

## KNOWLEDGE AND SECURITY OF UNIVERSITY MEMBERS OF THE BIOLOGICAL SCIENCES AND HEALTH AREA ON FIRST AID

Conhecimento e segurança de universitários da área de ciências biológicas e da saúde sobre primeiros socorros

Conocimiento y seguridad de universitarios del área de ciencias biológicas y de la salud sobre primeros auxilios

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### ABSTRACT

**Objective:** the study's goal has been to investigate the knowledge regarding first aid of undergraduate students enrolled in Health Graduation Courses of a Brazilian Public University. **Method:** it is a cross-sectional study with a quantitative approach having all the undergraduate students in the biological sciences and health area as the target population (n=219). **Results:** considering the total number of academics, 146 (67%) answered the questionnaire, and it was found that out of the eight courses, two did not contemplate the first aid topic. Only 17.1% of the students have assessed themselves as prepared to deal with some emergency situations. **Conclusion:** the number of undergraduates in health-related areas unprepared to act when facing frequent emergencies in daily life was considered expressive, then representing insecurity for society in general, and raising doubts about the teaching approach.

**Descriptors:** First aid; Health sciences students; Knowledge; Interdisciplinarity.

### RESUMO

**Objetivo:** investigar o conhecimento sobre primeiros socorros de estudantes da área de ciências biológicas e da saúde de uma universidade pública brasileira. **Método:** estudo transversal, quantitativo, tendo como população-alvo a totalidade de formandos dos cursos de graduação da área de ciências biológicas e da saúde de uma instituição de ensino superior (n= 219). **Resultados:** do total de acadêmicos concluintes, 146 (67%) responderam o questionário, constatou-se que dos oito cursos, dois não possuíam abordagens relacionadas à temática de primeiros socorros. Apenas 17,1% dos estudantes se avaliam preparados para atuarem frente a algumas situações. **Conclusão:** o número de graduandos em áreas relacionadas a saúde despreparados para agir frente a situações emergenciais frequentes no cotidiano

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foi expressivo, constituindo-se como insegurança para a sociedade em geral, e questionamento quanto as ofertas de ensino.

**Descritores:** Primeiros socorros; Estudantes de ciências da saúde; Conhecimento; interdisciplinaridade.

## RESUMÉN

**Objetivo:** investigar el conocimiento sobre primeros auxilios de estudiantes del área de ciencias biológicas y de salud de una universidad pública brasileña. En el caso de los alumnos de la escuela primaria, los alumnos de la escuela primaria de enseñanza superior (n = 219). **Resultados:** del total de académicos concluyentes, El 67%) respondieron el cuestionario, se constató que de los ocho cursos, dos no tenían enfoques relacionados con la temática de primeros auxilios. Sólo el 17,1% de los estudiantes se evalúan preparados para actuar frente a algunas situaciones. **Conclusión:** el número de graduandos en áreas relacionadas con la salud despreparados para actuar frente a situaciones emergentes frecuentes en el cotidiano fue expresivo, constituyéndose como inseguridad para la sociedad en general, y cuestionamiento en cuanto a las ofertas de enseñanza.

**Descritores:** Primeros auxilios; Estudiantes de ciencias de la salud; Conocimiento, Interdisciplinariedad.

## INTRODUCTION

The establishment of the causal link of emergency situations, based on first aid practices, is an essential measure in the field of promotion and protection of individual and collective health.

The Brazilian Ministry of Health defines first aid as the immediate care that must be provided quickly to a person, a victim of accidents or sudden illness, whose physical condition endangers his life, in order to maintain vital functions and avoid the worsening of their conditions, applying measures and procedures until the arrival of qualified assistance.<sup>1,2</sup> In Brazil, the main cause of death are cardiovascular diseases, following external causes (especially car accidents), with traumas occupying the third position.<sup>1,3</sup> Authors affirm that many of the negative outcomes generated by health problems can be avoided with timely action.<sup>4-6</sup>

Given this framework, the training of health workers and society in general is considered of fundamental importance, since no one is free at any time to encounter a situation that demands rapid intervention, where the procedure employed and the speed are valuable aspects in the preventive scope (injuries and deaths).<sup>1,7</sup> Knowledge about this issue, besides constituting a possibility of avoiding negative consequences to the victim, in Brazil, is a way of avoiding undesirable developments before the law. In article 135 of the Brazilian Penal Code, it is exposed that failing to provide relief to victims of accidents or persons in imminent danger, if able to do so, is a crime, regardless of training or occupation.<sup>3,8</sup>

What can be said with theoretical and practical underpinnings is that this first interventionist approach often depends on the outcome of all other stages of treatment and rehabilitation, as well as the individual's integrity, quality of life and survival.<sup>9,6,10</sup>

Due to educational and cultural aspects, it is often felt that college students, especially those in the health area, are prepared to support or act in the face of emergency situations. However, the deficiency in academic training

and the lack of knowledge on the part of university students with regards to the first aid theme, or even urgency and emergency action, is a situation recognized and investigated worldwide.<sup>11,10</sup>

Herein, it is aimed at investigating the knowledge regarding first aid of undergraduate students enrolled in Health Graduation Courses of a Brazilian Public University. This work is justified by the importance and scope of the subject, and constitutes an object of knowledge, prevention, and instruction in the health area as well.

## METHODS

It is a cross-sectional exploratory study that had as a target population the total number of undergraduate students enrolled in Health Graduation Courses of a Public Higher Education Institution (HEI) (graduation year 2017) (n=220), being as follows: 12 (5.5%) Biological Sciences (Bachelor's Degree), 15 (6.8%) Biological Sciences (Licentiate), 26 (11.8%) Physical Education (Bachelor's Degree), 26 (11.8%) Physical Education (Licentiate), 17 (7.7%) Nursing, 33 (15%) Pharmacy, 36 (16.4%) Medicine and 55 (25%) Dentistry. The academics from the nursing course were attending to the penultimate year of graduation due to the restructuring of the curriculum and lack of peers to graduate.

The study was conducted under two methodological steps. The first step involved the documentary analysis of the curricular matrices of all the courses involved in the study. It was the object of investigation the offer of the first aid topic, considering the discipline, the period, the modality and the hourly load offered, according to course. The information was collected in the virtual page of the HEI researched and analyzed descriptively.

The second stage occurred through the application of a semi-structured questionnaire as an instrument for the collection of information, which was based on studies by Maia *et al.*<sup>1</sup> and Queiroz *et al.* (2004).<sup>12</sup> The issues investigated aspects related to the academic viewpoint, regarding knowledge and feelings of security in emergency situations, participation in courses and disciplines that involved the subject, sufficiency of the subjects addressed in the courses offered in the courses and the interest to know more about the theme for their professional training.

A pilot study was carried out with two students from each of the eight biological and health sciences courses, allocated in the years prior to the year of graduation. During the pilot study, the researchers evaluated their understanding of the text, vocabulary used and sensitivity of responses. The pilot study also served as an important means for interviewer training. The application of the instrument was carried out by a single researcher, trained to collect the data and to answer the supposed doubts, without influencing the answers.

The questionnaire was applied collectively, in a classroom, at a time considered opportune and feasible for the students. All students were previously informed about the purposes of the research, and those who agreed to participate signed the Informed Consent Form (ICF) and began completing the instrument. The data were collected

from August to September 2017. The information collected was analyzed and categorized and the results were expressed using descriptive, relative and absolute values.

This study was approved by the Human Research Ethics Committee of the *Universidade Estadual de Ponta Grossa - UEPG* (Legal Opinion No. 2,192,812/2017), respecting the dictates of the Resolution No. 466/12 from the National Health Council.

## RESULTS AND DISCUSSION

Considering the total number of final students, 146 (67%) answered the questionnaire and composed the sample for the present research, being as follows: Biological Sciences (Bachelor's Degree) (n=8, 67%), Biological Sciences (Licentiatehip) (n=13, 87%), Physical Education (Bachelor's Degree) (n=22, 85%), Physical Education (Licentiatehip) (n=21, 84%), Nursing (n=17, 100%), Pharmacy (n=12, 36%), Medicine (n=15, 42%) and Dentistry (n=38, 70%). The losses were due to the students' absence or their refusal to participate in the research.

Based on the curricular matrix of the respective courses, it was observed that, of the eight courses in the large area investigated, two did not have approaches related to the first aid: Pharmacy and Biological Sciences (Bachelor's Degree) (Table 1). Concerning the subjects that fit the theme of the study, it is emphasized that all were previously offered the application of the questionnaire. The approaches considered broad, according to the description of the programmatic content of the respective disciplines, were offered by the courses of Nursing and Medicine, in which there is a resumption of the contents in the obligatory practical activities. In the other courses, the description of the programmatic contents refers to primary approaches, strictly related to emergency situations directed to the respective training areas, with few hours devoted to this purpose, since most contemplate this content only as a topic, having its load shared with several other subjects of the discipline (Table 1).

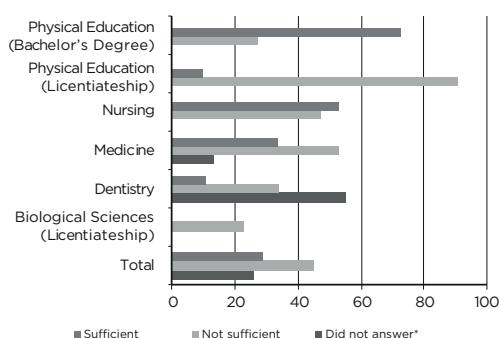
Regarding the participation of academics in training or practical courses internal or external to the institution involving the subject in question, 67 (46%) affirmed

participation, 58 (40%) reported never having participated and 20 (14%) did not respond to this question. Among those who reported having participated, 56 (83%) did so through the university itself, with an intrinsic offer to the disciplines, and the others mentioned the realization of training in the work environment, or through institutions providing private educational services or training courses for drivers, among others.

Among the biological and health sciences courses that did not have in their curricular matrix disciplines dealing with subjects related to emergency and emergency subjects, the Pharmacy course was the only one that presented a course offer in the modality of extension by the institution itself, the which was made available during the academic week of the course, in the premises of the institution and in partnership with the military fire brigade of the *Paraná* State.

Concerning the offer of content, 85 (58%) of the participants stated that they had taken a compulsory course and 4 (3%) in an elective course. Of this total, 43 (47.8%) evaluated the list of subjects covered and the workload as insufficient (Figure 1). In relation to the methodology used for the seizure of information, 17 (19%) reported that the teacher was exclusively using theoretical means, and 72 (81%) stated that it was a discipline of a theoretical and practical nature.

**Figure 1** - Assessment of the discipline that contemplates the first aid, regarding the sufficiency in relation to the workload and subjects covered. Students graduating from the biological sciences and health area. HEI, 2017. (n=90).



\*Some students pointed out the non-relation of subjects in the curricular matrix of the respective courses.

**Table 1** - Offering of disciplines with the topic of first aid according to the considered course, study load, supply period, modality, discipline syllabus and program content. HEI, 2017.

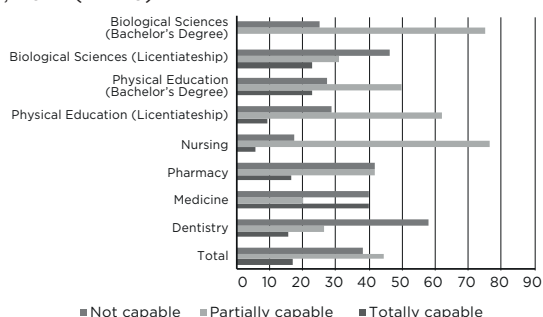
Discipline name (Semester of the offering, study load, modality).	Discipline syllabus/program content related to the theme
<b>Biological Sciences (Licentiatehip)</b>	
Venomous animals (3 <sup>rd</sup> year, 68 hours, optional).	First aid measures in case of accidents. Accidents with venomous marine animals.
<b>Physical Education (Bachelor's Degree)</b>	
1- Notions of hygiene and emergency aid in physical education and sports (2 <sup>nd</sup> year, 68 hours, required).	1- Preventions, identification and first aid with injuries. Recognition of the emergency situation and procedure before the accident and Urgency in Physical Education.
2- Swimming fundamentals (2 <sup>nd</sup> year, 68 hours, required).	2- Theory and practice of First Aid in case of drowning.

Discipline name (Semester of the offering, study load, modality).	Discipline syllabus/program content related to the theme
<b>Physical Education (Licentiatehip)</b>	
(3 <sup>rd</sup> year, 68 hours, required).	Study of accidents related to physical exercises and the practice of sports activity. Prevention and emergency care, the main procedures in bruises, perforations, fractures, drownings, fainting, and cardiorespiratory resuscitation. Attending a normal emergency delivery.
<b>Nursing (Bachelor's Degree)</b>	
1- Fundamentals of nursing care (1 <sup>st</sup> year, 68 hours, required). 2- Emergency nursing (4 <sup>th</sup> year, 68 hours, required).	1- Non-hospital emergency situations and basic life support measures. 2- Nursing care for children, adults and the elderly at the pre-hospital and hospital level, in emergency and emergency situations, in trauma and in clinical emergencies, based on the BLS, ACLS and PHTLS protocols. General considerations about emergency care services and characteristics of the critically ill patient in the context of the Health System. Nursing assistance in emergency care for the patient with: Respiratory, neurological, cardio-circulatory, gastrointestinal function change. Kinematics of trauma. Trauma in all life cycles. Caring for the polytraumatized person. Screening in the Emergency Room. Accident with multiple victims. Exogenous intoxication. Accidents with venomous animals. Burns. Application of clinical reasoning, critical thinking, and principles of evidence-based practice.
<b>Medicine</b>	
1- Medical emergencies (4 <sup>th</sup> year, 54 hours, optional). 2- Internship in clinical urgency and emergency (5 <sup>th</sup> year, 420 hours, required). 3- Internship in surgical urgency and emergency (5 <sup>th</sup> year, 420 hours, required).	1- Acute myocardial infarction. Emergency respiratory care. Burns. Hemorrhage and hemotherapy. Shock state. Accidents with venomous animals. Emergencies in Hematology and Oncology. 2- Practical training in urgency and emergency care units for patients with clinical diseases. 3- Practical training in urgency and emergency care units for patients with surgical diseases and follow-up of prehospital care.
<b>Dentistry</b>	
Dental propaedeutic clinic II (5 <sup>th</sup> year, 68 hours, required).	Medical-dental emergencies.

The data obtained are presented in **Figure 2**, and show that 65 (44.5%) of the participants feel partially apt to act in the face of any emergency situation, 56 (38.4%) do not consider themselves prepared to act under any emergency circumstances, and only 25 (17.1%) are evaluated prepared to deal with some situations, with the Pharmacy and Medicine courses presenting the highest percentage of individuals totally able to act in front of this situation and the one of Dentistry the less prepared.

Conclusively, when questioned about the personal need to participate in courses or training involving the first aid content, in order to develop a sense of security in the face of an emergency situation, 134 (92%) of the participants stated that they needed expanded knowledge and experience.

**Figure 2** - Self-perception of safety and capability to act in emergency situations, by graduation course. Students graduating from the biological sciences and health area. HEI, 2017. (n=146)



The higher education courses, mainly in the area of health and education, are born diffusers of knowledge, and the training and the knowledge of the graduates of the respective areas get reflected in the population in general. The appropriation of this knowledge by society often allows a domain of skills of a technical and instrumental nature, structured from reflective attitudes, and strongly related to health care.<sup>13</sup>

Training in higher education challenges the current context and is responsible for preparing individuals with the intention of making society more just and accessible.<sup>14-6</sup> The Guidelines and Bases for National Education, in their definitions, present the need to stimulate knowledge of the problems of the present world, raising the importance that the training institutions have in preparing the students for the social reality found in our country.<sup>17,14</sup> The inclusion of the first aid theme constitutes as imminent demand in the field of education worldwide, considering the different levels of education, as well as the availability of resources in the most diverse environments.<sup>18,6</sup>

Nevertheless, it was verified in the present study that there is a clear gap in the training of professionals in the biological and health sciences, regarding the availability of courses and courses of short or medium duration that address the theme of first aid (urgencies and emergencies), although in its general aspects. Nursing undergraduate courses (with two subjects on the subject, totaling 136

compulsory hours) and medicine (with two compulsory subjects and one elective course on the subject, totaling 840 hours and 54 hours, respectively) were the only ones that had disciplines of the first aid. Furthermore, in these courses, the subjects were offered in their curricular matrix at initial moments and later, resumed and amplified through the application in practical activities in the local health services. This data can suggest the maintenance of the culture that only these two areas of training have responsibility for the first aid practice, not considering it as competence for life and human health.

The reflection of this low offer of the first aid in the investigated institution can be verified in the negative evaluations as to the adequacy of the contents approached, the workload and the methodologies used. Almost half of the students who studied subjects related to the subject framed the subjects considered as insufficient. This limited workload may result in a poorly productive approach to essential aspects of development with safety in first aid care, and at the end of its supply, retroactive evaluations are not performed.<sup>11,10</sup>

This reality is found in other studies, such as the one carried out with graduates of medical courses of the Anhanguera-Uniderp University of Campo Grande, which also evidenced a negative evaluation in questions of the academic formation, in the list of knowledge conditioned in first aid, for immobilization of fractures.<sup>17</sup>

Moreover, historically the courses of the health area in the universities offer components that approach the theme of first aid,<sup>1</sup> however, they do it in a way directed to the specific demands of each professional field, not embracing a broad representation. The content logic of the fragmentation of knowledge is commonly prioritized in higher education, which requires individual academic effort to engage in the union of the whole, finding epistemic connections.<sup>17,19</sup>

In this sense, it is attributed to innumerable contents the capacity to permeate the different areas of knowledge, as is the case of the subject under debate, and this sharing of information, when adhered by those involved implies mutual engagement in the same direction, resulting in interdisciplinarity and greater effectiveness in actions.<sup>20,13,16</sup>

Interdisciplinarity is characterized as a constant challenge to demand effort and cooperation beyond the training area, generating spaces of sharing and discussion, requiring each involved flexibility.<sup>20,13</sup>

The impact of the low quality and offer of training at the academy level on the first aid topic also directly affects the lack of safety and ability to act in the emergency situations of the interviewed students. Most respondents feel partially apt or unable to act in these contexts. The students of the courses of pharmacy and medicine were the ones that showed more security in this aspect. The aptitude of a considerable portion of medical students in emergency situations may be related to their own practical experiences of this type of situation in their internship and internship fields. On the other hand, the safety feeling reported by pharmacy students may be related to the reported participation in the course of a short-term extension, with a practical theoretical disposition,

made available by the institution and in partnership with a local agency specialized in pre-hospital care.

Given the importance of the quality of higher education in health, also in terms of access to knowledge, it is evident that the mastery and feeling of security in front of the subject matter are elements that facilitate the dissemination of information to others, fostering an efficient social network.

The importance of considering the student's satisfaction with his or her course or discipline has been modernly discussed, based on the assumption that this encompasses the student's perception of reality and serves as a subsidy for the visualization of the need to transform offers and pedagogical practices, and consequently, the quality of teaching.<sup>21</sup> Learning must be a mutual construction, with bilateral protagonism, based on theoretical and practical content that is fed back and should be based on the real and emerging needs of society.<sup>14,19,15</sup> In its general aspect, the learning process should venerate doubts and criticisms, which contribute absolutely to the rise of the quality of teaching.<sup>14,19,15</sup>

The students' evaluation or retrospective consideration of the subject taught is a real need that should be considered by teachers, educational institutions and students as a way of improvement, and mutual adherence and commitment are fundamental. The evaluation allows the visualization of the deficit points and the potentialities of the work developed, so the importance of the creation or adherence of instruments or methods that measure the quality of teaching and learning of the students is fostered.<sup>22,17</sup>

Considering the negative evaluation of the students in regards to the confidence to act in the face of emergency situations and the existing demand, it is questioned about the necessity of inserting proposals of disciplines on the subject under study directed to active teaching methodologies. Among the active teaching, methodologies are those with a problematizing character, due to the high capacity in the scope of integration of knowledge and imminent incentive aimed at critical actions and reflective to the demands.<sup>23,16</sup> Fostering the importance of evaluation and use of methodologies active in the teaching process, a positive experience of the pharmacy course carried out in this institution of higher education is highlighted.

Connecting the academic demands and the possibilities to the institutional scope, the university under study, and the provision of the total hours of the courses demands the fulfillment of a minimum number of hours by the students in optional subjects in the field of diversification and deepening, with participation in complementary curricular activities. Thus, the provision of spaces involving the present theme and favoring, perhaps, the bias of the interdisciplinary action and the disposition of the practical theoretical execution, could be a promising and propelling way for parameters of institutional formative quality,<sup>20,13</sup> since the necessity of learning more about the subject was reported by more than 90% of participants.

The data collection phase is considered to be an important difficulty in the development of the research, since the target subjects were students of the last periods

of the referred courses, and many were not found to be attending practical activities foreseen in the curricular matrix, such as attendance clinical, supervised internships and extramural boarding schools. Another aspect was related to the resolution of the research instrument itself, with the absenteeism of some students, who, after agreeing to participate in the research, partially responded to the proposal.

## CONCLUSIONS

Data show that only a small part of the students feel capable of acting in front of emergency situations, then accentuating the need for training through courses or disciplines offered by the educational institution. The vast majority of participants stated that they have an interest in personal empowerment as a means of acquiring security in emergency situations. Bearing in mind the large number of individuals who have indicated that the course was insufficient, there is a need to adhere to evaluative measures for the offered curricular activities and components, as a way to measure learning and to guide future behavior, as well as to engage in active teaching methodologies.

There is an expressive number of nearly professionals unprepared to act in the face of frequent emergency situations in the daily life, even in the last semesters of their graduation courses, then constituting as insecurity for the society in general, and raising doubts about the teaching approach.

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