







NURSES' KNOWLEDGE, ATTITUDES AND PRACTICES REGARDING HEPATITIS B: AN INTEGRATIVE REVIEW

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ABSTRACT

Objective: to analyze, in the literature, the nurses' knowledge, attitudes and practices regarding Hepatitis B.

Method: an integrative review, with search and selection conducted independently by peers, after electronic queries in the CINAHL, MEDLINE, SCOPUS, Web of Science, LILACS, BDNF and IBECs databases in January 2021. The sample consisted in 15 primary studies published with no time or language restrictions. Analysis and synthesis of the results were carried out in a descriptive manner.

Results: limitations in knowledge, inconsistent attitudes and commonly neglected assistance-related practices were identified, related to prevention, immunization and biosafety measures, to risk management and to monitoring of symptoms and complications, which contributed to greater occupational exposure. Among the associated factors, low participation in permanent education activities, training level, working conditions, limitations in the availability of immunization tests (anti-HBs) and underreporting of health problems stood out.

Conclusion: the knowledge, attitudes and practices developed by nurses in relation to Hepatitis B proved to be limited and inconsistent, which may result in greater occupational exposure, as well as exert a direct impact on vaccination coverage and occurrence of incidents.

DESCRIPTORS: Nurses. Knowledge. Attitude of the health personnel. Pieces of knowledge. Attitudes and practice in health. Hepatitis B.

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CONHECIMENTO, ATITUDES E PRÁTICAS DE ENFERMEIROS SOBRE HEPATITE B: REVISÃO INTEGRATIVA

RESUMO

Objetivo: analisar, na literatura, o conhecimento, as atitudes e as práticas de enfermeiros sobre hepatite B.

Método: revisão integrativa, com busca e seleção realizadas por pares e de forma independente, após consulta eletrônica às bases de dados CINAHL, MEDLINE, SCOPUS, *Web of Science*, LILACS, BDNF e IBICS em janeiro de 2021. A amostra foi constituída por 15 estudos primários publicados sem restrição temporal ou de idioma. A análise e a síntese dos resultados ocorreram de forma descritiva.

Resultados: foram identificadas limitações no conhecimento, atitudes inconsistentes e práticas assistenciais comumente negligenciadas, relacionadas às medidas de prevenção, imunização e biossegurança, ao gerenciamento de risco e monitoramento de sintomas e complicações, que contribuíram para uma maior exposição ocupacional. Dentre os fatores associados, destacaram-se a baixa participação em atividades de educação permanente, o nível de formação, as condições laborais, as limitações na disponibilização de testes de imunização (anti-HBs) e a subnotificação de agravos.

Conclusão: o conhecimento, as atitudes e as práticas desenvolvidos por enfermeiros, relacionados à hepatite B, mostraram-se limitados e inconsistentes, podendo resultar na maior exposição ocupacional, assim como impactar diretamente a cobertura vacinal e a ocorrência de incidentes.

DESCRITORES: Enfermeiras e enfermeiros. Conhecimento. Atitude do pessoal de saúde. Conhecimentos. Atitudes e prática em saúde. Hepatite B.

CONOCIMIENTOS, ACTITUDES Y PRÁCTICAS DE ENFERMEROS EN RELACIÓN A LA HEPATITIS B: UNA REVISIÓN INTEGRADORA

RESUMEN

Objetivo: analizar, en la literatura, los conocimientos, las actitudes y las prácticas de los enfermeros en relación a la Hepatitis B.

Método: revisión integradora, en la cual la búsqueda y la selección fueron realizadas por pares y de manera independiente, luego de consultas electrónicas en las siguientes bases de datos: CINAHL, MEDLINE, SCOPUS, *Web of Science*, LILACS, BDNF e IBICS en enero de 2021. La muestra estuvo compuesta por 15 estudios primarios publicados sin restricciones de tiempo o de idioma. El análisis y la síntesis de los resultados se realizaron en forma descriptiva.

Resultados: se identificaron limitaciones en el conocimiento, actitudes inconsistentes y prácticas asistenciales comúnmente desatendidas, relacionadas con las medidas de prevención, inmunización y bioseguridad, y con la administración del riesgo y el monitoreo de síntomas y complicaciones, que contribuyeron a una mayor exposición ocupacional. Entre los factores asociados, se destacaron los siguientes: escasa participación en actividades de educación permanente, el nivel de formación, las condiciones laborales, las limitaciones en la disponibilidad de pruebas de inmunización (anti-HBs) y la subnotificación de problemas de salud.

Conclusión: los conocimientos, las actitudes y las prácticas desarrolladas por los enfermeros, en relación con la Hepatitis B, demostraron ser limitados e inconsistentes, con la posibilidad de derivar en una mayor exposición ocupacional, al igual que de afectar directamente la cobertura de las vacunas y la frecuencia de incidentes.

DESCRIPTORES: Enfermeras y enfermeros. Conocimiento. Actitud del personal de salud. Conocimientos. Actitudes y práctica en salud. Hepatitis B.

INTRODUCTION

Despite the scientific, diagnostic and therapeutic advances and the preventive measures adopted through vaccination, infection by the Hepatitis B Virus (HBV) is still a global health problem that is difficult to control, capable of generating physical, mental and social repercussions, compromising quality of life and raising the hospital costs and the morbidity and mortality indicators¹⁻².

Estimates by the World Health Organization (WHO) indicate that one third of the world population presents serological evidence of previous contact with the virus and that 325 million people have become chronic carriers of the disease. In Brazil, prevalence is variable, as diagnosis frequency is still underestimated due to the asymptomatic cases and to underreporting³.

Hepatitis B is one of the most prevalent infections in human beings, being considered the tenth cause of death in the world, with a prolonged incubation period and primary transmission constantly associated with direct contact with bodily fluids³. It is also an expressive occupational disease in different care contexts and levels due to the high professional exposure to chemical, physical, ergonomic, mechanical, psychosocial and biological risks, as well as failures in training and levels of knowledge, skills and competences that determine the behaviors, attitudes and practices adopted for biosafety and for proper management of the patients⁴⁻⁵.

The reduction in morbidity and mortality and complications related to HBV can result from investments in care restructuring, training and qualification for the expansion of knowledge, as well as for adherence to the adequate practices by the health professionals, especially nurses⁶⁻⁷.

In the professional Nursing practice, knowledge is an effective tool, which exerts positive effects on critical ability, attitude and professional practice capable of intervening in the most prevalent situations and health problems/diseases in the national epidemiological profile, thus contributing to early detection of the disease, proper treatment, health promotion and prevention of avoidable conditions⁸.

Assessment of the nurses' knowledge, attitudes and practices contributes to effective, safe and quality decision-making, favoring the consolidation of evidence-based practice. And, when inconsistencies are found, they must be considered as parameters for the development of activities aimed at qualifying care and reducing the direct and indirect impacts, whether financial, physical, psychological or social⁹.

Consequently, these attributes prove to be essential to promote evidence-based care. Thus, the research question was elaborated based on the domains of the PICo strategy, defining nurses as P (population), knowledge, attitudes and professional practices as I (phenomenon of interest), and the Hepatitis B viral infection as Co (context)¹⁰.

Given the above, this review was guided by the following question: "which is the scientific evidence related to the nurses' knowledge, attitudes and practices regarding Hepatitis B?". The objective was to analyze, in the literature, the nurses' knowledge, attitudes and practices regarding Hepatitis B.

METHOD

This is an integrative literature review based on the theoretical framework proposed by *Whittemore* and *Knafl* and delimited in six research stages: identification of the theme and elaboration of the research question; sampling and search in the literature; definition of the information to be extracted from the articles included; critical analysis of the results; synthesis of the knowledge and presentation of the review¹¹.

Search and selection of the articles were conducted in January 2021 by means of queries in the following electronic databases: Cumulative Index to Nursing and Allied Health Literature (CINAHL); Medical Literature Analysis and Retrieval System On-line (MEDLINE via PubMed); SCOPUS; Web of Science; *Literatura Latino-Americana e do Caribe em Ciências da Saúde* (LILACS); *Banco de*

Dados em Enfermagem (BDENF) and *Índice Bibliográfico Español en Ciencias de la Salud* (IBECS) via *Biblioteca Virtual em Saúde*.

For operationalization of the search, controlled and uncontrolled descriptors (keywords) indexed in *Descritores em Ciências da Saúde* (DeCS), Medical Subject Headings (MeSH) and List of Headings of the CINAHL's Information Systems were used. The combinations were made by means of the Boolean operators *OR* and *AND*. Chart 1 presents the terms, as well as the strategy adopted in CINAHL, considered a priority for this study, which maintained the same search standardization for the other databases consulted.

Chart 1 - Descriptors used to operationalize the search. Teresina, Piauí, Brazil, 2021.

DeCS		
PICo	Controlled descriptors	Uncontrolled descriptors
P	Nurses	<i>Enfermeira; Enfermeiro; Enfermeiras; Enfermeiros Registrados; Nurses; Enfermeras y Enfermeros.</i>
I	<i>Conhecimento; Atitude; Atitude do Pessoal de Saúde; Conhecimentos, Atitudes e Prática em Saúde</i>	<i>Conhecimentos; Epistemologia; Knowledge; Conocimiento; Attitude; Actitud; Attitude of Health Personnel; Actitud del Personal de Salud; Atitudes e Prática em Saúde; Atitudes e Práticas em Saúde; Conhecimentos, Atitudes e Práticas em Saúde; Health Knowledge, Attitudes, Practice; Conocimientos, Actitudes y Práctica en Salud.</i>
Co	Hepatitis B	<i>Hepatite Viral B; Infecção pelo Vírus da Hepatite B; Hepatitis B.</i>
MeSH		
P	<i>Nurses</i>	Nurse; Nursing Personnel; Registered Nurses; Registered Nurse.
I	Knowledge; Attitude; Attitude of Health Personnel; Health Knowledge, Attitudes, Practice	Epistemology; Attitudes; Health Personnel Attitude; Health Personnel Attitudes; Staff Attitude; Staff Attitudes.
Co	Hepatitis B	<i>Hepatitis B Virus Infection</i>
P AND I AND Co		
((MH "Nurses") OR "Nurses" OR "Nurse" OR "Nursing Personnel" OR (MH "Registered Nurses") OR "Registered Nurses" OR "Registered Nurse") AND ((MH "Knowledge") OR "Knowledge" OR (MH "Epistemology") OR "Epistemology" OR (MH "Attitude") OR "Attitude" OR "Attitudes" OR (MH "Attitude of Health Personnel") OR "Attitude of Health Personnel" OR "Health Personnel Attitude" OR "Health Personnel Attitudes" OR "Staff Attitude" OR "Staff Attitudes" OR "Health Knowledge, Attitudes, Practice") AND ((MH "Hepatitis B") OR "Hepatitis B" OR "Hepatitis B Virus Infection")		

For inclusion of the studies, the following criteria were considered: primary articles, indexed in the databases consulted and that evaluated the knowledge, attitudes and/or care practices adopted by nurses regarding the Hepatitis B viral infection, without time or language restrictions.

Exclusion was conditioned to editorials, theses, dissertations and reviews, as well as to productions that prioritized evaluation of the research outcome in professional categories or in other infectious conditions. Duplicate studies were considered only once, with registration maintained in the specific databases for Nursing followed by the multidisciplinary ones. To such end, the *Endnote* web software was used in order to assist in the selection, sorting and exclusion of duplicate records.

Access to the productions occurred through the Journals Portal of *Coordenação de Aperfeiçoamento de Pessoal de Nível Superior* in an area with Internet Protocol (IP) recognized at

Universidade Federal do Piauí and the search, selection and inclusion were carried independently out by two reviewers. When in divergent situations, consensus was sought with the aid of a third reviewer, who issued an opinion to decide regarding inclusion.

The strategy allowed retrieving 961 articles. Of these, 307 were excluded due to duplicity, resulting in 654 for reading titles and abstracts. The sample consisted of 15 studies. Figure 1 presents the path corresponding to the identification, selection, eligibility, inclusion and composition of the sample, which followed the recommendations set forth in the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA)¹².

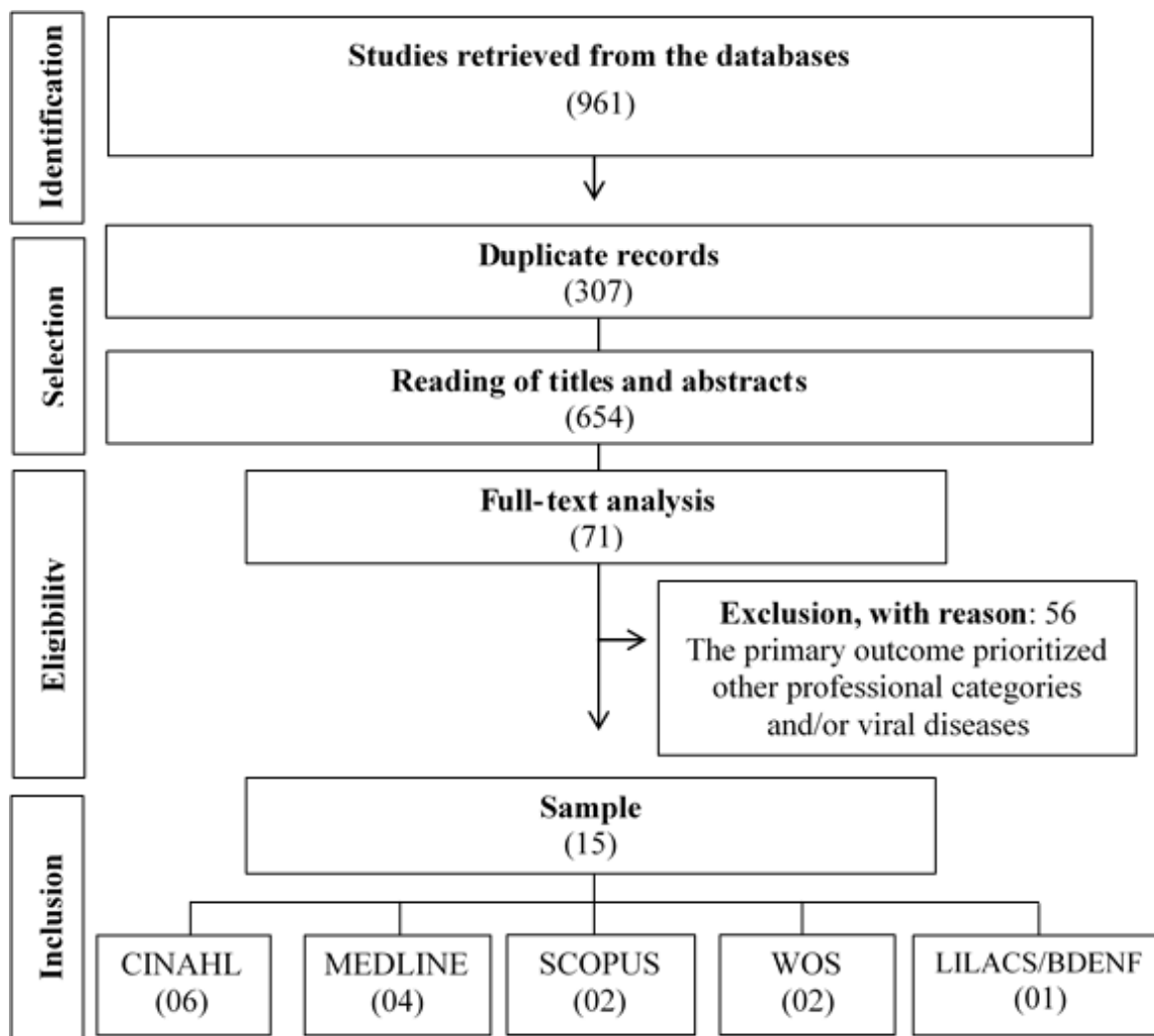


Figure 1 – Path corresponding to the selection, inclusion and composition of the sample. Teresina, PI, Brazil, 2021.

For data collection, a validated instrument was adapted¹³, prioritizing variables related to the identification of the studies (main author, title, year and country), methodological aspects (design and level of evidence), the outcome evaluated, the main results and the conclusions.

The Level of Evidence (LE) was determined based on the recommendations proposed by the Oxford Centre for Evidence-based Medicine, which considers the following: 1A - systematic review of randomized controlled clinical trials; 1B - randomized controlled clinical trial with narrow confidence interval; 1C - therapeutic results of the “all or nothing” type; 2A - systematic review of cohort studies; 2B - cohort study (including lower quality randomized clinical trial); 2C - observation of therapeutic

results or ecological studies; 3A - systematic review of case-control studies; 3B - case-control study; 4 - case reports (including lower quality cohort or case-control); and 5 - experts' opinion¹⁴.

The analysis was descriptive, employing calculation of relative and absolute frequencies, as well the characterization, synthesis and presentation of results in charts. For not involving human beings, this study was not submitted to appreciation by any Research Ethics Committee.

RESULTS

The descriptive analysis of the results showed the researchers' growing interest in evaluating the knowledge, attitudes and practices developed by nurses regarding the HBV infection, thus constituting an expressive research phenomenon in different contexts of the national and international literature, involving different countries such as Pakistan, Iran and Brazil, which stood out for concentrating the largest number of productions.

Most of the studies were published in the English language and from 2017 to 2019 (53.3%). As for the methodological design, there was predominance of the cross-sectional approach and level of evidence 2C (100%), with significant samples varying from ten to 518 nurses.

Chart 2 presents the characterization of the productions included (n=15) according to the main author, journal and year of publication, title, country where the study was developed, methodological design, sample and level of evidence.

Chart 2 - Characterization of the productions included. Teresina, Piauí, Brazil, 2021.

Author, year and Journal	Title	Country	Design (Sample)	LE*
Oliveira MS. <i>et al.</i> 2020 ¹⁵ Journal of Epidemiology and Infection Control	Hepatitis B in the western Brazilian Amazon: knowledge and biosafety measures among nursing professionals	Brazil	Cross-sectional (10)	2C
Mursy SMM. <i>et al.</i> 2019 ¹⁶ BMC Public Health	Knowledge, attitude, and practice towards Hepatitis B infection among nurses and midwives in two maternity hospitals in Khartoum, Sudan	Sudan	Cross-sectional (110)	2C
Bajwa A. <i>et al.</i> 2019 ¹⁷ Indo American Journal of Pharmaceutical Sciences	A cross-sectional research to determine the level of awareness, preventive behavior and perceived threat of hepatitis-b	Pakistan	Cross-sectional (330)	2C
Potdar PA. <i>et al.</i> 2019 ¹⁸ Indian Journal of Public Health Research and Development	Knowledge, attitude and practice regarding hepatitis B infection among nursing staff of tertiary care hospital in South India	India	Cross-sectional (145)	2C
Khanum F. <i>et al.</i> 2018 ¹⁹ Pakistan Journal of Medical & Health Sciences	Preventive practices of nurses against Hepatitis B infection	Pakistan	Cross-sectional (120)	2C
Konlan KD. <i>et al.</i> 2017 ²⁰ BMC Health Services Research	The level of nurses' knowledge on occupational post exposure to hepatitis B infection in the Tamale metropolis, Ghana	Ghana	Cross-sectional (108)	2C
Karami BM. <i>et al.</i> 2017 ²¹ International Journal of Advanced Biotechnology and Research	Knowledge, perceived threat and prevention behaviors intention of hepatitis B among nurses	Iran	Cross-sectional (330)	2C

Chart 2 – Cont.

Author, year and Journal	Title	Country	Design (Sample)	LE*
HAQ N. <i>et al.</i> 2017 ²² Value in Health	Assessment of nurse's knowledge, attitude and practice regarding hepatitis-b infection in tertiary care public hospital in Quetta - Pakistan	Pakistan	Cross-sectional (384)	2C
Cetinkaya S. 2014 ²³ Coll Antropol	The theoretical and practical knowledge of nurses and midwives regarding to the hepatitis-B virus (HBV) vaccination: a cross-sectional study in Konya -Turkey	Turkey	Cross-sectional (127)	2C
Goncalves ICM. <i>et al.</i> 2013 ²⁴ <i>Revista Latino Americana de Enfermagem</i>	Knowledge, attitudes and practices of nurses and doctors about the vertical transmission of hepatitis B	Brazil	Cross-sectional (35)	2C
Chao SD. <i>et al.</i> 2012 ²⁵ Journal of Obstetric, Gynecologic & Neonatal Nursing	Low levels of knowledge and preventive practices regarding vertical hepatitis B transmission among perinatal nurses	United States of America	Cross-sectional (518)	2C
Mohammadi N. <i>et al.</i> 2011 ²⁶ Hepatitis Monthly	Percutaneous exposure incidents in nurses: knowledge, practice and exposure to hepatitis B infection	Iran	Cross-sectional (138)	2C
McGrane J. <i>et al.</i> 2003 ²⁷ AAOHN Journal	Nursing staff knowledge of the hepatitis B virus including attitudes and acceptance of hepatitis B vaccination: development of an effective program	Ireland	Cross-sectional (120)	2C
Spence MR. <i>et al.</i> 1990 ²⁸ Infection Control & Hospital Epidemiology	Hepatitis B: perceptions, knowledge and vaccine acceptance among registered nurses in high-risk occupations in a university hospital	USA	Cross-sectional (334)	2C
Yen DOH. <i>et al.</i> 1985 ²⁹ Journal of Advanced Nursing	Nursing knowledge of hepatitis B infection	Scotland	Cross-sectional (112)	2C

*LE: Level of Evidence.

In the analysis of different outcomes, such as behaviors, attitudes and professional practices, the knowledge assessment prevailed in the studied sample. Other contexts investigated involved the perception of threat and the professional courses of action adopted for biosafety, self-care and case management in the face of occupational exposure and the occurrence of percutaneous incidents (Chart 3).

Amid awareness raising of the risk and state of vulnerability to the infection, there were limitations in knowledge that involved the preventable nature of the disease, the transmission mechanisms and the prevention measures. In addition, it was evidenced that the care practices are commonly neglected and that the attitudes were materialized inconsistently, resulting in the sporadic use of Personal Protective Equipment (PPE), underreporting of the disease and work-related incidents, inadequate risk management and failures to monitor symptoms and complications and to refer patients for specialized evaluation.

Among the factors associated with the inconsistencies in professional knowledge, practices and attitudes, the following stood out: low offer and participation in permanent education activities, sporadic and inappropriate use of PPE, limitations in the availability of immunization tests (anti-HBs) and underreporting of occupational accidents. In addition, conditions related to age, training level and workload were determinant for greater vulnerability to the infection and for the development of risk behaviors.

Other conditions were evidenced, such as the absence of a complete vaccination schedule, the failures in adherence to protocols and preventive practices, and the high prevalence of injuries with sharps and of mucocutaneous exposure to body fluids.

Chart 3 - Main results, outcomes and conclusions. Teresina, Piauí, Brazil, 2021.

Outcome assessed	Main results and conclusions	Factors that contribute to higher risk
Knowledge about the biosafety measures ¹⁵	Satisfactory knowledge was verified in relation to the transmission means, the need for strict biosafety measures, the vaccination schedule and the prevention methods in cases of biological accidents.	Low training offer, sporadic use of PPE, limitations in the provision of immunization tests (anti-HBs) and underreporting of accidents.
Knowledge, attitudes and practices ¹⁶	Average and imprecise knowledge about post-exposure management and prophylaxis, search for a safe practice and favorable attitude towards the preventive measures. High prevalence of professionals with incomplete vaccination schedules was also verified.	Low vaccination coverage level and high rate of work-related accidents with sharps.
Knowledge, behaviors and practices ¹⁷	Low perception of risk and of knowledge regarding the transmission means. In addition, the educational level was a predictor for the intention of safe behaviors and adherence to the prevention measures.	Older age, training level, high work hour load.
Knowledge, attitudes and practices ¹⁸	Knowledge about the infection was adequate and the attitudes were positive. The main deficits in knowledge were associated with the transmission means, the vaccination schedule and the unavoidable nature of the disease.	Absence of a full vaccination scheme and failures in adherence to recommendations, protocols and preventive practices.
Knowledge and preventive practices ¹⁹	Sound knowledge about the complications and transmission. Regarding preventive practices, screening and notification of occupational accidents, vaccine completeness, and non-sharing of hospital materials stand out.	Low level of knowledge represents a risk condition, as not all the professionals correctly implement the prevention measures against vertical transmission.
Knowledge about occupational post-exposure ²⁰	Despite awareness about the risk, care performance and the state of vulnerability to HBV, knowledge gaps were identified, being associated with the recognition of the occupational environment as an infection means, as well as with post-exposure management and the establishment of prophylactic courses of action.	Work environment, absent and/or incomplete vaccination scheme, fear and accessibility to the vaccine.
Perception of threat and prevention behaviors ²¹	The adoption of preventive behaviors was related to the higher schooling level, the perception of threat to diseases and the high prevalence of complications.	Schooling level.

Chart 3 – Cont.

Outcome assessed	Main results and conclusions	Factors that contribute to higher risk
Knowledge, attitudes and practices ²²	Adequate knowledge and positive attitude were verified, but also inadequate practices in relation to occupational accidents, thus influencing higher incidence and transmission of the disease.	Inadequate biosafety practices.
Knowledge and practice ²³	It becomes necessary to implement training programs involving Hepatitis B markers, vaccine administration techniques, doses, adequate records and guidelines to patients and families. Higher levels of knowledge were related to the training level, as well as to the professionals who participated in continuing education activities.	Training time and schooling level.
Knowledge, attitudes and practices about vertical transmission ²⁴	Despite recognition of the disease as a health problem of compulsory notification and the stages of the vaccination schedule, there were deficits in knowledge about the courses of action to prevent transmission to the newborn, in serological markers, and in the indication of vaccination during prenatal care.	The level of knowledge, attitudes and practices can reveal that the population may be at risk for infection, since not all the professionals involved know or adequately perform the control strategies.
Knowledge and preventive practices regarding vertical transmission ²⁵	Knowledge was limited and the preventive practices were usually neglected or performed inconsistently. Underreporting of the disease, non-indication of a vaccine schedule and failures in the referral for specialized evaluation and in the monitoring of symptoms, complications and risk of death were identified. These results represented an opportunity for training and qualifications targeted at the best practices and clinical courses of action.	Low participation in permanent education activities.
Knowledge and practices related to exposure to percutaneous incidents ²⁶	The inaccurate level of knowledge represented an occupational risk and contributed to the adoption of unsafe practices. Failures were identified in the use of PPE, in handling after direct contact with body fluids and in disposal of sharps. Despite this, the levels of vaccination coverage, post-vaccination testing and the development of protective antibody titers were expressive.	High prevalence of injuries with sharps and high mucocutaneous exposure to body fluids.
Knowledge, attitudes and acceptance regarding vaccination ²⁷	The participants presented good understanding of the infection, high vaccination coverage and high demand for testing to measure the level of antibodies.	The factors influencing acceptance of the vaccine included free availability and information about the benefits, usually provided by specialists in occupational health.
Perception and knowledge about acceptance of the vaccine ²⁸	Failures were verified in the knowledge about the transmission mechanisms, as well as low vaccination coverage in the professionals surveyed.	Fear of the side effects and of contracting AIDS or Hepatitis, and doubts about the efficacy indicators.
Knowledge ²⁹	Despite recognition of the need for epidemiological control, lack of knowledge was evidenced, showing considerable gaps about the natural history of the disease, transmission mechanisms and morbidity and mortality indicators.	No associated factors were described.

DISCUSSION

The analysis of the knowledge, attitudes and professional practices developed by nurses towards HBV proves to be a necessary resource for the development of good Nursing care practices and for providing the basic action instruments based on evidence and on quality, effectiveness and safety elements.

There is a growing interest in researchers in evaluating the professional knowledge, attitudes and practices, especially in the international scenario in recent years, through studies with cross-sectional designs, which, despite not establishing cause-and-effect relationships, consider relevant methods for the clinical Nursing practice for requiring less time and cost, being constantly used to indicate prognoses and to evaluate results of exposure to risks¹⁵⁻²⁹.

The evaluation of the knowledge outcome was predominant in the studies included, constituting a basic instrument for clinical decision-making and for the implementation of prevention and biosafety measures. In general, knowledge was characterized by limitations and deficits that involved the preventable character of the disease, as well as the transmission and control mechanisms^{15-20,22-29}.

Two studies considered that the professional's knowledge is determinant for the consolidation of the evidence-based practice, which should be a constant target of evaluations and, in the face of inconsistencies, a parameter for the development of continuing education activities, aiming to qualify care and reduce the direct and indirect costs, whether financial, physical, psychological or social¹⁶⁻¹⁸.

The main inconsistencies involved the transmission mechanisms, the sporadic use of PPE and the failures in the monitoring of symptoms and complications, as well as the referral of patients for specialized evaluation, resulting in diagnostic delays and in inadequate management of the clinical conditions^{15,25-26,28-29}.

Added to this is underreporting of the disease and of occupational accidents, as well as low availability of tests for the detection of the anti-HBs marker, which indicates immunity through previous vaccination, and failures in case management, which were also significant, representing a potential risk for different population groups, given the absence of data that show the magnitude of the problem and allow for the proper implementation of prevention strategies^{15,25}.

In addition to gaps in knowledge, underreporting of Hepatitis B can be associated with difficult access to diagnostic methods, thus making it impossible to estimate the real number of cases and evaluate the efficacy of the control measures¹⁵.

The evaluation of the care practices for the control of vertical transmission was also investigated, showing that the limitations in knowledge and the deficiencies in the provision of training or qualification can influence the potential for chronicity of the disease, configuring it as a public health problem in Brazil²⁴⁻²⁵.

Other outcomes evaluated involved the perception of threat, self-care and case management regarding occupational exposure and occurrence of percutaneous incidents, showing that professional training prioritizes the development of knowledge, strategies and action plans aimed at managing the patient's needs, with self-care being constantly neglected^{20-21,26}.

In this context, the high occupational exposure to biological material stands out as a significant problem experienced by nurses working at different health care levels, characterizing the work environment as a predictor for the risk of contamination. In the midst of this, there is high exposure to bodily fluids and occurrence of injuries with sharps, which are of high magnitude in the face of failures in risk management, in the adoption of prophylactic measures and in the absence of a vaccination schedule^{20,26}.

Despite the benefits and importance of the Hepatitis B vaccine, a number of studies have shown low vaccination coverage and seroconversion among professional nurses^{16,28}. Vaccination

against HBV is considered the most effective prevention means, favoring a reduction of the risk of occupational exposure as it presents evidence of quality, safety and protection of up to 92% for immunocompetent adults²⁵⁻²⁶.

Amid this problem, a research study showed that different factors can exert a positive impact on greater acceptance and vaccination coverage among the nurses. Among them, free availability of the resource and broad disclosure of the benefits related to the practice stand out²⁷.

In addition, a number of factors associated with the training level were determinant for greater vulnerability to the infection and adherence to the risk behaviors. It is noteworthy that the professionals with higher training levels are more aware and cautious regarding the assessment, prevention and treatment of the disease, showing even greater care during exposure to bodily fluids. Regarding the workload, relationships were evidenced between high hour load and exposure risk, incidents and adverse events^{17,21,23}.

Thus, despite awareness of the risk and state of vulnerability to the infection, the care practices were commonly neglected and the attitudes were performed inconsistently, reflecting on the effective implementation of programs and public policies aimed at the prevention of Hepatitis B and on compliance with clinical protocols and recommendations¹⁸.

Therefore, it is considered that identifying the knowledge deficit and the inadequate Nursing practices is fundamental for the construction of institutional policies that prioritize the development of permanent education strategies and specific interventions aimed at the population's needs³⁰.

As for the limitation, the predominance of the cross-sectional design is highlighted, which, in spite of involving significant samples and of the clinical relevance, does not allow establishing cause-and-effect relationships, revealing that the development of intervention studies in Nursing is still incipient and little promoted.

Studies of this nature can contribute to the improvement of Nursing care, given their potential for the development of assistance-related skills favorable to the early identification of the vulnerable groups, the effective implementation of prevention strategies, the reduction of occupational exposure and the morbidity and mortality indicators and to the improvement of the population's health status and quality of life.

CONCLUSION

The knowledge, attitudes and practices developed by nurses related to Hepatitis B for risk management, biosafety, vaccination indication and case monitoring, are still limited, being marked by the adoption of inconsistent behaviors and attitudes that can result in greater occupational exposure and in occurrence of incidents.

Among the factors associated with the knowledge, attitudes and professional practices, the training level, workload, d low offer and participation in permanent education activities stood out. In addition to that, few research studies conducted in Brazil were cross-sectional.

The need for new research studies aimed at evaluating the effectiveness and impact of interventions in improving knowledge is evidenced, as well as the adoption of behaviors, attitudes and Nursing practices based on evidence and on safety, quality and effectiveness elements.

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NOTES

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