World Journal of Advanced Research and Reviews
eISSN: 2581-9615 CODEN (USA): WJARAI
Cross Ref DOI: 10.30574/wjarr
Journal homepage: https://wjarr.com/

(RESEARCH ARTICLE)

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First aid knowledge among nursing students: A cross-sectional study

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World Journal of Advanced Research and Reviews, 2025, 26(01), 3778-3783

Publication history: Received on 18 March 2025; revised on 26 April 2025; accepted on 28 April 2025

Article DOI: https://doi.org/10.30574/wjarr.2025.26.1.1511

Abstract

Aim of the study: This study aimed to measure the level of knowledge of nursing students about first aid and compare the differences between second-and-third years students. Assessing this knowledge is crucial for understanding the effectiveness of their education, and identifying areas for improvement need.

Methodology: A cross-sectional comparative study was conducted at the Faculty of Technical Medical Sciences, University of Elbasan, Albania. A structured questionnaire, adapted cross-culturally, was used to assess students' knowledge related first-aid. The data were analyzed using IBM SPSS Statistics version 27.0.

Results: The findings indicate that 93.5% of students had previously heard about first aid. We noticed a statistically significant difference (p = 0.002) in self-reported knowledge between second-year (99%) and third-year students (88%). Fracture-related first aid was the topic with the highest correct answers rate, while the management of bites had the lowest correct responses rate. A significant correlation (p = 0.015) was found between prior knowledge and overall first-aid student competence. The majority of the students showed moderate first-aid knowledge. The exposure to first-aid information was the key factor of their knowledge.

Conclusions: These results highlight the need for universities to integrate more comprehensive training programs. To explore first aid knowledge and attitudes among diverse educational and community settings, further study is required.

Keywords: Education; First aid; Knowledge; Nursing students

1. Introduction

First aid is defined as the primary, immediate, and temporary care given to an injured or sick person in situations that put his life at risk and consists of taking some effective actions to keep him alive and in the best possible condition of the injured person until emergency medical service and treatment can be provided [1]. First aid can be given by everyone in any situation, as long as they have acquired the basic knowledge on how to give it. First aid education should be comprehensive, promoting life-supporting behaviors [2]. The main objectives of providing first aid include preserving life, reducing the level of pain and suffering, preventing further injury, and promoting healing [3].

The training of citizens in our country is applied through the First Aid Program organized by the Albanian Red Cross through several demonstration activities of techniques in schools, kindergartens, universities, institutions, and in the community, wich is considered as a good strategy for citizens to acquire basic knowledge [4]. The Albanian Red Cross is a voluntary humanitarian association that comes to the aid of state bodies at the central and local level for

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humanitarian issues throughout the country, relying also on the law of the Republic of Albania. The first aid program aims to educate communities on the importance of providing first aid according to the guidelines of the Global Reference Center for First Aid, thus providing up-to-date, quality, and professional information to save as many lives as possible [5].

The inclusion of various information subjects on first aid and cardiopulmonary resuscitation in the teaching programs of medical science faculties helps to increase students' skills on how to manage different life-threatening situations [6, 7]. The important thing is that getting information about first aid in school can potentially educate a large part of the community [8]. Everyone should be aware of the basic skills of first aid in emergencies, especially the students of medical sciences faculties who will be future health care providers [9].

Nursing students, as future healthcare providers, must possess adequate first-aid skills to respond appropriately in medical emergencies. From the literature, we highlight that mass education of the population on first aid is implemented all over the world, as it can bring benefits for the prevention and control of further injuries, the reduction of accidents, the reduction of the accident rate, and the increased safety awareness [10].

This study aimed to: a) determine the level of knowledge of nursing students about first aid; b) compare the level of knowledge between the second and third years of nursing students; and c) explore and determine factors influencing the corresponding information of these students.

2. Methodology

2.1. Study Design and Setting

To fulfill the goals of this paper, a cross-sectional comparative study design was conducted at an Albanian University that offers courses in medical science. The second- and third-year nursing study program students were selected as part of the population. In the University of Elbasan, Faculty of Technical Medical Sciences, over 600 students are enrolled in the nursing program.

2.2. Ethical Considerations

The study adhered to current ethical standards, and it complied with the provisions of the Declaration of Helsinki. Under Albanian law, ethical approval was not required for this non-interventional study. All participants provided written informed consent after we explained the study's purpose and assured them that confidentiality and anonymity would be preserved. Students were informed that their decision not to participate or to withdraw from the study would not result in any academic repercussions.

2.3. Sample Selection

A total of 200 students were randomly selected using non-probability sampling. From each year of the nursing study program, 100 students were randomly selected. The participants' ages ranged from 18 to 30 years.

2.4. Study instrument

A validated questionnaire designed by Star was used, with permission from the main author [11]. The questionnaire consisted of two parts. The first part contained questions on socio-demographic data such as age, gender, place of residence, first aid experience, source of information, training, family members who are healthcare professionals, and emergency number. The second part was designed to provide information about the knowledge of students on first aid, divided into four sections: burns, bites, fractures, and airway obstruction. The sessions are built with binary-choice Yes or No alternatives.

2.5. Cross-cultural adaptation of the questionnaire

After obtaining permission from the main author, the questionnaire was translated into Albanian and adjusted to align with the cultural and linguistic context. The cross-cultural adaptation was made following Beaton’s guidelines [12].

2.6. Data collection

The questionnaire was distributed electronically via Google Forms to all students. Data collection took place between December 2023 and February 2024.

2.7. Data analysis

The study data were analyzed with the statistical program SPSS version 27, employing descriptive and inferential statistical methods. Descriptive data analysis was performed for categorical and continuous variables. Categorical variables (gender, place of residence, experience of first aid, source of information, training, family members who are health care professionals) are presented in frequency and percentage. The continuous variables (age and level of knowledge in each respective session) are presented as mean and standard deviation. For the comparison of variables and the correlation of the level of knowledge with the influencing factors, the chi-square, P-value, and t-test were measured. Statistical significance was determined at $p \leq 0.05$.

Each correct answer was assigned one point, while an incorrect answer was valued to zero points. The total score ranges up to a maximum of 22 points per individual. A new categorical variable was developed based on knowledge level about first aid: low (less than 14 points), moderate (15-18 points), and high (above 18 points).

3. Results

Table 1 Socio-demographic participants' characteristics

Demographic characteristics		**Second year**		**Third year**		**Chi-square**	***P****
		Frequency	Percent	Frequency	Percent		
Gender	Female	74	74%	80	80%	1.016	0.313
	Male	26	26%	20	20%		
Residency	Urban	53	53%	58	58%	0.506	0.477
	Rural	47	47%	42	42%		
Have you heard about First aid	No	1	1%	12	12%	9.955	0.002*
	Yes	99	99%	88	88%		
Source of the first aid information	Internete reading	70	70%	51	51%	13.1	0.004*
	Media	4	4%	8	8%		
	Training	25	25%	30	30%		
	No answer	1	1%	11	11%		
Do you have healthcare professional in the family	No	81	81%	79	79%	0.125	0.724
	Yes	19	19%	21	21%		
Participate in any workshop, training or seminar about first aid	No	56	56%	63	63%	1.017	0.313
	Yes	44	44%	37	37%		
Emergency call	No	22	22%	33	33%	0.120	0.711
	Yes	78	78%	67	67%		
Average age (n = 200) (mean, SD)		20.13 ± 3.466		20.72 ± 1.985			

* Statistical significance $p \leq 0.05$

The overall socio-demographic characteristics of the participants are demonstrated in Table 1. The participants' average ages were 20.13 for the second year (SD = 3.466) and 20.72 for the third year (SD = 1.985). Most of them (74% in the second year and 80% in the third year) are women. In both groups included in the study, more than half report that they have an urban residence, respectively (53%) in the second year and (58%) in the third year. We do not observe significant statistical differences between the two groups in both gender and residence variables. According to the responses, the majority of students reported having information on first aid (99% of the second year and 88% of the third year), with a statistically significant difference $p = 0.002$ between the two groups. In both groups, it was reported that the highest percentage of the source of information on first aid has been obtained from the Internet and reading (second year 70% and third year 51%), with a statistically significant difference between the two groups ($p = 0.004$).

From Table 1, it can be observed that 81% of second-year participants and 79% of third-year participants have healthcare professionals in their families, without a statistically significant difference. Furthermore, the majority of students (56% of second-year students and 63% of third-year students) had not participated in any first-aid training, with no statistically significant difference between the groups.

The results of our study showed that 72.5% of the student participants could properly identify the number to call in case of an emergency. This outcome demonstrated how well-known the ambulance service was in our nation.

The distribution and comparison of first aid knowledge between the two groups for each section were expressed in mean and standard deviation (Table 2). The statistical analysis shows that the lowest average of answers has the bite session in both groups, the second year at 3.32 and the third year at 3.17, with a difference of 0.15 in favor of the second year. The highest knowledge is reported in the fracture session, with the second year having 5.00 and the third year having 5.08, with a difference in favor of the third year with 0.08. No statistically significant differences were observed between the two groups. No significant difference was found between the two groups for all items, including burns, bites, fractures, and airway obstruction (p = 0.311).

Table 2 Distribution and comparison of first aid knowledge between the two groups for each section

	Second year		**Third year**		**Difference**		**t**	**P**
	Mean	**Std. Deviation**	**Mean**	**Std. Deviation**	**Mean**	**Std. Deviation**		
Burn	4.04	0.963	4.29	0.946	-0.250	0.135	-1.852	0.066
Bites	3.32	1.091	3.17	0.995	0.150	0.148	1.016	0.311
Fracture	5.00	1.128	5.08	0.981	-0.080	0.150	-0.535	0.593
Airway obstruction	4.17	0.842	4.30	0.870	-0.130	0.121	-1.074	0.284
Total	16.53	2.062	16.84	2.246	-0.310	0.305	-1.017	0.311

Table 3 shows the level of student's knowledge and the comparison between the two groups included in the study. The participants were divided into three groups based on their level of knowledge about first aid: low knowledge (less than 14 points), moderate knowledge (15-18 points), and high knowledge (over 18 points). Both second-year (67%) and third-year (65%) students have a moderate level of first-aid knowledge, with no statistically significant difference between the groups.

Table 3 Comparison of the level of knowledge between the two groups

		Second year		**Third year**		**Chi-square**	**P**
		Frequency	**Percent**	**Frequency**	**Percent**		
Knowledge Level	Low knowledge	13	13%	14	14%	0.092	0.95
	Moderete knowledge	67	67%	65	65%		
	High knowledge	20	20%	21	21%		

Table 4 displays the correlation between the information about first aid that the students had before the study and the level of knowledge determined by their responses. The information they possessed and their degree of knowledge are significantly correlated statistically, according to the data (p = 0.015). The Pearson correlation coefficient, r = 0.172, indicates a positive association between them. Thus, students' degree of knowledge rises in tandem with their increasing information on first aid, and vice versa (Table 4).

Table 4 Correlation between first aid information and knowledge level categorized

		Have you heard about First aid?	**Knowledge level categorized**
Have you heard about First aid?	Pearson Correlation (r)	1	0.172*
	Sig. (2-tailed)		0.015
	N	200	200

* Correlation is significant at the 0.05 level (2-tailed).

4. Discussion

In this study, 200 students of the Faculty of Technical Medical Sciences in Elbasan took part, of whom 154 (77%) were female. The findings are relatively unequal regarding the gender of the participants because the number of female students in universities in the Albanian state is higher than that of male students. The research participants' ages vary from 18 to 30 years old, with an average age of about 20.5 years.

The data analysis revealed that 187 (93.5%) of the participants had previously heard of first aid. Their primary sources of knowledge were the internet and the information they received at school. Even in previous research on first aid, participants' primary source of knowledge was the Internet [13, 14]. According to the results, students who knew about first aid had the greatest degree of knowledge, with a significant statistical correlation (p = 0.015). Even in the study of Goktas et al., it was discovered that students who benefited from the information from the medical school answered the questions correctly and showed much greater levels of knowledge [15].

Based on our findings, it turned out that most of the participants did not take part in training on first aid, and this did not have a statistically significant impact on their level of knowledge. Earlier research has demonstrated a substantial relationship between first-aid training experience and knowledge level. Research conducted in Jordan highlighted the necessity of engaging in student training and obtaining experience in emergency management, as opposed to our study, in which the majority of participants were not trained, and this had no effect on their understanding [16]. Dahal and Vaidya emphasize the importance of training in boosting participants' overall knowledge [14].

The data analysis discovered that more correct answers were received in the section of questions on fractures in both groups, and fewer correct answers were obtained in the bites part. This conclusion contrasts with a similar study that used the same questionnaire on first aid knowledge among university students [11]. In that research, the fracture section had the lowest average number of accurate responses.

In terms of overall performance, third-year students outperformed second-year students. This might be because third-year students have had elevated exposure to curricula containing first-aid programs.

Our findings revealed that the majority of Technical Medical Sciences students (66%) had a moderate level of knowledge. Paharudin and colleagues conducted a study at a Healthcare University College in Negeri Sembilan, Malaysia, that matched our findings [17]. In this research, the majority of respondents (67.5%) had an intermediate level of knowledge of first aid. This finding is also supported by the results of a study conducted at the University of Kuantan in Malaysia, which revealed that the majority of participants (42.8%) had a moderate level of first aid knowledge, while 33.9% had a high level of first aid knowledge, and 81 participants (23.3%) had a low level of knowledge [18].

5. Conclusion

Based on the findings of this study, it was concluded that most of the students of the Faculty of Technical Medical Sciences, Elbasan, had average levels of knowledge about first aid. More than half of the students stated that they did not take part in informative training on first aid. The primary source of information was through the Internet and what they had read in school curricula. Therefore, the university should play an important role in fostering the development of first-aid knowledge and student abilities. It is critical to provide informative and training programs for students on first aid and emergency intervention procedures. Further study should be conducted to determine the knowledge and attitudes about first aid among various communities in the nation.

Compliance with ethical standards

Acknowledgments

The authors would like to express their sincere gratitude to Dr. Sarwar Arif Star for his kind cooperation and for granting permission to use the first aid questionnaire. They also extend their appreciation to all the students who willingly participated in this study

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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