

Pressure injury prevention: attitudes and knowledge of nursing students

Prevenção de lesões por pressão: atitudes e conhecimento de estudantes de enfermagem

Prevención de lesiones por presión: actitudes y conocimientos de estudiantes de enfermería

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ABSTRACT

Objective: the present study aimed to evaluate attitudes and knowledge in the prevention of pressure injury, from a sample of Portuguese Nursing students. **Method:** a quantitative, cross-sectional study was used. The sampling technique was non-probabilistic and by convenience with 100 students. The "Attitude Towards Pressure Injury" scale and the "Pressure Injury Knowledge Assessment Tool" were applied through an electronic questionnaire. **Results:** students have, on average, positive attitudes towards the prevention of pressure ulcers (mean 47.8), with a minimum value of 36 and a maximum value of 62. It is noteworthy that only in the obstacles factor are data above the mean value (10.4). **Conclusions:** the knowledge assessment of nurses and Nursing students allows for the identification of training needs and priorities, supporting the development of new strategies to improve the quality of preventive care for pressure injury.

Descriptors: Health knowledge, attitudes, practice; Students, nursing; Pressure ulcer

RESUMO

Objetivo: avaliar atitudes e conhecimentos na prevenção de lesões por pressão, de uma amostra de estudantes portugueses de enfermagem. **Método:** estudo quantitativo do tipo transversal. A técnica de amostragem foi não probabilística e por conveniência com 100 alunos. A escala "Attitude Towards Pressure Injury" e a "Pressure Injury Knowledge Assessment Tool" foram aplicadas por meio de questionário eletrônico. **Resultados:** os estudantes apresentam, em média, atitudes positivas em relação à prevenção de úlcera de pressão (média 47,8), apresentando um valor mínimo de 36 e um valor máximo de 62. Realça-se que apenas no fator obstáculos se observam dados acima do valor médio (10,4). **Conclusões:** a avaliação do conhecimento de enfermeiros e discentes de Enfermagem permite identificar necessidades e prioridades de formação, subsidiando o desenvolvimento de novas estratégias para melhorar a qualidade da assistência preventiva à lesão por pressão.

Descritores: Conhecimentos, atitudes e prática em saúde, Estudantes de enfermagem; Lesão por pressão

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RESUMEN

Objetivo: evaluar actitudes y conocimientos en la prevención de lesiones por presión, de una muestra de estudiantes portugueses de Enfermería. **Método:** se utilizó un estudio cuantitativo y transversal. La técnica de muestreo fue no probabilística y por conveniencia con 100 estudiantes. La escala "Actitud hacia las lesiones por presión" y la "Herramienta de evaluación de conocimientos sobre lesiones por presión" se aplicaron a través de un cuestionario electrónico. **Resultados:** los estudiantes tienen, en promedio, actitudes positivas hacia la prevención de úlceras por presión (promedio 47,8), con un valor mínimo de 36 y un valor máximo de 62. Cabe destacar que solo en el factor obstáculos se encuentran datos por encima del valor medio (10,4). **Conclusiones:** la evaluación de conocimientos de enfermeros y estudiantes de enfermería permite identificar necesidades y prioridades formativas, apoyando el desarrollo de nuevas estrategias para mejorar la calidad de la atención preventiva de la lesión por presión.

Descriptores: Conocimientos actitudes y práctica en salud; Estudiantes de enfermería, Úlcera por presión

INTRODUCTION

Pressure injury still represent a significant problem globally. In addition to being a huge problem in social health with far-reaching repercussions in deteriorating the quality of life of those who suffer from them, as well as their families, pressure injury represent a growing care burden, with high costs to the health system.¹⁻³ In a review study about the incidence of pressure injury in Europe, the authors identified a high prevalence of pressure injury (13.7%), with results ranging from 4.6% to 27.2% in the European countries.³ To improve care quality, nursing students should possess up-to-date knowledge and change their attitude concerning the prevention of pressure injury.

Its incidence occurs in the most diverse care environments,⁴⁻⁵ constituting an interest area for Nursing research, such for the incidence/prevalence, such for the particularities of treatment,⁴ as well as in the different impacts resulting thereof, namely the person and their family,⁶⁻⁸ and other caregivers.

The presence of a pressure ulcer increases the permanence time in the hospital from four to 30 days, reducing quality of life, and increasing pain, morbidity and mortality.⁹ They are considered as adverse events that affect care safety in health institutions, with a significant impact on the person, relatives, caregivers and health organizations.^{5,9} That is why a pressure ulcer is internationally evaluated as an adverse event and characterized as a negative indicator of care actions.¹⁰⁻¹²

Considering the negative outcomes emerging from the occurrence of pressure injury, prevention is highlighted as a priority measure being enhanced at a national and global level. In addition to that, the prevention of pressure injury is substantially more economical than wound care.^{9,13} Although pressure injury is related to the quality of the assistance provided, health professionals must be motivated in a positive way so they can be involved in the improvement of patient safety, that is, increase access to the evidence-based guidelines.⁹

Indeed, the prevalence of pressure injury is an indicator of the quality of the hospital assistance, widely accepted as a sensible measure of nursing care.¹² Nurses have an important role in the prevention of pressure injury in health care environments.^{4,13} The interventions to prevent pressure injury play a central role in the early identification of patients at risk of developing injuries, and the nurse's knowledge about the prevention of pressure injury is crucial to evaluate and treat the risk factors.¹⁴

It is emphasized that the need for training is still present in the prevention of pressure injury for the Nursing team, for the faculty, and for the Nursing students,¹² assuming particular importance in the training of nursing students.⁵ That need for skills development knowledge must be acquired during training, in different contexts in which it occurs. It is important that, during training, Nursing students receive sufficient education and develop skills to help to prevent and treat pressure injury.¹⁵⁻¹⁶ The transition from nursing students to qualified nurses is crucial to skills development at this level, as a result of teaching and defined in terms of functional adequacy and capacity to integrate knowledge, skills, attitudes and values in specific situations in the clinical practice.¹⁴

Caring for people with pressures injury requires a high level of knowledge, for the prevention and management of care actions about pressure injury, and it might be taught in the nurses' training.¹⁵ Inappropriate knowledge about pressure injury can have a harmful effect on the preventive care strategies.⁸ A highlight that the

studies show is that the students have relatively limited knowledge on this topic.^{5,12,15} Nursing students have insufficient knowledge about the prevention, classification and treatment of pressure injury, which reinforces that more time must be devoted to wound care (mainly pressure injury) in the training of nursing students.¹⁵

On the other hand, a number of studies show that there is a close relation between the nurses' attitudes and knowledge as factors that influence the prevention of pressure injury.^{2,5,13} The negative attitudes in relation to the prevention of pressure injury can result in preventive care actions below the ideal.¹⁴ Understanding someone's attitude in relation to some question is important because it provides an indication of what can be expected from that person in terms of behavior. Attitudes are considered as crucially important in Nursing, because they help to comprehend how people understand questions and processes in care and how they determine what is important.² Therefore, given that the prevention of pressure injury is a multifaceted problem, attitudes can be important and can influence behavior.^{2,5} In addition to that, the nurses' attitudes develop during their academic training.²

The study was guided by the following questions: What are the Nursing students' attitudes and knowledge towards the prevention of pressure injury? Are there any differences in the Nursing students' attitudes and knowledge towards the prevention of pressure injury based on sociodemographic characteristics and academic year? The present study aimed

to evaluate attitudes and knowledge in the prevention of pressure injury, from a sample of Portuguese Nursing students.

METHOD

A cross-sectional study with a quantitative approach was carried out. The population under study were all the students attending the Nursing course from a school in the North of the country. The Strengthening the Reporting of Observational Studies in Epidemiology checklist for cross-sectional studies was used in reporting this study. The sample was non-probabilistic and for convenience, in which 100 students participated voluntarily. The following inclusion criteria for the sample were defined: age over or equal to 18 years old and currently attending the degree course in Nursing. Compliance with ethical-legal procedures involved an institutional authorization and, before the beginning of the study, such institutional authorization was obtained, and it was positive from the ethical commission (No. 062019). Data confidentiality and anonymity were guaranteed, with the respective coding of all the data obtained. All of the participants accepted to participate in the study voluntarily through validation of the informed consent.

All of the data collection instruments were organized and forwarded through Google® forms, concomitantly with the virtual Informed Consent Form, composed by an elicitation page about the research, as well as the authorization order requested for data use. The request for the Nursing students to participate in

the study was sent through institutional electronic mail. The application of the inquiries throughout the questionnaire was conducted during the last quarter of 2019.

The data collection instrument was a questionnaire with sociodemographic data, including the following: gender, age, academic year and clinical teachings conducted. To assess the attitude about the prevention of pressure injury, the "Attitude Towards Pressure Injury (APU)" scale was used; and, to assess the knowledge about the prevention of pressure injury prevention, the "Pressure Injury Knowledge Assessment Tool (PUKAT)" instrument was employed.

APU is an instrument validated for the Portuguese population,¹⁷ adapted from other study,¹⁸ composed by 22 items that are organized in 5 factors (importance, responsibility, obstacles/barriers, confidence in effectiveness and personal competences). The items are assessed by means of a Likert-type scale – allowing to position in a continuum of attitude variation: 1) strongly agree; 2) agree; 3) disagree; 4) strongly disagree. The lower attitude scores are assigned to more positive attitudes from the respondents. In order to carry out the statistical analysis of the items formulated in a negative manner, reverse scores were attributed to them, according to authors.¹⁷

PUKAT is a questionnaire with 29 multiple-choice questions, which are intended to assess knowledge on the prevention of pressure injury. The items were originally elaborated based on the

scientific evidence in the literature,¹⁸ and adapted to the Portuguese version.^{17,19} It seeks to encompass the most important aspects about this topic, focusing on six major themes: 1) etiology and development of pressures; 2) classification and observation; 3) nutrition; 4) risk assessment; 5) reduction in the amount of pressure; 6) reduction in the duration of pressure. The number of multiple-choice answers is based on the relevance of each question, with only one correct answer.

Data analyses were carried out using Statistical Package for the Social Sciences®, version 25. Descriptive statistics were used to describe the sample characteristics, and the percentages for the students' answers were calculated. Non-parametric tests were conducted to assess the differences between subgroups. The Wilcoxon-Mann-Whitney's U test was used to compare agreement with statements between the two groups, and the Kruskal-Wallis test was employed for examining the differences in more than two groups. A p-value of 0.05 was considered appropriate.

RESULTS

The sample consisted of 100 students; in Table 1 there is a summary of the data obtained from the participant's characterization. Regarding gender, females predominate in the sample of students, with a mean of 69.0% (n=69). Regarding age, we can verify that most of the students are between 22 and 25 years old, 48.0% (n=48). Regarding the academic year, the majority, 36.0% (n=36) is in third year, followed by 33.0% (n=33)

attending second year, 30.0% (n=30) is in fourth year, and 1.0% (n=1) is in first year. The majority refers having training about pressure injury (95.0%, n=95), mostly obtained in theoretical class contexts (86.0%, n=86). However, the contributions of training are mostly referred to as arising from practical classes (51.0%, n=51).

Regarding the question about the perception that the students have about the training available during the course on pressure injury, considering that one is the minimum and 10 the maximum, 25% (n=25) refer values below 5. There are values that vary between 1 and 9, with a mean of 6.3 (standard deviation=1.5) and a median of 6.

Table 2 shows the distribution of the respondents' answers about knowledge on the prevention of pressure injury referring to the PUKAT instrument, according to its different dimensions. The participants reveal having adequate knowledge in the different mean values of the respective factors, Etiology and Development (78%), Classification and Observation (80.5%), Risk Assessment (83.5%), Nutrition (81.5%), Preventive Measures: Reduction in the amount of pressure and shear (83.1%), and Preventive Measures: Reduction in the duration of pressure and shear (88.2%).

In Figure 1, the students' attitudes about the prevention of pressure injury through the use of the APU Scale can be observed in the histogram. For such, the total scores from the scale for each student were used. Given that the lower attitude scores are attributed to more positive attitudes and that the mean

point of the scale is 55 (minimum amplitude 22 - maximum 88), in this study a mean point in the scale of 47.8 (standard deviation=4.103) was obtained, which slightly exceeds the value of the scale. That is, the students

show, in average, positive attitudes in relation to the prevention of pressure injury, showing a minimum value of 36, a maximum of 62, and a mode of 47. It is emphasized that only 3 students present values over 55.

Table 1: Description of the participants, Porto, Portugal, 2019

Variables	N	%
Gender (N=100)		
Male	31	31.0
Female	69	69.0
Age - Years old (N=100)		
18-21	29	29.0
22-25	48	48.0
26-29	19	19.0
≥30	4	4.0
Academic year (N=100)		
1 st year	1	1.0
2 nd year	33	33.0
3 rd year	36	36.0
4 th year	30	30.0
Number of Clinical Teachings Conducted (N=100)		
1 Clinical Teaching Conducted	0	0.0
2 Clinical Teachings Conducted	33	33.0
3 Clinical Teachings Conducted	0	0.0
4 Clinical Teachings Conducted	1	1.0
5 Clinical Teaching Conducted	1	1.0
6 Clinical Teachings Conducted	19	19.0
≥7 Clinical Teachings Conducted	46	46.0
Training on Pressure Injury (N=100)		
Yes	95	95.0
No	5	5.0
Training Duration in hours (N=100)		
1 Hour	4	4.0
2 Hours	72	72.0
3 Hours	19	19.0
4 Hours	5	5.0
Training Context (N=100)		
Theoretical Classes	86	86.0
Practical Classes	10	10.0
Clinical Teachings	2	2.0
Other Contexts	2	2.0
Contributions of Training to Knowledge (N=100)		
Theoretical Classes	41	41.0
Practical Classes	51	51.0
Clinical Teachings	6	6.0
Other Contexts	2	2.0

Source: survey data, 2019.

Table 3 presents the mean of the global scores from the APU scale and its different factors: Importance, Responsibility, Obstacles, and Confidence in Effectiveness and Personal Competences. From observing Table 3, it stands out that it is only in the

Obstacles factor that the data are above the mean value. That is, in the Obstacles factor, which makes references to prevention barriers, the students show, in average, less positive attitudes in relation to the prevention of pressure injury.

Table 2: Descriptive Statistics for the PUKAT¹⁹ Scale Items, Porto, Portugal, 2019

Factors	Scale Items	Correct Answers		Incorrect Answers	
		N	%	N	%
Etiology and Development	PUKAT 1	67	67.0	33	33.0
	PUKAT 2	98	98.0	2	2.0
	PUKAT 3	68	68.0	32	32.0
	PUKAT 4	70	70.0	30	30.0
	PUKAT 5	95	95.0	5	5.0
	PUKAT 12	70	70.0	30	30.0
	Overall Mean		78.0		22
Classification and Observation	PUKAT 6	91	91.0	9	9.0
	PUKAT 7	66	66.0	34	34.0
	PUKAT 8	67	67.0	33	33.0
	PUKAT 9	93	93.0	7	7.0
	PUKAT 10	88	88.0	12	12.0
	PUKAT 11	78	78.0	22	22.0
	Overall Mean		80.5		19.5
Risk Assessment	PUKAT 13	73	73.0	27	27.0
	PUKAT 14	94	94.0	6	6.0
	Overall Mean		83.5		16.5
Nutrition	PUKAT 15	69	69.0	31	31.0
	PUKAT 16	94	94.0	6	6.0
	Overall Mean		81.5		18.5
Preventive Measures: Reduction in the <u>amount</u> of pressure and shear	PUKAT 17	74	74.0	26	26.0
	PUKAT 18	84	84.0	16	16.0
	PUKAT 19	88	88.0	12	12.0
	PUKAT 20	71	71.0	29	29.0
	PUKAT 21	79	79.0	21	21.0
	PUKAT 22	92	92.0	8	8.0
	PUKAT 23	89	89.0	11	11.0
	PUKAT 24	85	85.0	15	15.0
	PUKAT 25	86	86.0	14	14.0
	Overall Mean		83.1		16.9
Preventive Measures: Reduction in the <u>duration</u> of pressure and shear	PUKAT 26	93	93.0	7	7.0
	PUKAT 27	88	88.0	12	12.0
	PUKAT 28	80	80.0	20	20.0
	PUKAT 29	92	92.0	8	8.0
	Overall Mean		88.2		11.8

Source: survey data, 2019.

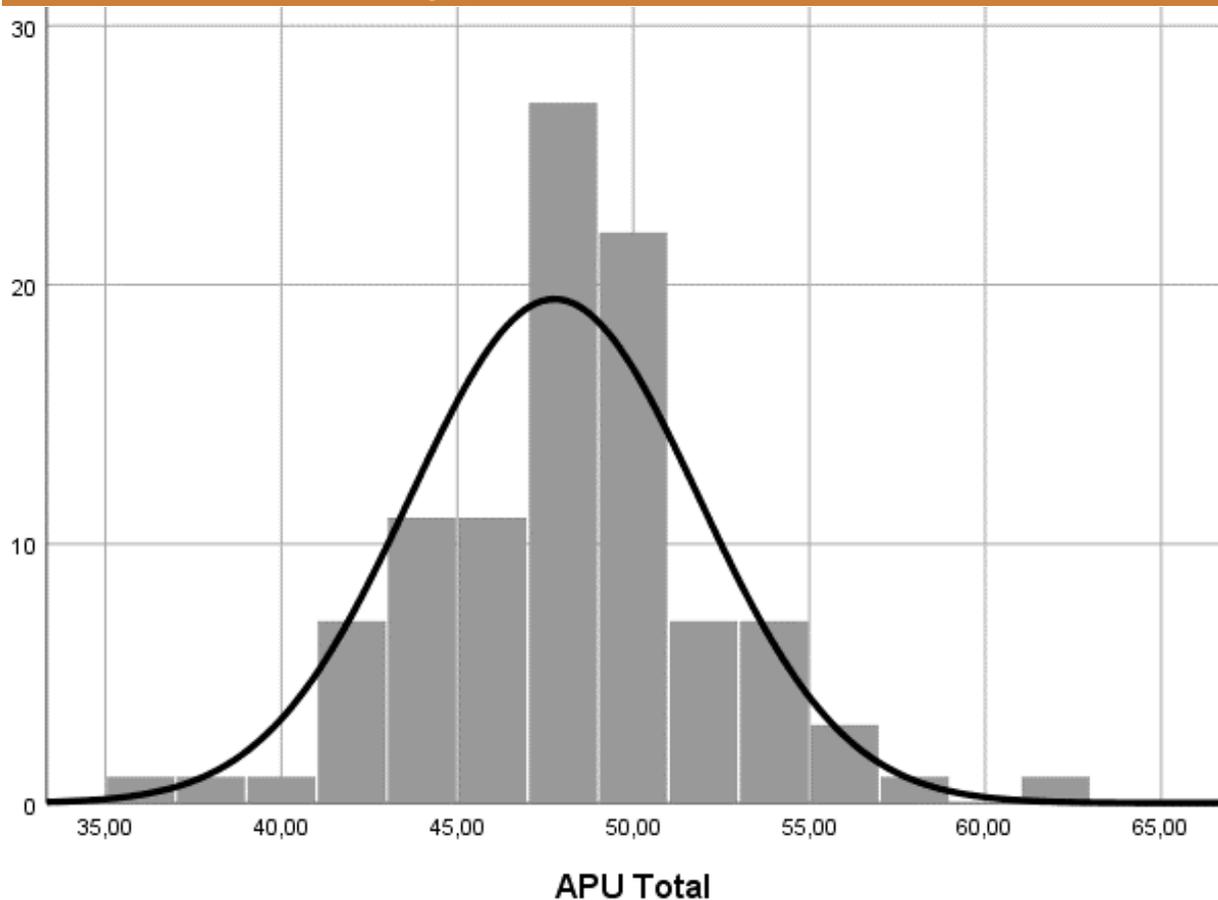


Figure 1: Histogram total value of the APU Total Scale
Source: survey data, 2019.

Table 3: APU Scale,¹⁷ total and subscales analysis, Porto, Portugal, 2019

Parameters	<i>M</i>	<i>SD</i>	<i>Mo</i>	<i>Min</i>	<i>Max</i>
Importance Factor (6 items-range 6 to 24-mean point 15)	13.9	1.8	13	9	21
Responsibility Factor (5 items -range 5 to 20-mean point 12,5)	9.8	1.4	10	5	13
Obstacles Factor (4 items-range 4 to 16-mean point 10)	10.4	1.0	10	8	14
Confidence in Effectiveness Factor (3 items-range 3 to 12-mean point 7,5)	4.9	1.2	6	3	6
Personal Competences Factor (4 items-range 4 to 16-mean point 10)	8.8	1.4	8	5	15
APU Total (22 items-range 22 to 88-mean point 55)	47.8	4.1	47	36	62

Source: survey data, 2019.

With regard to inferential statistics, in Table 4, the relation between the variables and the global score APU scale is verified. There are significant differences between gender

($p=0.001$) and more positive attitudes in the male participants. Statistically significant differences were found regarding the academic year ($p=0.001$), but this result is related to the value of

the first year in which there is only one participant.

In addition, the number of clinical teachings conducted ($p=0.003$) reflects statistically significant differences. Statistically significant differences were found regarding the contributions of

training to knowledge ($p=0.003$). On the other hand, it was possible to identify an association between knowledge and attitudes, by the number of correct answers and the global values from the APU scale ($p=0.002$).

Table 4: Association of the data from the APU SCALE¹⁷ – Global score with variables, Porto, Portugal, 2019

APU Total	N	Mean	Test Statistics	p
Gender (N=100)			609.000	.001
Male	69	49.5		
Female	31	46.9		
Age – Years old (N=100)			9.252	.002
18-21	29	49.07		
22-25	48	47.77		
26-29	19	46.42		
≥30	4	44.5		
Academic year (N=100)			16.9	.001
1 st year	1	39.0		
2 nd year	33	49.97		
3 rd year	36	47.33		
4 th year	30	46.13		
Number of Clinical Teachings Conducted (N=100)			15.9	.003
1 Clinical Teaching Conducted	0	0		
2 Clinical Teachings Conducted	33	49.97		
3 Clinical Teachings Conducted	0	0		
4 Clinical Teachings Conducted	1	39.00		
5 Clinical Teachings Conducted	1	49.00		
6 Clinical Teachings Conducted	19	47.11		
≥7 Clinical Teachings Conducted	46	46.61		
Training on Pressure Injury (N=100)			236.000	.981
Yes	95	47.84		
No	5	46.20		
Training Duration in hours (N=100)			3.787	.285
1 Hour	4	45.50		
2 Hours	72	47.90		
3 Hours	19	48.58		
4 Hours	5	44.40		
Training Context (N=100)			1.874	.599
Theoretical Classes	86	47.93		
Practical Classes	10	47.70		
Clinical Teachings	2	43.50		
Other Contexts	2	45.00		
Contributions of Training to Knowledge (N=100)			14.082	.003
Theoretical Classes	41	49.29		
Practical Classes	51	46.78		
Clinical Teachings	6	44.50		
Other Contexts	1	52.0		

Number of Correct Answers (N=100)				
9	2	45.5	-0.309	.002
10	1	52.0		
11	3	49.0		
12	2	49.0		
14	6	42.67		
15	1	53.00		
16	4	49.75		
17	4	51.25		
22	7	50.29		
23	1	50.00		
24	4	48.50		
25	6	51.33		
26	6	49.33		
27	15	47.73		
28	14	46.71		
29	24	46.04		

Source: survey data, 2019.

DISCUSSION

The assessment of knowledge and attitudes contributes to the understanding of the educational needs and priorities, and can help in the development of specific interventions from the organization of the curricular plans.^{5,18,20}

The presence of pressure injury has been of extreme concern because it represents a public health problem, leading to physical and emotional disorders and influencing morbidity and mortality,²¹ and could be prevented in 95% of the cases.²² Their prevention is fundamental, because the future nurses' knowledge and attitudes can influence this prevention. It is emphasized that the main responsibility for prevention lies on the nurse, which evidences the utmost importance of the future professionals' training.

With regard to the assessment of knowledge on the prevention of pressure injury by means of the PUKAT instrument, different high values than

the ones obtained by other authors are observed.^{5,8,14,16,23} As can be seen in Table 2, the values are high, having the lowest point obtained in the mean of the Etiology and Development factor, with 78%. In average, the Nursing students obtained 23.8 correct answers from the 29 that make up the questionnaire. Using the same instrument, this author obtained a mean of 14.1 in 155 students.¹⁷

A systematic review study in different countries with meta-analysis shows that Nursing students, among others, do not have sufficient knowledge about the prevention of pressure injury, which, in other words, evidences that limited knowledge cannot be influenced by demographic regions.⁸ Similar results were obtained in Belgium, using the same scale, in a sample of 296 Nursing students, in which the authors refer that Nursing students have lesser knowledge than professionals.^{5,18} In another study conducted with 133 Nursing students in Iran, with the use of the same assessment instrument, the authors also identify insufficient knowledge about

pressure ulcer prevention, classification and treatment.¹⁵ Another study carried out in Sweden mentions that the data show that knowledge was unacceptable and borderline for nurses, assistants and nursing students.¹² In a study conducted in Turkey with 753 students, the authors obtained a mean knowledge score of 9.95 in the PUKAT questionnaire with 26 items, while only 2.1% of them had a mean knowledge score $\geq 60\%$ (acceptable knowledge level).¹³ These results differ from the ones that we obtained in our study, in which only 23% did not have a mean knowledge score $\geq 60\%$.

In a systematic review study with meta-analysis, the authors refer that the nurses' knowledge was higher than that of the Nursing students, even so, both below the recommended level, in which the lowest scores were obtained in the items referring to the reduction of pressure intensity and torsional forces.⁸ However, in another study carried out in Turkey, with the objective of assessing the impact of a simulation standardized program on 18 Nursing students about the prevention of pressure injury, despite resorting to a different assessment instrument, the authors obtained a knowledge increase at the moment of training and up to 3 months after its conduction, evidencing the importance of other pedagogical strategies to competence development.¹⁶

With regard to attitudes, through the application of the APU scale, and from the data observed in Table 3, positive attitudes in relation to the prevention of pressure injury stand out in the students, except when analyzed in

the Obstacles factor dimension, referring to barriers to prevention, in which the students show, in average, less positive attitudes. In a Portuguese study conducted with nurses and Nursing students, positive attitudes from the respondents with regard to the prevention of pressure injury stand out, with greater focus on the importance of a more efficient prevention.¹⁹ In a study with 742 students, the authors refer that, despite the lower knowledge level of the students, more than two thirds of the respondents showed high attitude scores (75% or more), which suggests better predisposition to answer favorably to the prevention of pressure injury.¹⁴ Despite using a different instrument, in a study conducted with 855 Nursing students in Italy, these authors also mentioned that 73.7% of the respondents obtained a mean attitude score higher than or equal to 75%, revealing positive attitudes towards the prevention of pressure injury.¹⁴ That aspect is corroborated in this review study about the theme in which, although referring to nurses, the authors suggest that, in general, nurses are positively willing to prevent pressure injury. However, it is important to highlight those nurses have difficulties in translating that positive attitude into real strategies for the prevention of pressure injury.²

On the other hand, Table 4 presents statistically significant relations between the mean APU total score and some variables, namely: gender, academic year, number of clinical teachings, and contribution of training to knowledge. The results from the relationship between the number of

clinical practice days and the academic year are reported in other studies.^{5,13} In fact, these authors also report having observed that the academic year of the Nursing students, the training experience, and the number of clinical days attended during the clinical teaching were significantly related to the attitude total score.¹⁴

With regard to the contributions of training to knowledge, the mean scores put clinical teaching first, followed by practical classes, and theoretical classes in the last place.¹⁶ These data evidence the importance of the simulated practice in a classroom context or clinical environment as a way to enhance skills development.¹⁶ The in-person opportunities for the students to improve their attitudes and knowledge about the prevention of pressure injury included theoretical teaching, practical and laboratory simulation, in addition to clinical practice.^{12,24-26} More details should be covered in the classroom and laboratories through simulation or clinical practice for improved management of pressure injuries.²⁷ Currently, with the technological development, apart from the traditional educational methods, there are preferable innovative instructional methods for the development of cognitive, affective and psychomotor skills.¹⁶ In many contexts, the teaching model of pressure ulcers is still based on traditional lecturing, making it challenging for students to find the connections between knowledge and skills and learning and practice.²⁸ Certain revisions are needed in the nursing curriculum to improve attitudes of nursing students toward the

prevention and care of pressure injuries.²⁷ As the attitudes in relation to the prevention of pressure injury are created during nursing education, it is important that they are included in the learning activities for the students to improve their attitudes and to support their prevention competences.¹³

At last, it was possible to identify an association between knowledge and attitudes, similarly to the studies conducted by other authors.^{5,14,24} That discovery can mean that a student with a higher level of knowledge can be prone to using strategies to prevent pressure injury.¹⁴ A more positive attitude in relation to the prevention of injury might be developed in Nursing students when the gaps in their knowledge are bridged, enabling to put Nursing preventive interventions into practice.¹³

A limitation of the study is convenience sampling, which limits generalizability. In addition, quite frank positive values in comparison that contrast with these published studies are observed. Regarding this theme, and as a limitation, there might be the fact that the questionnaire has been applied virtually, allowing the student to search for answers, possibly leading to interpretation bias.

CONCLUSION

Through this study it was possible to assess the Nursing students' knowledge and attitudes about the prevention of pressure injury; the findings allow the providers to implement changes in the training strategies and, with that, improve care actions. From the findings of this study,

the students' attitudes in mean positive values stand out, with lower values in the Obstacles factor, which translates attitudes that prevent efficient prevention and that work as prevention strategies for the efficient performance of the Nursing students in the prevention of pressure injury.

The contributions of the clinical experiences and the practices to adequate skills development also stand out. In this sense, the need was perceived to conduct more studies on this theme at a national level. In addition, the disparity of the instruments used hindered data comparison. Finally, it is important to emphasize that less knowledge and negative attitudes in relation to the prevention of pressure injury might exert an undesirable effect on the preventive care strategies.

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