

BLOOD DONATION: KNOWLEDGE, PRACTICE AND THE ATTITUDE OF NURSING STUDENTS OF AN INSTITUTION IN THE INTERIOR OF CEARÁ

DOAÇÃO DE SANGUE: CONHECIMENTO, PRÁTICA E ATITUDE DE ACADÊMICOS DE ENFERMAGEM DE UMA INSTITUIÇÃO DO INTERIOR DO CEARÁ

DONACIÓN DE SANGRE: CONOCIMIENTO, PRÁCTICA Y ACTITUD DE LOS ESTUDIANTES DE ENFERMERÍA DE UNA INSTITUCIÓN DEL INTERIOR DE CEARÁ

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ABSTRACT

This study aimed to investigate the knowledge, practice and attitude of nursing students on the process of donating blood. This is a cross-sectional study with a quantitative approach, performed in a private institution of higher education located in the municipality of Ceará-Quixadá. Participants were 232 undergraduate students of nursing. Data collection took place in 2011 using a questionnaire. Statistical analysis was performed using the EpiInfo. The study was approved by the Ethics in Research Committee of the Queen's Hinterland Catholic University. Most students were female (81.0%); the mean age was 22.3 years; 36.2% were between the first and third semesters; 65.5% knew their blood type, and only 17.2% of the students were blood donors. The main reason cited for their donation was free will (85%). In relation to knowledge, in general, the results showed gaps among the students on various aspects of the process of donating blood. Thus, one sees the need to bring the approach to this theme into the higher education institutions in order to improve the knowledge of academicians about the subject.

Keywords: Blood Donors; Knowledge; Students; Nursing.

RESUMO

Objetivou-se investigar o conhecimento, a prática e a atitude de acadêmicos de Enfermagem sobre o processo de doação de sangue. Trata-se de um estudo transversal, com abordagem quantitativa, realizado em uma instituição de ensino superior privada localizada no município de Quixadá-Ceará. Participaram do estudo 232 acadêmicos do curso de graduação em Enfermagem. A coleta aconteceu em 2011, por meio de um questionário. A análise estatística foi feita no programa EpiInfo. O estudo foi aprovado pelo Comitê de Ética em Pesquisa da Faculdade Católica Rainha do Sertão. A maioria dos acadêmicos era do sexo feminino (81,0%); a média de idade foi de 22,3 anos; 36,2% estavam entre o 1º e o 3º semestres; 65,5% conheciam sua tipagem sanguínea; e apenas 17,2% dos acadêmicos eram doadores de sangue. O principal motivo citado para a doação foi a livre e espontânea vontade (85%). Em relação ao conhecimento, de forma geral, os resultados mostraram lacunas entre os acadêmicos sob vários aspectos relacionados ao processo de doação de sangue. Diante disso, percebe-se a necessidade de trazer a abordagem dessa temática para dentro das instituições de ensino superior, a fim de melhorar o conhecimento dos acadêmicos sobre o assunto.

Palavras-chave: Doadores de Sangue; Conhecimento; Estudantes de Enfermagem.

RESUMEN

Este estudio tuvo como objetivo investigar el conocimiento, la práctica y la actitud de los estudiantes de enfermería en el proceso de donación de sangre. Se trata de un estudio transversal, con enfoque cuantitativo, realizado en una institución privada de educación superior ubicada en el municipio de Quixadá- Ceará. Los participantes fueron 232 estudiantes de pregrado de enfermería. La recogida de datos tuvo lugar en 2011 a través de un cuestionario. El análisis estadístico se realizó mediante el programa EpiInfo. El estudio fue aprobado por el Comité de Ética en Investigación de la zona de influencia de la Universidad Católica Rainha do Sertão. La mayoría de los estudiantes era de mujeres (81,0%), la edad promedio era de 22,3 años; 36,2% estaban entre el 1er y el 3er semestre; un 65,5% conocían su tipo de sangre y 17,2% de los estudiantes eran donantes. Según mencionado, la razón principal para hacer la donación fue por voluntad propia (85%). En relación al conocimiento, en general, los resultados mostraron lagunas sobre varios aspectos del proceso de donación de sangre. Se observa la necesidad enfocar este tema en las instituciones de educación superior con miras a que los alumnos profundicen su conocimiento.

Palabras clave: Donadores de Sangre; Conocimiento; Estudantes de Enfermería.

INTRODUCTION

Due to the importance of blood in maintaining life of individuals, its excessive loss can lead to death, and must, therefore, be replaced immediately. The commercialization of blood and its derivatives is not permitted by Brazilian law. Thus, the only way to get blood for transfusion is from donation of people who spontaneously go to transfusion centers.¹

In this context, blood donation is seen as an act that can save millions of lives worldwide. In England, in 2004 alone, one million lives were saved or improved through blood transfusion. In the United States, in the same period, 4.5 million deaths were avoided due to this action.²

In Brazil, there is no data available on how many people die or suffer some damage from lack of blood donation. However, according to an article published by the Department of Health in 2009, it is known that each year only 2.16% of the Brazilian population are volunteer blood donors, a value inferior to the recommended by the World Health Organization, which indicates that three to five percent of the population, related to the total number of inhabitants, should donate blood each year, guaranteeing an optimal rate for the maintenance of regulated blood and its derivative stocks of a country. Different from the Brazilian reality, Canada and England have reached more than five percent.³

A study with medical students from Itajuba (MG) revealed that there were eight times more non-blood donors than blood donors. The main reason for not donating is the fact that people have never been asked, confirmed by almost 80% of non-donors who stated that they would donate if they were solicited. This reality permits identifying the lack of awareness about the act of spontaneously donation.⁴

In another scenario, a study conducted with nurses, physicians and nursing assistants of a Blood Center in Alagoas also identified the reduced quantity of blood donors, showing that although those health professionals know the importance of donation, the number of blood donors among them was still small.⁵

As can be seen, the reduced number of donors in the Brazilian population is a striking reality and can be associated with several factors, including: lack of information about the importance and need of donation; lack of motivation; myths surrounding the process of blood donation; lack of a culture of regular donation; and lack of knowledge by the population about the donation process.³

Therefore, due to the importance of blood donation, affected by the reduced number of donations that is associated with several factors, among them the lack of knowledge about the topic being discussed, it is necessary to perform studies to further investigate this approach, identifying existing knowledge gaps.

Thus, the present study investigated the knowledge, practice and attitudes of nursing students about the process of blood donation. As future health professionals, it is expected that nursing students have intermediate knowledge of the donation process, since they are not a lay and uninformed audience. It is believed that, based on the results of this investigation, indicators that can sensitize professors and coordinators to approach the theme will be identified, in order to improve the students' knowledge in this specific area.

MATERIALS AND METHODS

This cross-sectional study with a quantitative approach was conducted from February to December of 2011, based on the analysis of questionnaires answered by nursing students of a private, higher education institution located in the municipality of Quixada-CE.

The study population was composed of students enrolled in all semesters of the course chosen. For calculation purposes, in the first semester of 2011, there were 304 students enrolled in the nursing undergraduate course. Considering the possible information losses due to refusals, a sample calculation was not performed. Thus, respecting the right of refusal and spontaneity of the subject, the sample consisted of 232 students, which represented 76.3% of the population.

Data collection occurred in the months of September and October of 2011. With previous authorization of the direction and coordination, and after permission of the professor in each classroom, the research objectives were explained to the students present and questionnaires were handed out to those who expressed interest in participating in the study. The questionnaire was based on a validated instrument used in a similar study, conducted with medical students in Minas Gerais.⁴ The questionnaire contained instructions for completion and questions were divided into three parts.

The first part had questions about the personal characteristics of the participants, such as gender, age and school semester. The second part involved questions related to attitudes about and practice of blood donation among the participants. Regarding practice, the number of donors and frequency of donation were identified. Attitude was investigated based on reasons that led the students to donate or not, and their availability to donate if they were solicited.

The third and last part was related to the students' knowledge about the donation process. To do this, there were questions about the several aspects of the donation process, with knowledge considered positive based on correct answers of the questions within the questionnaire. These addressed, among others, the general aspects of the donation process (necessary documentation, age, weight, donation intervals

and frequency, and necessity of fasting) and the blood aspects (if donation was permitted in case of anemia and during the menstrual period, as well as the permitted laboratory values for hemoglobin and hematocrit for donation).

There were also questions about vital signs values allowed in order to donate (temperature, blood pressure and pulse), along with the release for donation in case of health complications (diabetes, allergies, flu, hepatitis, sexually transmitted diseases and dental treatment) and some behavioral habits (tattoos, piercings, alcohol, illicit drugs and sexual behavior).

After collection, data were double entered into a database in the Excel program. For data analysis, descriptive statistics were used (mean and percentages), in order to demonstrate the information or data that occurred more frequently. The computer tool used was the software Epi-Info®, in which the data were tabulated and analyzed. For better visualization, the results were presented in graphs.

All the participants signed the Terms of Free and Informed Consent. The research was analyzed and approved by the Ethics in Research Committee of the Queen's Hinterland Catholic University under the protocol number 20110089.

RESULTS

There were 232 students who participated in this study, enrolled in the nursing undergraduate degree. The age ranged between 18-45 years, with a mean of 22.3 years. The female gender was prevalent (81%), along with students who were enrolled in the first and third semesters (36.2%). The majority of participants (65.5%) were able to indicate their blood type and 46.1% of them belonged to blood type A.

As regarded the performance of previous blood donation, only 17.2% of the students reported being donors. From those, 65% started donating after beginning the university course, and 47.5% stated they had donated only once. Among the reasons that led students to donate blood, free and spontaneous will predominated (85%). Never having been previously solicited was the most related fact for not donating blood, reported by the students (31.8%). It is noteworthy that 30.7% of the students cited fear as a reason for not donating, confirming existent taboos in the process of blood donation, even in the case of students of health area. Although the majority reported not being a donor (82.8%), 70.3% of those declared availability to donate, 22% were undecided and only 7.8% said they did not have this availability.

After characterization of the participants regarding socio-demographic data, practice and attitude towards the blood donation process, the students answered some questions related to knowledge about donation. For better organization and presentation, there was division of the results concerning gene-

ral aspects of blood donation, blood aspects, aspects related to diseases, behavior habits and vital signs.

It is worth noting that, for each question mentioned before, there was only one correct answer, and the others were considered incorrect. In case of not knowing the answer, the student could indicate this statement by checking the corresponding item. Thus, it was possible to group answers in correct, incorrect and unknown for each question. For better interpretation, these data are presented in the following graphs.

Initially, inquires were made about the general aspects of blood donation. To do so, the following questions were asked: what identification document was necessary for donation, what was the allowed age (in years), what was the minimum weight (in kilograms), what was the minimum interval between donations (in months) and what was the maximum annual frequency permitted (in months), and what was the necessity of fasting for donation. The incorrect and correct responses obtained are presented in Figure 1.

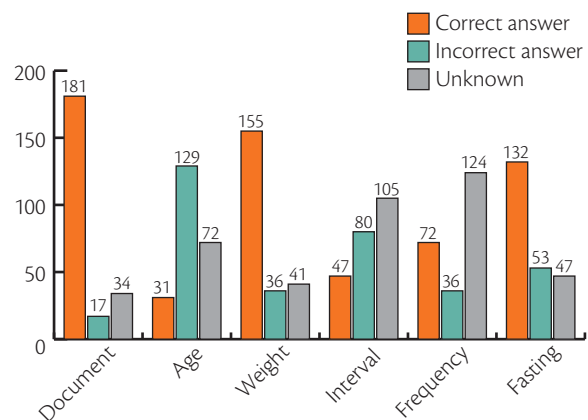


Figure 1 - Participants' knowledge about general aspects of the blood donation process. Quixada, 2011.

Following, the participants were asked about the blood aspects of the blood donation process. For that, it was questioned if people with anemia and women within their menstrual cycle could donate. Also, it was asked what laboratory values of hemoglobin and hematocrit were allowed for donation. The correct and incorrect responses are presented as follows (Figure 2).

Existence of diseases during blood donation was also questioned with the participants. Therefore, it was asked if people with diabetes, allergic diseases, influenza, previous hepatitis, and sexual transmitted diseases could donate. It was also questioned if individuals under dental treatment had any contraindication for donating. Figure 3 demonstrates the incorrect and correct responses of the participants.

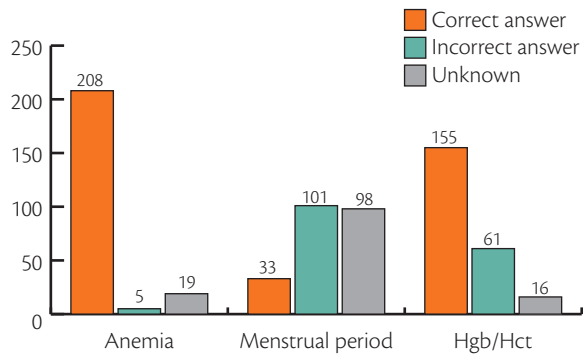


Figure 2 - Participants' knowledge about blood aspects of the blood donation process. Quixada, 2011.

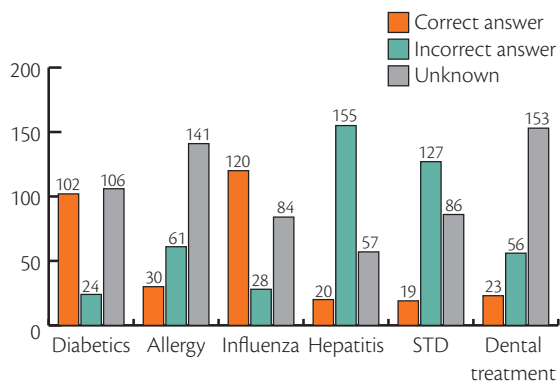


Figure 3 - Participants' knowledge about existence of diseases on the blood donation process. Quixada, 2011.

Students were also questioned about the aspects related to behavioral habits of potential donors. In this way, it was asked if people with tattoos or piercings could donate, if the use of alcohol and intravenous illicit drugs were a contraindication to donation, and if people with risky sexual behavior could donate. Following are the incorrect and correct responses of the participants (Figure 4).

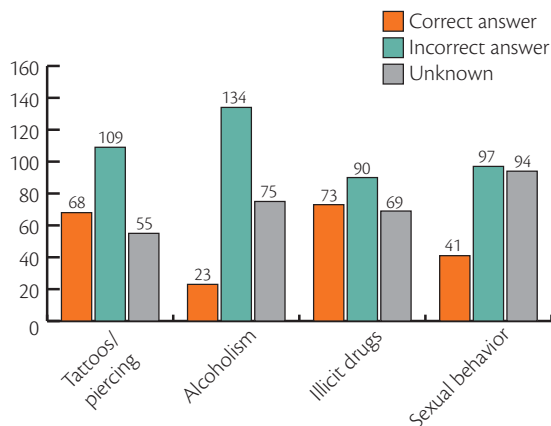


Figure 4 - Participants' knowledge about behavioral habits related to blood donation process. Quixada, 2011.

Finally, the students were questioned about the aspects related to vital signs during the blood donation process. Thus, they were asked about the values for temperature, systolic and diastolic blood pressure, and pulse appropriate for donation; the incorrect and correct responses are presented in the following graphic (Figure 5).

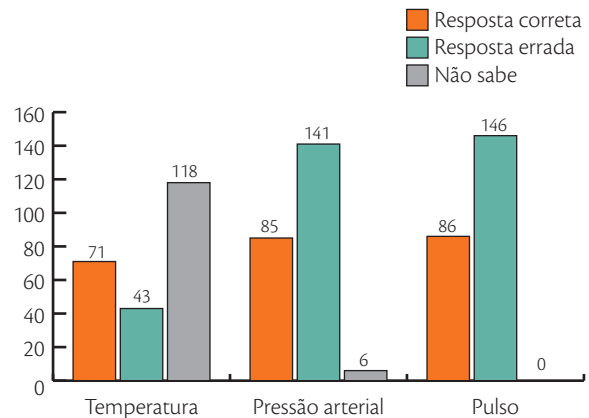


Figure 5 - Participants' knowledge about vital signs during the blood donation process. Quixada, 2011.

DISCUSSION

As observed in the results, there were more female student participants, a common situation in nursing undergraduate courses. This predominance may be related to the historical aspects of this profession that is characterized by the ability of women to care for the human being, while men were seen as being strong and, therefore, had the function of fighting in wars⁶. In the United States, a study showed that female gender was a factor negatively associated with prior history of blood donation, suggesting investments that would motivate women and also to enlighten the population in relation to myths and taboos related to donation.⁷

The students were, on average, 22 years old and all were over 18 years of age, revealing that they were of the permitted age for blood donation. Regarding the distribution of students in the semesters of the course, there was a larger participation of students in the first semester of the course. It is common to perceive a reduction in students of a graduation course throughout the semesters. Many students withdraw because they choose another profession or transfer to other institutions. Besides that, the reduced number of students in the final semesters can be explained by the fact that they have practical lessons outside the institution, making it difficult to find them in the classrooms.

In a research study conducted with medical students of Santa Catarina, also more than half were female. In terms of age, the mean was 22.3 years, similar to the current study in question. In the classification by stages of the course, 36% were

between the first and fourth phases, 33% were enrolled between the fifth and eighth phases, and 31% were between the ninth and twelfth phases, also demonstrating more interest among the beginners of a course.⁸

In relation to the practice of donation, only 17.2% of the students reported being blood donors, and 65% of them started the donations after beginning their undergraduate course. Even though most of the donors had initiated the donations after the beginning of the course, what was noted was that the practice of blood donation is relatively low among nursing students in the city of Quixadá. The fact the students began donation after starting the course may not be related to the incentive of becoming a future health professional, but could be related to the allowed age for donation, which coincides with the age group of individuals who begin college.

Low prevalence of donation among health area students was also found in other studies in the extreme south of Santa Catarina,⁶ in Minas Gerais,⁴ and in São Paulo.⁹ By analyzing these results, the contradiction between the number of donors belonging to healthcare courses, those having the knowledge of the importance of the act of donation, and future professionals who will have the role of encouraging donation among the lay public can be highlighted.

Another fact worth mentioning is that among those who reported being donors, 47.5% did so only once, reiterating the low frequency of donations among them. When questioned about the reasons that led them to donate blood, there was diversity between responses, with free will, however, being more prevalent. This prevalence can be considered positive, showing that, although there are some rewards for donation, young people did so willingly.

As can be seen, the main reason that led individuals to donate was helping someone, whether known or not. In other research, students also cited as key reasons their free will, the need to help a family member or a known person, as well as the satisfaction of doing a good deed.^{4,6,9,10}

The results revealed that a large part of the students would be donors if they were asked to participate in such an action, or if they had extensive knowledge about the subject. It is known today that blood donation has become a social responsibility and that it is up to each person to do his or her part. These data suggest that strategies should be undertaken to increase awareness of people about the importance of this act. In order to accomplish this, campaigns within the universities can be undertaken, which should be a commitment of higher education institutions. Taking into consideration that many students cited not being donors due to lack of encouragement and fear, information and incentive campaigns can be strong allies in raising donation among university students.

When asked about the knowledge related to general aspects of the donation process, regarding the required docu-

mentation, the majority of students said that for any type of identification with a photo could be presented for donation, which was the correct answer, according to the Department of Health¹¹ and the Ceará Center of Hematology and Hemotherapy.¹² It is notable that incorrect answers to this question were reported mainly by the students in the second semester of the course, which leads to the realization that, although more experienced and with more time in the undergraduate course, they were the ones who most had incorrect answers; however there was not a statistical significance.

In relation to the age permitted to donate blood, on June 13, 2011, the Department of Health created a new Ordinance, number 1.353, which expanded the age range allowed for donating. Thus, the blood or components donor must be between the ages of 18 and 67 years, 11 months and 29 days; young people of 16 to 17 years of age, with the formal consent of the legal guardian for each donation,¹³ are also permitted.

The present study project was designed and forwarded to the Ethics in Research Committee in the period before the creation of the new ordinance. Thus, it used as reference the age recommended by the National Agency for Sanitary Surveillance (ANVISA) RDC nº 153 of June 14, 2004, which allowed donation by people aged between 18 and 65 years.¹¹

Therefore, when answering that question, most of the teenagers reported that the age permitted for blood donation ranged between 18 to 60 years, showing the lack of knowledge about the correct age. Still concerned with this question, correct answers were mentioned mainly by women, who were between the seventh and ninth semesters, and were not donors; however, there was no statistical significance between the intersections.

With regards to weight, according to the Department of Health,^{11,13} the minimum value required for possible donors is 50 kg. In this way, most of the students could correctly answer this question. Paradoxically, students who were not blood donors had higher rates of correct answers when compared to the donors, and there was statistical significance ($p=0.03$).

As for the minimum interval between two donations, the ANVISA and the Department of Health recommend an interval of two months for men and three months for women.¹¹ The answers were diverse; it is worth mentioning that almost 50% of the students stated they did not know the correct response. The correct responses were prevalent among students who were between the fourth and sixth semesters and were not donors, and there was statistical significance between these associations.

Also related to general data, participants were asked about the frequency of donations permitted annually and more than half of them admitted not knowing the answer. The Department of Health¹¹ affirms that men can donate blood up to four times and woman up to three times per year, with this answer cited by only 31% of the participants. The students who had

more correct responses were female, attended the seventh to ninth semesters, and indicated they were donors. There was a statistical significance only for the last intersection ($p=0.00$).

Another item discussed was the need for fasting for blood donation, and the majority of participants answered no to the question, which was the correct answer. Those who agreed were mostly students from the first and third semesters, but there was no statistical significance. It is worthy adding that, according to the Department of Health, the donor should be offered the possibility of oral hydration prior to the donation. Those who remained in prolonged fasting should receive a small snack, and those who have had a large meal rich in fatty substances, less than three hours before the donation, should not proceed with the process.¹³

At the moment of the screening the donor is submitted to a rapid test to verify the hemoglobin and hematocrit counts. This test serves to evaluate the blood quality and protect the donor health.⁶ If the hemoglobin concentration is less than allowed, the candidate is prevented from donating. As shown in the results, most students responded with the correct answer, that one would not be allowed to donate blood if the person was anemic. Similar results were found by other researchers.⁶

According to RDC number 1532004 of 2004, hemoglobin or hematocrit concentrations in blood samples from candidates obtained by digital puncture or venipuncture must be observed. The hemoglobin concentration for women should not be lower than 12.5 g/dL and the hematocrit should not be less than 38%. For men, the limits are 13 g/dL and 39%, respectively.¹¹ When questioned about those concentrations, most of the participants marked the correct answer.

When questioned if women having their menstrual period could donate, 43.5% answered no and 42.2% said they did not know the answer. Those who agreed more were female students who were not donors, from the fourth to sixth semester, with statistical significance in the last two associations ($p=0.000$ for both). According to RDC nº 153 from 2004, menstruation does not contraindicate blood donation, but if a woman has menstruation-related disease she should be evaluated by a physician¹¹.

In relation to the restriction of donating due to existent diseases, almost half of the participants did not know about the restriction in case of diabetes mellitus. According to the Department of Health and ANVISA, patients with type 1 and 2 diabetes with vascular injury are considered inappropriate for blood donation. Type 2 diabetic patients not controlled are considered temporally inappropriate. This knowledge was present among more students of the first quarter of the course ($p=0.000$).

Also concerning the presence of diseases, the resolution allows donation from asymptomatic allergy patients.¹¹ Only 12.9% of the students answered this question correctly, and more than half of them did not know the answer. It is worth

noting that only five participants of those who claimed to be donors answered that question correctly. This data requires attention, since donors are questioned about the existence of diseases at the time of screening.

Regarding viral diseases, the Department of Health and ANVISA have determined that candidates who present with influenza or who have had flu-like symptoms within seven days prior to donation cannot be accepted for donation.¹¹ The new ordinance states that the candidate with symptoms of cold or influenza, accompanied by body temperature equal to or greater than 38°C, is inappropriate for donation for two weeks after the symptoms disappear. However, the candidate who reports a common cold may be accepted as long as he or she is asymptomatic at the moment of the donation.¹³ When asked about the possibility of donation from people with influenza, more than half of the participants marked the correct answer.

Viral hepatitis is a systemic infection that causes necrosis and inflammation of the liver cells, causing a cluster characterized by clinical, biochemical and cellular alterations. The identified types of viral hepatitis are A, B, C, D and E.¹⁴ Based on RDC nº 153, the condition of people who have had viral hepatitis after 10 years of age is a cause of permanent inability to donate.¹¹ When questioned about the possibility of donation from people with a previous history of hepatitis, low knowledge of the students was observed, since only 24.6% of them answered correctly. There was a predominance of those who attended from the fourth to sixth semesters ($p=0.00$). This criteria has been updated by the Department of Health, which increased to 11 years of age the inability for people with previous viral hepatitis to donate.¹³

Candidates who had a sexually transmitted disease (STD) are unable to donate for 12 months the disease has been cured.^{11,13} A reduced number of the participants answered this item correctly; half of them affirmed that the contraindication was permanent, and 37.1% of the others did not know how to answer.

Another issue questioned was the possibility of donation from people who had undergone a recent dental treatment. Most students claimed they did not know the answer, and only 9.9% reported a contraindication for 72 hours, which is the correct answer. The Department of Health and ANVISA determined that the individual undergoing uncomplicated tooth extraction or dental treatment should be refused for donation for a period of 72 hours.¹¹ In other studies, this lack of knowledge was also present.^{4,6}

The students were questioned if people who had tattoos or body piercing could donate. In this regard, the results were quite homogeneous, as 23.7% reported not knowing the answer, 24.6% answered that it was definitely contraindicated, and 29.3% responded that was allowed only for people who have done so over one year ago, which was the correct answer. According to the Department of Health and ANVISA, candi-

dates are disqualified for blood or blood component donation for one year if they have had procedures such as piercing or tattoos without safety condition evaluation.¹¹

Regarding the intake of alcoholic beverages by the candidate for donation, it must be noted that any evidence of chronic alcoholism is a cause of permanent inability to donate, and the acute ingestion of alcohol is contraindicated for donation for the period of 12 hours after the intake.^{11,13} In relation to this question, 9.9% of the students answered that donation is contraindicated for 12 hours after alcohol intake, 22.8% answered that donation can be contraindicated definitively under any evidence of alcoholism, regardless of the period of intake, and 32.3% reported not having knowledge about this subject.

The Department of Health, still related to lifestyle, determined that people with current or past history of intravenous drug use are considered permanently unable to donate blood. It also warned that both arms of the candidate should be inspected to detect evidence of frequent use of illicit parenteral drugs. The presence of these signs determines definitive inability to donate.^{11,13} Although answers were well divided among the participants, the majority answered there was a definitive contraindication in the case of illicit drug use. More knowledge was observed among students enrolled in the seventh to ninth semesters ($p=0.01$).

When asked whether people who had risky sexual behavior could donate blood, most claimed not to know the answer. The Department of Health makes it clear that for the period of one year the following were unable to donate: men and women (and their partners) who have had sex in exchange for money or drugs; victims of rape or those who had sex with casual partners without use of condoms; people who had sex with others that were reagent for anti-HIV test, hepatitis B and C or had other infections transmitted sexually or through blood.¹¹ The new ordinance determined that sexual orientation should not be used as a criteria for selection of blood donors, because it does not constitute a risk in itself.¹³

Finally, the students were asked about the interference of vital sign values at the time of donation. Regarding temperature, the majority declared not knowing the proper value for donation, and 30.6% responded that the value should be less than 37°C, which was the correct answer, according to the Department of Health.^{11,13}

As for blood pressure, more than half of the students said that systolic blood pressure should not be less than 120 mmHg or greater than 160 mmHg and that the diastolic blood pressure should not be less than 80 mmHg or greater than 120 mmHg, demonstrating lack of knowledge in this subject. According to the Department of Health, the systolic blood pressure should not be lower than 90 mmHg or higher than 180 mmHg and diastolic blood pressure should not be less than 60 mmHg or higher than 100 mmHg.¹¹ It is noteworthy that,

in the new ordinance, the Department of Health summarized the item by discussing only maximum values: the systolic pressure should not be higher than 180 mmHg and diastolic pressure should not be higher than 100 mmHg. Furthermore, donors with the limits of blood pressure outside the parameters described can only be considered suitable for donation after qualified medical evaluation.¹³

Regarding the pulse adequate for donation, in 2004 the Department of Health made it clear that the candidate must present a pulse with normal characteristics, regular pattern and frequency between 60 and 100 bpm.¹¹ With the new ordinance there was a small change, with candidates with a rate between 50 and 100 bpm being accepted.¹³ According to the results, the percentages of answers were similar and the correct answers were chosen mainly by women ($p=0.01$), attending between the seventh and ninth semesters ($p=0.00$), and those who were not donors ($p=0.00$), with statistical significance in all associations.

FINAL CONSIDERATIONS

The present study aimed to investigate the knowledge, practice and attitude of nursing students of a higher education institution on the process of blood donation. Overall, the results showed the students lacked knowledge of various aspects related to the process of blood donation. Although a reduction in the practice of donation was detected, students expressed positive attitude towards the process, stating that they would be able to donate if they were solicited.

It is hoped that the results of this study may contribute not only to the scientific literature about the process of donating blood, but also with a detailed analysis of the reality of these students, so that changes in the academic environment can be made, focused on information and awareness of the importance of blood donation in the investigated population.

It is worth mentioning that the results revealed the reality of a small portion of the national population, as only undergraduate nursing students from a college in the interior of Ceará were investigated. Thus, a deepening of the theme, starting from the conduct of new studies involving the most diverse strata of the population is suggested.

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