Agri 2025;37(2):91–99
doi: 10.14744/agri.2024.25593

ORIGINAL ARTICLE

Identifying nursing students' attitudes towards patients with chronic pain: Quantitative study

Nefise Cevriye Sucu Çakmak,[1] Nurcan Çalışkan[2]

[1]Department of Nursing, Çankırı Karatekin University, Faculty of Health Sciences, Çankırı, Türkiye
[2]Department of Nursing, Gazi University Faculty of Health Sciences, Ankara, Türkiye

SUMMARY

Objectives: This study aimed to identify nursing students' attitudes towards patients with chronic pain.

Methods: This descriptive study was conducted between May and June 2023 with the students of the Department of Nursing. No sample selection was made in the study; the aim was to reach the entire population. The population consisted of 450 students. The sample included 398 students who agreed to participate in the study. Data were collected using the Personal Data Form and the Scale for Healthcare Professionals' Attitudes towards Patients with Chronic Pain. Permission for the study was obtained from the Ethics Committee.

Results: According to the study findings, 31.1% of the students always encountered patients with chronic pain, and 69.3% had not received training on chronic pain management. As students' grade level increased, their scores from the sensitivity and misconception orientation factors also increased ($p<0.05$). As the frequency of encountering patients with chronic pain increased, scores from the sensitivity orientation factor significantly increased ($p<0.05$). Those who felt insufficient in pain management had significantly lower scores from the sensitivity orientation factor.

Conclusion: The results showed that students' attitudes towards patients with chronic pain were good, although not very good. Among the students, those who were female, had more clinical practice experience, frequently encountered patients with chronic pain, and felt sufficient in pain management had stronger positive attitudes towards patients with chronic pain.

Keywords: Attitude; chronic pain; nursing student; patient.

Introduction

Chronic pain is a universal problem that can be independent of tissue damage or active disease and can cause persistent and widespread pain, reflecting exaggerated, increased sensitivity in the central or peripheral nervous system.[1] In a meta-analysis study conducted by Sá et al.[2] to determine the prevalence of chronic pain in developing countries, the ratio of individuals with chronic pain to the total population was found to be approximately one person in five. According to data from the Turkish Health Survey, the rate of those who experienced pain in the last month was 28.7%, and this rate increased with increasing age, reaching 59.6% in individuals aged 75 and over.[3]

Chronic pain, which is suffered by many people around the world, is recognized not as a symptom but as a disease in itself, and solutions are being sought.[1] One of these solutions is to improve the knowledge and attitudes of health professionals towards chronic pain management.[1,4] In a study comparing the pain assessments of nurses and patients, the pain assessments of nurses were found to be significantly lower than the patients they care for.[5] Although nurses play a key role among health professionals, their knowledge and attitude levels in chronic pain management are quite inadequate.[6] Negative attitudes towards patients with chronic pain cause problems such as distrust of treatment, feeling stigmatized, indifference, negative discrimination, self-isolation, and anger, which negatively affect pain manage-

Submitted: 06.03.2024 Received: 26.08.2024 Accepted: 08.09.2024 Available online: 10.04.2025

Correspondence: Dr. Nefise Cevriye Sucu Çakmak. Çankırı Karatekin Üniversitesi, Sağlık Bilimleri Fakültesi, Hemşirelik Bölümü, Çankırı, Türkiye.
Phone: +90 - 376 - 213 11 95 **e-mail:** ncsucucakmak@karatekin.edu.tr

ment.[7] Nurses' knowledge and attitudes towards chronic pain and patients with chronic pain should be developed during their student years.[8]

While it has been reported in the literature that nursing students' attitudes towards pain management are inadequate,[4,8] studies on attitudes towards patients with chronic pain are insufficient. The first step in providing a multidimensional education regarding nursing students' attitudes towards patients with chronic pain should be to determine students' attitudes towards patients with chronic pain.[4,9] This study will reveal the current situation of nursing students and provide a source for intervention studies by determining their attitudes towards patients with chronic pain. In this study, it was aimed to determine the attitudes of nursing students towards patients with chronic pain.

Material and Methods

Design of the Study

This research has a descriptive design.

Population and Sample of the Study

The population of the study consisted of first-, second-, third- and fourth-year nursing students at a state university located in the Central Anatolia Region. This study was conducted between May–June 2023. No sample selection was made in the study; it was aimed to reach the entire population. The inclusion criteria for nursing students were actively attending school, completing the data collection forms completely, and agreeing to participate in the study. The exclusion criterion was incomplete completion of the data collection forms. The population of the study consisted of 450 students studying in the Department of Nursing. The sample consisted of 398 students who agreed to participate in the study. In the study, 88.4% of all students studying in the nursing department were reached.

Data Collection Tools

The data were collected with the Personal Data Form and the Scale for Healthcare Professionals' Attitudes Towards Patients with Chronic Pain (HPAPCP scale). The Personal Data Form included nine questions on students' age, sex, grade level, having chronic pain, having chronic pain in the family, the clinic where they have the most experience, frequency of encountering patients with chronic pain, receiving training on chronic pain management, and feeling sufficient in chronic pain management.[10,11]

The HPAPCP scale has a 5-point Likert type. It includes 18 items. It consists of two factors: sensitivity orientation (items 1, 3, 4, 6, 7, 7, 9, 9, 11, 12, 14, 16, 18) and misconception orientation (items 2, 5, 8, 10, 13, 15, 17).[10] The HPAPCP scale was studied in healthcare students and concluded that it could make a valid and reliable measurement in this group.[11] The Cronbach's alpha coefficients in the adaptation study were 0.88 and 0.74 for the first and second factors, respectively.[11] The Cronbach's alpha coefficients in our research are 0.90 and 0.75 for the first and second factors, respectively.

While scoring the scale, each item in the factors receives a score between 1 and 5. Since there are positive statements in the sensitivity orientation factor, it is scored as Strongly Disagree (1), Partially Disagree (2), Undecided (3), Agree (4), and Strongly Agree (5). Since the items in the misconception orientation factor are negative, reverse scoring is applied. The higher the score obtained from the sensitivity orientation factor, the higher the sensitivity orientation of healthcare professionals towards patients with chronic pain, and the lower the score obtained, the lower the sensitivity orientation. The higher the score obtained from the misconception orientation factor, the lower the misconception orientation, and the lower the score obtained from this factor, the higher the misconception orientation of healthcare professionals towards patients with chronic pain. An increase in the score from the sensitivity and misconception orientation factors indicates that the attitude of healthcare students towards patients with chronic pain is positively strong, while a low score from these factors indicates that the attitude is negatively strong.[11]

Data Collection Process

Data were collected online using Google Forms. The link to the data collection forms was sent to first-, second-, third- and fourth-grade student representatives. Student representatives shared the link in their class online messaging groups, and volunteer students filled out the form. Two different methods were used

to ensure the security of the data collection forms. First, the option to collect e-mails was checked in the form settings, and students were allowed to manually enter their own university e-mail addresses. Secondly, the option to send only one response was activated in the form settings. Each data collection form took approximately three minutes to complete.

Statistical Analysis of Data

The SPSS 24.0 statistical program was used for data analysis. Number, percentage, mean, standard deviation, median, and minimum–maximum were used in descriptive statistics; one-way analysis of variance and t-test for independent groups were used in analytical statistics. Whether the total score obtained from sensitivity and misconception factors differed according to the variables of grade level, frequency of encountering patients with chronic pain, grade level, and gender was examined by two-way ANOVA. In addition to these analyses, the Bonferroni post hoc test was used between the mean scores obtained from the misconception orientation factor and age.

Ethical Considerations

Ethics committee permission was obtained from the Ethics Committee of Çankırı Karatekin University (date 08-05-2023 and decision number 7) for the implementation of the study. Written permission was obtained from the Dean's Office of the Faculty of Health Sciences of the university where the study was conducted. The study was conducted in accordance with the principles set out in the Declaration of Helsinki. In addition, there was an informed consent form at the beginning of the online data collection form. The students gave their consent by marking the "I agree to participate" option in this section. If they marked the "I do not agree to participate" option, the data collection form did not open, and the researcher did not receive their response. If they agreed to participate in the study, the data collection forms opened, and the researcher received their responses in the filled-out forms.

Results

Table 1 shows the personal data of the students. 7.8% of the students had chronic pain, and 29.6% had a family history of chronic pain. 42.7% always encountered patients with chronic pain. 69.3% of the students stated that they did not receive any training on chronic pain, and 39.2% felt inadequate in chronic pain management.

Table 1. Personal data of the students

	n	%
Age		
19–21	178	44.7
22–23	171	43.0
24–43	49	12.3
Gender		
Female	278	69.8
Male	120	30.2
Grade level		
First	101	25.4
Second	98	24.6
Third	99	24.9
Fourth	100	25.1
Have chronic pain		
Yes	31	7.8
No	367	92.2
Have chronic pain in the family		
Yes	118	29.6
No	280	70.4
The clinic where you have the most experience*		
Emergency service unit	66	22.8
Intensive care unit	15	5.2
Surgical unit	116	40.0
Internal unit	93	32.0
Frequency of encountering patients with chronic pain*		
Rarely	36	12.4
Sometimes	130	44.9
Always	124	42.7
Receive training on chronic pain management		
Yes	122	30.7
No	276	69.3
Feel sufficient in chronic pain management		
Insufficient	156	39.2
Somewhat sufficient	189	47.5
Very sufficient	53	13.3

* First grade students did not answer this question because they could not perform clinical practice in the hospital due to the earthquake.

Table 2. Characteristics of the HPAPCP scale and distribution of scores

Factors	n	Minimum	Maximum	Mean	SD	Cronbach alfa
Sensitivity orientation	398	1	5	3.93	0.64	0.904
Misconception orientation	398	1	5	4.04	0.66	0.757

HPAPCP: Healthcare Professionals' Attitudes Towards Patients with Chronic Pain; SD: Standard deviation.

Table 3. Comparison of students' HPAPCP scale scores with the variables of gender, having chronic pain in the family, and receiving training on chronic pain management

Factor	Variable	Category	n	Mean	SD	t	df	p
Sensitivity orientation factor	Gender	Female	278	4.10	0.64	2.64	396	0.009*
		Male	120	3.91	0.68			
	Have chronic pain in the family	Yes	118	4.06	0.61	0.33	396	0.740
		No	280	4.03	0.67			
	Receive training on chronic pain management	Alan	122	4.12	0.68	1.65	396	0.100
		No	276	4.00	0.64			
Misconception orientation factor	Gender	Female	278	3.99	0.59	2.76	396	0.006*
		Male	120	3.80	0.74			
	Have chronic pain in the family	Yes	118	3.96	0.57	0.59	396	0.558
		No	280	3.92	0.67			
	Receive training on chronic pain management	Yes	122	3.99	0.66	1.21	396	0.228
		No	276	3.91	0.64			

HPAPCP: Healthcare Professionals' Attitudes Towards Patients with Chronic Pain; SD: Standard deviation; t: T test for independent samples; df: Degree of freedom; *: P<0.05 statistically significant difference.

Table 2 shows the characteristics of the HPAPCP scale and the distribution of scores. The alpha value of the factor showed that the scores obtained from the factor had high reliability.

Table 3 demonstrates that the scores obtained from the sensitivity and misconception orientation factors of the HPAPCP scale did not differ statistically according to having chronic pain in the family and receiving training on chronic pain management. The mean score from the sensitivity orientation factor differed significantly at the 0.01 level according to the gender variable ($t(396)=2.64$, $p<0.01$). The mean score of female students was higher than that of male students. In addition, the mean score of the students from the misconception orientation factor also differed significantly at the 0.01 level according to the gender variable ($t(396)=2.76$, $p<0.01$). The mean score of female students was higher than that of male students.

Table 4 illustrates that the mean score from the sensitivity orientation factor of the HPAPCP scale did not differ according to the variables of age and the clinic where they had the most experience. Although the mean score from the misconception orientation factor had a statistically significant difference according to age, there was no difference between groups according to the findings of the Bonferroni post hoc test.

Table 4 also illustrates that the mean score from the sensitivity orientation factor differed statistically significantly according to grade level ($F(3.394)=3.40$, $p<0.05$). According to this finding, the mean score obtained by fourth-grade students from the sensitivity orientation factor was higher than the mean score obtained by second-grade students. The mean score from the misconception orientation factor differed statistically significantly according to grade level as well ($F(3.394)=3.61$,

Table 4. Comparison of students' HPAPCP scale scores with the variables of age, grade level, gender, having chronic pain in the family, and receiving training on chronic pain management

Factor	Variable	Service duration	n	Mean	SD	F	p	Significant differences
Sensitivity orientation factor	Age	19–21	178	3.97	0.69	2.16	0.116	–
		22–23	171	4.11	0.59			
		24–43	49	4.08	0.72			
	Grade level	First	101	4.00	0.78	3.40	0.018*	2–4
		Second	98	3.95	0.59			
		Third	99	3.99	0.67			
		Fourth	100	4.22	0.53			
	The clinic where you have the most experience	ESU – ICU	81	4.15	0.67	1.42	0.242	–
		Surgical unit	116	4.00	0.56			
		Internal unit	93	4.04	0.60			
	Frequency of encountering patients with chronic pain	Rarely	36	3.69	0.74	9.71	0.000*	1–2
		Sometimes	130	4.04	0.59			1–3
		Always	124	4.18	0.53			
	Feel sufficient in chronic pain management	Insufficient	156	3.98	0.70	5.97	0.003*	1–3
		Somewhat sufficient	189	4.01	0.64			2–3
		Very sufficient	53	4.32	0.49			
Misconception orientation factor	Age	19–21	178	2.11	0.65	2.95	0.053	–
		22–23	171	1.98	0.59			
		24–43	49	2.19	0.75			
	Grade level	First	101	3.83	0.75	3.61	0.013*	1–4
		Second	98	3.84	0.60			
		Third	99	3.99	0.60			
		Fourth	100	4.08	0.59			
	The clinic where you have the most experience	ESU – ICU	81	4.04	0.61	0.84	0.434	–
		Surgical unit	116	3.93	0.61			
		Internal unit	93	3.96	0.60			
	Frequency of encountering patients with chronic pain	Rarely	36	3.94	0.64	0.61	0.543	–
		Sometimes	130	4.01	0.53			
		Always	124	3.93	0.67			
	Feel sufficient in chronic pain management	Insufficient	156	3.89	0.67	0.93	0.395	–
		Somewhat sufficient	189	3.98	0.57			
		Very sufficient	53	3.91	0.82			

HPAPCP: Healthcare Professionals' Attitudes Towards Patients with Chronic Pain; SD: Standard deviation; F: One Way Anova; ESU: Emergency service unit; ICU: Intensive care unit; *: P<0.05 statistically significant difference.

p<0.05). According to this finding, the mean score of fourth-grade students obtained from the misconception orientation factor was higher than the mean score of first-grade students.

Table 4 further illustrates that the mean score from the sensitivity orientation factor differed statistically significantly according to the variables of frequency of encountering patients with chronic pain and sufficiency in pain management. According to this finding, the mean score obtained from the sensitivity orientation factor by those who rarely encountered patients with chronic pain was lower than that of those who sometimes and always encountered patients with chronic pain. The mean score obtained from the sensitivity orientation factor by those who felt sufficient in pain management was higher than that of those who felt insufficient or somewhat sufficient in pain management.

Whether the total score obtained from the sensitivity and misconception factors differed according to the variables of class, frequency of encountering patients with chronic pain, grade level, and gender was examined by two-way ANOVA. With this analysis, the main effect of each independent variable and the joint effect of the variables were also examined. According to the ANOVA findings, the main effect of grade level ($F(2.398)=3.17$, $p<0.05$) and the joint effect of the two variables ($F(8.398)=2.54$, $p<0.05$) were statistically significant. The main effect of the frequency of encountering patients with chronic pain ($F(4.398)=1.51$, $p>0.05$) was not statistically significant.

According to the ANOVA findings examining the total score obtained from the misconception factor according to grade level and frequency of encountering patients with chronic pain, the main effect of grade level ($F(2.398)=1.75$, $p>0.05$), the main effect of chronic pain management competence ($F(4.398)=0.82$, $p>0.05$), and the joint effect of the two variables ($F(8.398)=0.77$, $p>0.05$) were not statistically significant.

According to the ANOVA findings examining the total score obtained from the sensitivity factor according to grade level and gender, the main effect of grade level ($F(3.398)=4.14$, $p<0.01$) and the main effect of gender ($F(1.398)=6.77$, $p<0.05$) were statistically significant. However, the joint effect of the two variables ($F(3.398)=0.82$, $p>0.05$) was not statistically significant.

According to the ANOVA findings examining the total score obtained from the misconception factor according to grade level and gender, the main effect of grade level ($F(3.398)=3.39$, $p<0.05$) and the main effect of gender ($F(1.398)=7.60$, $p<0.01$) were statistically significant. However, the joint effect of the two variables ($F(3.398)=1.28$, $p>0.05$) was not statistically significant.

The fact that the joint effect is not statistically significant indicates that the co-variation of these two variables is not significant. In this case, the independent variables can be considered separately in this study.

Discussion

Chronic pain is one of the most common types among pain classifications. According to our study, an average of eight out of 100 nursing students and an average of thirty family members had chronic pain. Studies show that 20 out of 100 adults have chronic pain[2] and support our study by confirming that chronic pain is very common. Among all health workers, nurses spend the most time with patients. Chronic pain management is negatively affected by nurses' personal beliefs and attitudes.[5,7] In addition, nursing students stated that they always encounter patients with chronic pain, but only a few of them felt sufficient in chronic pain management. These results show that providing training to nursing students after identifying their attitudes towards patients with chronic pain in undergraduate education has an important role in delivering sufficient care and treatment without stigmatizing patients with chronic pain in their professional lives.

In our study, nursing students received an average score of 4 out of 5 on the sensitivity and misconception orientation factors of the HPAPCP scale. This score indicates that nursing students' attitudes towards patients with chronic pain are good, if not very good. While the literature reports that nursing students' attitudes towards chronic pain management are insufficient,[8,12] data is lacking on

nursing students' attitudes towards patients with chronic pain. According to a study examining the knowledge, beliefs, and attitudes of emergency nurses towards people with chronic pain, a significant number of nurses (up to 64%) and even nurses who had chronic pain themselves (up to 47.5%) had negative attitudes towards patients with chronic pain.[13]

The prerequisite for developing attitudes towards patients with chronic pain is undergraduate education.[4] The major obstacle to developing positive attitudes towards patients with chronic pain is that the knowledge of nursing students about pain management in universities is not sufficient to transform theory into practice, despite the renewal of the curriculum, and very few components of the IASP pain management core curriculum can be implemented in universities.[4,8,14] Although there are outlines for pain management in undergraduate nursing curricula around the world, there is limited coverage of chronic pain, and the existing training is not standardized.[4,14] In our study, two-thirds of the students stated that they did not receive training on chronic pain management. We think that this explains the reason why nursing students cannot develop a very good attitude towards patients with chronic pain.

In our study, while there was no significant difference between the HPAPCP scale scores of the students and the variables of having chronic pain in the family and receiving training on chronic pain management, we found a significant relationship with gender. Female students scored higher on the sensitivity and misconception orientation factors of the scale, indicating that they had a higher positive attitude towards patients with chronic pain than males. The HPAPCP scale development study also supported this result.[10] This difference may be due to the caregiver role of women and their positive attitudes towards patients with emotions such as compassion. In the study in which the HPAPCP scale was adapted in different healthcare students such as nurses, physicians, and physical therapy and rehabilitation students, no relationship was found between the scale scores and gender. The reason for this may be due to the inclusion of different healthcare students in the study of adaptation of the HPAPCP scale to healthcare students, while this study focused only on nursing students.[11]

In the HPAPCP scale, fourth-grade students had higher scores in the sensitivity orientation factor and misconception orientation factor than second- and first-grade students, respectively. This result showed that fourth-grade students had higher positive attitudes towards patients with chronic pain. We think that this result is due to the fact that senior nursing students are the closest group to the nursing profession, spend more time in hospital practice, and have a higher frequency of encountering patients with chronic pain. Augeard et al.[15] examined the effect of undergraduate education on health students' attitudes towards chronic pain and found that, similar to our study, the attitudes of senior students were at a better level.

Our study also compared the frequency of encountering patients with chronic pain with the factors of the HPAPCP scale. We found that the mean score from the sensitivity orientation factor increased with the increasing frequency of encountering patients with chronic pain. This result showed that students who encountered patients with chronic pain more frequently had a higher sensitivity orientation. Carroll et al.[16] evaluated students' attitudes towards the treatment of people with chronic pain and reported that undergraduate nursing students had more positive attitudes.

We found that the mean score from the sensitivity orientation factor of those who felt sufficient in pain management was higher than that of those who felt insufficient or somewhat sufficient in pain management. This result shows that students who feel sufficient in pain management have more positive attitudes towards patients with chronic pain. Undergraduate education should be improved in light of evidence-based, up-to-date information on the approach to patients with chronic pain, and there is a need for alternative teaching techniques and environments that will lead nursing students to change their knowledge and attitudes.[4,17]

Limitation

The results of this study are limited only to the students in the nursing department of the Faculty of Health Sciences where the study was conducted.

Conclusion

Our study revealed that nursing students' attitudes towards patients with chronic pain were at a good level, although not very good. The presence of chronic pain in the family members of one-third of the students indicated the frequency of chronic pain. The study showed that attitudes towards patients with chronic pain were positively stronger among the students who were female, had more clinical practice experience, frequently encountered patients with chronic pain, and felt sufficient in pain management.

In addition to these results, we found that most of the students did not receive enough training on chronic pain management and did not feel sufficient in managing chronic pain. We recommend that the attitude scale towards patients with chronic pain be applied more widely to undergraduate students to identify their educational needs. In addition, we recommend investigating the factors affecting students' attitudes towards patients with chronic pain.

Acknowledgements: The authors thank all nursing students who participated in this study.

Ethics Committee Approval: The Çankırı Karatekin University Clinical Research Ethics Committee granted approval for this study (date: 08.05.2023, number: 7).

Authorship Contributions: Concept – NCSÇ, NÇ; Design – NCSÇ, NÇ; Supervision – NÇ; Resource – NCSÇ; Materials – NCSÇ; Data collection and/or processing – NCSÇ; Analysis and/or interpretation – NCSÇ; Literature review – NCSÇ, NÇ; Writing – NCSÇ, NÇ; Critical review – NÇ.

Conflict-of-interest issues regarding the authorship or article: None declared.

Use of AI for Writing Assistance: No artificial intelligence was used.

Financial Disclosure: The authors declared that this study has received no financial support.

Peer-rewiew: Externally peer-reviewed.

References

1. Treede RD, Rief W, Barke A, Aziz Q, Bennett MI, Benoliel R, et al. Chronic pain as a symptom or a disease: The IASP classification of chronic pain for the ınternational classification of diseases (ICD-11). Pain 2019;160:19-27. [CrossRef]
2. Sá KN, Moreira L, Baptista AF, Yeng LT, Teixeira MJ, Galhardoni R, et al. Prevalence of chronic pain in developing countries: Systematic review and meta-analysis. Pain Rep 2019;4:e779. [CrossRef]
3. Turkish Statistical Institute. Distribution of individuals who felt physical pain in the last 4 weeks according to gender and age group. Available at: https://data.tuik.gov.tr/Kategori/GetKategori?p=Saglik-ve-Sosyal-Koruma-101. Accessed Dec 13, 2023.
4. Cousins M, Lane-Krebs K, Matthews J, Johnston-Devin C. Student nurses' pain knowledge and attitudes towards pain management over the last 20 years: A systematic review. Nurse Educ Today 2022;108:105169. [CrossRef]
5. Sucu Çakmak NC, Çalışkan N. Comparison of pain assessments made by patients and nurses in emergency services. J Human Sci 2020;17:864-76. [CrossRef]
6. Kusi Amponsah A, Björn A, Bam V, Axelin A. The effect of educational strategies targeted for nurses on pain assessment and management in children: An integrative review. Pain Manag Nurs 2019;20:604-13. [CrossRef]
7. De Ruddere L, Craig KD. Understanding stigma and chronic pain: A-state-of-the-art review. Pain 2016;157:1607-10. [CrossRef]
8. De Ruddere L, Craig KD. Understanding stigma and chronic pain: A-state-of-the-art review. Pain 2016;157:1607-10. [CrossRef]
9. Campbell E. Faculty perspectives of teaching pain management to nursing Students. Pain Manag Nurs 2020;21:179-86. [CrossRef]
10. Sucu Çakmak NC, Çalışkan N, Kan A. Health care professionals' attitudes toward patients with chronic pain: Scale development study. Pain Manag Nurs 2023;24:188-95. [CrossRef]
11. Sucu Çakmak NC, Çalışkan N, Koğar H. Validity and reliability study in undergraduate healthcare students towards the solution of a neglected problem in working life: Attitude scale towards patients with chronic pain. Work 2024;79:721-31. [CrossRef]
12. Hroch J, VanDenKerkhof EG, Sawhney M, Sears N, Gedcke-Kerr L. Knowledge and attitudes about pain management among Canadian nursing students. Pain Manag Nurs 2019;20:382-9. [CrossRef]
13. Martorella G, Kostic M, Lacasse A, Schluck G, Abbott L. Knowledge, beliefs, and attitudes of emergency nurses toward people with chronic pain. SAGE Open Nurs 2019;5:2377960819871805. [CrossRef]
14. International Association for the Study of Pain. IASP curriculum outline on pain for nursing. Available at: https://www.iasp-pain.org/education/curricula/iasp-curriculum-outline-on-pain-for-nursing/. Accessed Dec 5, 2023.
15. Augeard N, Carroll SP, Tennant J. Seenan C. The effect of undergraduate education on pain-related attitudes and beliefs in healthcare students. Physiotherapy 2019;105:E156. [CrossRef]

16. Carroll SP, Augeard N, Tennant J, Seenan C. How do the attitudes, confidence, knowledge and understanding differ in pre-registration healthcare students towards treating people with chronic pain: An observational, cross-sectional study. Eur J Physiother 2021;23:311-8. [CrossRef]
17. Booker SQ. Enhancing pain management education in nursing curricula does not have to be 'painful'! Pelican News 2017;73:17-8.