective measures persist. Addressing these gaps through curriculum improvements, mandatory vaccination policies, and ongoing awareness programs will ensure that future healthcare professionals are adequately protected against HBV exposure. A comprehensive approach, combining education, vaccination, and safe clinical practices, is necessary to mitigate the risks associated with HBV in healthcare settings.

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