

Hemotherapy: Identification of interprofessional knowledge among healthcare academics

Hemoterapia: Identificação do conhecimento interprofissional entre acadêmicos da área da saúde

Hemoterapia: Identificación del conocimiento interprofesional entre estudiantes universitarios del área de la salud

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How to cite this article: Hemotherapy: identification of interprofessional knowledge among healthcare academics. Rev Enferm Atenção Saúde [Internet]. 2025 [access:_____]; 15(1): e20257434. DOI: <https://doi.org/10.18554/reas.v15i1.7434>

ABSTRACT

Objective: to identify interprofessional knowledge about hemotherapy among students studying medicine, biomedicine and nursing. **Methods:** This is field research, with a quantitative and qualitative approach. Data collection consisted of analyzing the course's pedagogical project, through interviews. **Results:** the presence of the hemotherapy theme was not formally identified. The feedback provided revealed weaknesses in the teaching of the topic within the courses, demonstrating that students have insufficient knowledge on the topic, which can lead to unpreparedness on the part of future professionals to take on responsibilities in this procedure. **Conclusion:** the importance of approaching pedagogical content aimed at the context of interprofessionality with students is understood, favoring adequate academic training. It is suggested that course coordinators restructure and reformulate the teaching plan, with the implementation of hemotherapy as a mandatory subject.

Descriptors: Knowledge; Hemotherapy Service, Students, health Occupations.

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RESUMO

Objetivo: identificar o conhecimento interprofissional sobre hemoterapia entre os acadêmicos dos cursos de medicina, biomedicina e enfermagem. **Métodos:** Trata-se de uma pesquisa de campo, com abordagem quanti qualitativa. A coleta de dados consistiu na análise do projeto pedagógico do curso, por meio da realização de entrevistas. **Resultados:** não se identificou formalmente a presença da temática hemoterapia. As devolutivas fornecidas revelaram fragilidades no ensino do tema dentro dos cursos, demonstrando que os alunos possuem conhecimentos insuficientes sobre a temática, o que pode gerar um despreparo dos futuros profissionais para assumirem responsabilidades nesse procedimento. **Conclusão:** compreende-se a importância de se abordar com os acadêmicos conteúdos pedagógicos voltados para o contexto da interprofissionalidade, favorecendo uma formação acadêmica adequada. Sugere-se às coordenações dos cursos a reestruturação e reformulação do plano de ensino, com a implementação da hemoterapia como disciplina obrigatória.

Descritores: Conhecimento; Serviço de Hemoterapia, Estudantes de Ciências da Saúde.

RESUMEN

Objetivo: identificar conocimientos interprofesionales sobre hemoterapia entre estudiantes de medicina, biomedicina y enfermería. **Métodos:** Se trata de una investigación de campo, con un enfoque cuantitativo y cualitativo. La recolección de datos consistió en analizar el proyecto pedagógico del curso, a través de entrevistas. **Resultados:** no se identificó formalmente la presencia del tema hemoterapia. La retroalimentación proporcionada reveló debilidades en la enseñanza del tema dentro de los cursos, demostrando que los estudiantes tienen conocimientos insuficientes sobre el tema, lo que puede llevar a la falta de preparación de los futuros profesionales para asumir responsabilidades en este procedimiento. **Conclusión:** se comprende la importancia de abordar contenidos pedagógicos orientados al contexto de interprofesionalidad con los estudiantes, favoreciendo una adecuada formación académica. Se sugiere a los coordinadores del curso reestructurar y reformular el plan docente, con la implementación de la hemoterapia como materia obligatoria.

Descriptor: Conocimiento; Servicio de Hemoterapia; Estudiantes del Área de la Salud.

INTRODUCTION

In today's world, where science and technology are constantly advancing, it is essential to build scientifically grounded and well-founded knowledge, which enables the development of safe, innovative and transformative practices that align professional education with the needs of the population in the health field.¹

The teaching acquired in undergraduate programs must be understood as a fundamental process in the production and dissemination of knowledge

to students, preparing them to face professional challenges. Given this scenario, it is necessary that educational institutions, in their commitment to fostering knowledge, develop active methodologies that encourage students to be protagonists of their learning process, motivating them to actively seek innovative alternatives in the face of new demands and requirements imposed by the health sector.²

According to research found in the literature³, it is up to educational institutions, in their supporting role in the



teaching-learning process, to commit to generating interdisciplinary, intersectoral and interprofessional knowledge, promoting the development of academics' proactive capacity, communication, teamwork, and agility in emergency situations, enabling them to recognize and carry out individualized interventions in response to the needs of each patient.

Among the various educational foundations required for the training of health professionals, understanding and knowledge of hematology and blood-related diseases are essential. Hematology is the study of blood and hematopoietic tissues, and thus, the teaching and study of clinical hematology aims to introduce and provide undergraduates with a range of knowledge regarding hematological disorders, enabling and preparing future professionals to effectively address diseases that compromise blood hemostasis.⁴

Hemotherapy is an invasive practice that involves the transfusion of blood components from the donor to the recipient. In line with technological advances, the development of new processing techniques allows patients to be offered only the blood components and blood derivatives necessary for their clinical progress, thus minimizing the risks arising from this practice.⁵

According to research in the literature⁶, although hemotherapy is a

treatment capable of saving lives and reducing undesirable outcomes, it is worth noting that even when performed in accordance with all safety protocols, it can still pose health risks and complications due to the possibility of transfusion reactions. It is worth noting that professionals without specific knowledge, skills, and competencies in hemotherapy, and a lack of integration and interprofessionalism, can cause complications and irreversible damage that can be fatal to the patient.

Hemotherapy is considered highly complex and carries a high epidemiological risk. Its practice involves multiple stages and the involvement of professionals with diverse backgrounds. Therefore, interprofessional knowledge is required among physicians, biomedical scientists, and nurses, as they are directly involved in the care of patients undergoing this procedure. Therefore, interprofessional knowledge is crucial among all those involved in hemotherapy, as it is a common routine and is present in all hospital departments, such as pediatrics, neonatology, surgical clinic, trauma, oncology, emergency and emergency, maternity, among others.⁷

For some authors⁸, transfusion reactions are defined as adverse events associated with the transfusion of blood components and blood products, which can occur during and after hemotherapy.



Patients undergoing transfusion may present signs and symptoms during the procedure and even 24 hours after its completion. Therefore, it is essential that all professionals involved in the process monitor and monitor the transfused patient, recognizing and identifying any health and safety risks and, if necessary, intervening immediately to prevent further complications.

Despite the scientific and therapeutic importance of hemotherapy, it is observed that professionals involved in the process commit easily detectable errors that often go unnoticed in routine care. Therefore, this study aims to identify interprofessional knowledge about hemotherapy among medical, biomedicine, and nursing students.

METHOD

This is a field study with a qualitative and quantitative approach, conducted at a higher education institution (HEI) located in southwestern Minas Gerais state. The study population included students enrolled in the final semesters of medicine, biomedicine, and nursing programs, and their respective course coordinators. There were 156 students enrolled in this HEI in the 8th semester.



However, 78 nursing students, 37 biomedicine students, and 41 medicine students participated in the study, totaling 119 (76%) students.

Selecting students from the final semesters is justified, as they are presumed to have a greater wealth of knowledge and practical experience. The selection of participating courses in the study is due to the fact that physicians, biomedical scientists, and nurses work directly in the care of patients undergoing hemotherapy.

To collect the data, a structured questionnaire was developed to identify interprofessional knowledge among medical, biomedical, and nursing students. The questions in the structured questionnaire addressed aspects of critical behavior, specific, and interprofessional knowledge of the students, in light of their training and practice as professionals.

A semi-structured interview script was used with the coordinators of the respective courses mentioned. These were carried out at the institution itself, and to record the coordinators' speeches, the voice recording technique was adopted using a cell phone, with their prior agreement and consent, expressed through the signing of the Free and Informed Consent Form (FICF).

The data collected from the questionnaires were entered into Microsoft Office Excel® 2010 spreadsheets and then

organized for interpretation and descriptive statistical analysis. Finally, the analysis consisted of comparing the coordinators' statements with the analysis of the Course Pedagogical Project (CPP) for the aforementioned courses, and the information collected from the students through the questionnaire.

The research respected ethical aspects and was approved by the Research Ethics Committee under opinion no. 5,701,332.

RESULTS

To understand the presence of the topic "Hemotherapy" in the courses investigated, a survey of each PPC was conducted on the institution's website. Thus, it was possible to verify that the specific subject of hemotherapy does not appear in the curricula of the medicine, biomedicine, and nursing programs, and is not a mandatory subject. Subsequently, to assess the knowledge of healthcare students about hemotherapy, to understand their perception of the importance of learning the topic during their undergraduate studies, whether this content was studied, and in which courses the topic was addressed, a questionnaire was developed with questions on the topic. For better understanding, the questions in the instrument were subdivided into two categories: specific knowledge of

hemotherapy and the approach to the topic within the program.

When asked if they knew what hemotherapy was, 108 (91%) students said yes, while 11 (9%) said they had no knowledge about the topic. When asked to indicate the correct concept, 91% (108) of the students stated they had knowledge about the subject, but only 70% (83) indicated correctly. It was found that although almost all nursing students stated they knew what hemotherapy was, only 67% correctly defined its concept, a fact that demonstrates that there are still gaps in knowledge in undergraduate programs.

Regarding hemolytic transfusion reactions, 87% of students indicated the correct answer, while 6% incorrectly selected other alternatives. Seven percent said they did not know how hemolytic transfusion reactions are caused. When asked about the main signs and symptoms, 67% considered any sign or symptom after the blood is administered to be a transfusion reaction, while 44% said they did not.

When asked about situations involving emergency transfusions, in which there is no time to perform compatibility tests, which blood type is recommended, 93 (78%) of the students answered correctly, while 20 (17%) selected other blood types, and 6 (5%) indicated "I don't know." Subsequently, when asked whether family or friends are allowed to decide which blood



type will be transfused into the patient, 94 (79%) of the students indicated correctly, stating that friends and family cannot choose the blood type to be transfused into the patient. Surprisingly, 20 (17%) students indicated "I don't know," demonstrating a lack of knowledge about hemotherapy.

Regarding the approach to the topic during academic training, 92 (77%) of the participants stated that they studied the topic, while 27 (23%) said that the topic was not addressed.

Regarding the way this topic was approached, 82 (87%) responded that they acquired knowledge through theoretical classes, 40 (43%) practical classes, 5 (5%) lectures and 2 (2%) seminars. Once again, it is emphasized that the sum of the variables totals a number greater than 100% due to the same student having marked more than one option regarding the ways of approaching hemotherapy in the undergraduate course.

When asked if during practical classes in undergraduate studies the student had contact with any process involving Hemotherapy, 62 (52%) stated that they had participated, while 57 (48%) said they had not had this content during practical classes. They were then asked about their confidence in performing procedures involving hemotherapy, through the knowledge acquired. The results show that 55 (46%) participants stated that they were

prepared to perform this type of assistance, while 64 (54%) students considered themselves insecure and unprepared to assist a patient undergoing hemotherapy.

Finally, when asked how they consider the approach or study of hemotherapy during their undergraduate studies, it was observed that 71 (60%) of the students evaluated the approach to hemotherapy as insufficient, while 48 (40%) considered it sufficient.

DISCUSSION

Regarding the discussion about the specific knowledge of hemotherapy among the research students, the results found in this study were similar to those of another investigation⁶, in which 33 (86.8%) of the nursing students claimed to know what hemotherapy is; however, only 18 (47.3%) of the students correctly answered its concept. Authors of another study⁹ emphasize that teaching plans in health undergraduate programs offer little space to address the topic, requiring that institutions review and reformulate the PPC and teaching plans, so that future professionals are trained to meet the challenges that the profession demands, ensuring the principles of the DCN.

In this context, it is important to emphasize that the deficiency in teaching is directly associated with the training of professionals who are incapable of working



in processes involving hemotherapy, so that can cause irreversible damage that can be fatal to the patient. Therefore, it is required that teaching and learning in undergraduate courses be in line with the demands and advances of the health sector, so that there is interprofessional rapport among all professionals involved in the hemotherapy process.⁶

Regarding hemolytic transfusion reactions, a 2021 study found that 4,248 adverse reactions were confirmed in the Serious Hazards of Transfusion, and of this total, 84.1% resulted from preventable human error. Some authors⁸ point out that any sign or symptom that appears in the patient during blood administration or even 24 hours after the end of the procedure should be considered a hemolytic transfusion reaction. Therefore, it is essential that undergraduate students have knowledge about the care and possible complications arising from hemotherapy, so that they can recognize, identify, and develop intervention strategies, minimizing any risks to the patient's health.

Regarding the hemotherapy technique, it is important to emphasize that the procedure must follow correct criteria and techniques, and that even so, the risks must be considered.¹¹ Furthermore, some authors⁶ emphasize Ordinance No. 158 of February 4, 2016, of the Ministry of Health, which recommends that before performing

hemotherapy, a compatibility test must always be performed between the donor's red blood cells and the recipient's serum or plasma, since an incompatible transfusion can cause hemolysis and lead to the patient's death.

Regarding the approach to the topic within their course, most students reported having been introduced to the content during their undergraduate studies. Corroborating this finding, a study found in the literature highlights that academic training in undergraduate health programs should provide students with practical notions and theoretical knowledge related to hemotherapy, developing confident and qualified professionals to act and intervene in the process.¹²

It is worth highlighting, however, the persistence of the fragmented teaching-learning model within the logic of uniprofessional practice, based on the provision of isolated knowledge disconnected from interprofessional practice. Thus, interprofessionality constitutes a unique possibility in the process of articulating knowledge and practices, proposing the construction of bonds of interdependence, integrality, strengthening and optimization of networking, interaction, and communication among all professionals involved in the care process.¹³



In this sense, the importance of restructuring pedagogical plans in undergraduate courses is evident, focusing on the insertion and integration of disciplines in health courses, offering students opportunities for comprehensive, interactive and interprofessional learning, fundamental for the training of critical, safe, resolute and qualified professionals to meet the demands and requirements of the health sector.

Supporting this view, another study¹² highlights that in several regions of Brazil, theoretical and practical content are not offered equally in undergraduate health programs. Therefore, we observe gaps between the theoretical foundation and practical knowledge offered in higher education institutions. In this sense, we understand that theoretical classes provide and facilitate teaching and learning; however, it is important that institutions offer theoretical knowledge combined with practical knowledge, allowing students to experience a reality closer to their professional training.

Similar results were reported in another study¹⁰, in which 65% of medical students stated that the training and knowledge acquired during undergraduate studies on hemotherapy were insufficient. The same authors also state that healthcare curricula offer little room for addressing the topic in undergraduate courses,

necessitating the establishment of standardized methodologies and teaching strategies that provide students with sufficient hemotherapy skills and abilities.

Considering the quality of teaching and learning in health courses, with a focus on comprehensive academic training that is sensitive to their field of activity, educational institutions must develop and offer students content that promotes a connection between theory and practice, providing real-life experiences that can support their future professional activity.¹⁴

CONCLUSIONS

The need for improvements in the PPC of biomedicine, nursing, and medicine programs became evident, with a view to interprofessional development and the advancement of teaching and learning in undergraduate health programs. The proposal for interprofessional education advocates breaking away from uniprofessional curricular structures, promoting the integration and involvement of students in their teaching and learning process.

This research demonstrated worrying results regarding the teaching of hemotherapy in the aforementioned courses, demonstrating that the academics studied have insufficient knowledge on the subject, being unable to guarantee safe and



quality care to patients undergoing hemotherapy.

FINANCING:

This research does not have a funding agency, and is financed by the authors themselves.

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RECEIVED: 04/09/24

APPROVED: 06/16/25

PUBLISHED: 08/2025

