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Research article

Nursing students' pain management self-efficacy and attitudes toward pain assessment

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Abstract

Background: How well nurses assess pain depends on their knowledge, behavior, attitude, self-efficacy, and clinical decision-making skills.
Objective: This paper investigated nursing students' pain management self-efficacy and attitudes toward pain assessment.
Methods: This descriptive study was conducted in three public universities in Türkiye between March and June 2023. The sample consisted of 484 nursing students. Data were collected using a personal information form, the Attitude Towards Pain Assessment Scale (ATPAS), and the Pain Management Self-Efficacy Questionnaire (PMSEQ).
Results: Participants had a mean PMSEQ and ATPAS score of 72.03 ± 17.13 and 59.61 ± 8.66, respectively. Fourth graders had significantly higher mean PMSEQ and ATPAS scores than other grades. Participants who had received training in pain management before had significantly higher mean PMSEQ and ATPAS scores than those who had not. Participants who always encountered patients in pain had significantly higher mean PMSEQ and ATPAS scores than those who did not. Participants who used pain scales had significantly higher mean PMSEQ and ATPAS scores than those who did not. Participants who always assessed pain had significantly higher mean PMSEQ and ATPAS scores than those who did not. Participants who believed pain assessment was absolutely necessary had significantly higher mean PMSEQ and ATPAS scores than those who did not. There was a weak positive correlation between PMSEQ and ATPAS scores.
Conclusion: Nursing students have compatible pain assessment self-efficacy and positive attitudes toward pain assessment. As nursing students become more capable of assessing pain, they develop more positive attitudes toward it.

Keywords

attitude, experience, nursing student, pain, pain management, self-efficacy

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Introduction

Pain is a main symptom experienced by people seeking healthcare around the world. The prevalence of chronic pain in the general population in developing countries is 18%.[1] Everybody experiences pain at some time in their lives. Pain is an unpleasant and emotionally arousing sensory experience that invades our consciousness. The International Association for the Study of Pain defines pain as "an unpleasant sensory and emotional experience associated with, or resembling that associated with actual or potential tissue damage." Pain, an unwanted symptom, is pretty difficult to treat.[2]

When left untreated, pain can significantly diminish the quality of life for individuals, prolong hospitalization, impede recovery, and potentially evolve into a chronic condition, thereby increasing both mortality and morbidity rates.[3] The success of pain management relies on healthcare professionals' knowledge, behaviors, attitudes, and clinical decision-making skills. Nurses are critical members of healthcare teams. They evaluate pain as the fifth vital sign. They identify the location, intensity, and time of pain and perform and evaluate non-pharmacologic or pharmacologic interventions.[4] Therefore, they improve knowledge, attitudes, beliefs, and skills about pain management during their undergraduate education.[5] Despite receiving adequate training, nursing students may encounter barriers to pain

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management, such as overcrowded units, workloads, and the lack of protocols and tools for pain assessment.[3] Therefore, universities should provide training for nurses to help them overcome those barriers. The more nursing students know about pain management, the more they develop a sense of self-efficacy. Pain management self-efficacy refers to nurses' belief in their ability to assess and manage pain.[6] Belli (2022) reported a moderate correlation between the Pediatric Pain Management Knowledge Scale for Nursing Students (PPM) and the Pain Management Self-Efficacy Scale (PMSES).[7] Stanley and Pollard (2013) documented that nursing students who had more knowledge and skills related to pain management had a stronger sense of self-efficacy regarding pain management.[8] In other words, nurses with stronger pain management self-efficacy can better assess pain and implement necessary interventions.

Experts suggest that nurses use scales for pain assessment. Nurses should be informed enough to choose and use the right pain assessment scale for the right patient. Effective pain assessment is a prerequisite for pain control and a fundamental element of nursing care.[9] Some nurses may hold the belief that pain is associated with old age and chronic diseases, leading them to doubt the pain experienced by patients.[10,11] Cultural and organizational factors, along with insufficient time and a lack of consideration for patients' pain tolerance, have a negative impact on pain management.[12] These serve as obstacles to nurses' pain assessments. Some nurses may neglect patients experiencing chronic pain for two reasons. Firstly, they may hold prejudices against them. Secondly, patients may believe their pain is untreatable.[13] Consequently, nursing students adopt the same attitude through professional socialization.[14] Attitudes are one's positive or negative tendency toward a concrete or abstract entity. Therefore, we must ensure that nursing students adopt the right attitude toward pain assessment. However, universities offer nursing students only basic theoretical knowledge about pain.[5] In other words, universities should facilitate the positive development of nurses' knowledge, attitudes, and beliefs regarding pain management during their undergraduate education, aiming to enable them to fulfill their responsibilities in pain management without prejudice.[15,16]

While there is a large body of research into nursing students' knowledge of pain, only a few researchers have focused on their pain management self-efficacy. Moreover, no researchers have investigated the relationship between nursing students' pain management self-efficacy and attitudes toward pain assessment. Therefore, this paper addressed the relationship between nursing students' pain management self-efficacy and attitudes toward pain assessment.

Materials and methods

Research type

This study adopted a descriptive research design.

Research setting

The research was conducted between March and June 2023 in three universities in the Black Sea and Central Anatolia regions of Türkiye.

Population and sample

A power analysis (G*power, v. 3.1) was performed based on Adams et al. (2020).[17] The sample size was calculated using the ratio of students' correct responses (nurses' knowledge scores: 45.26 ± 9.9). The results showed that a sample of 111 would be large enough to detect significant differences (type I error = 0.05, power = 95%, effect size = 0.30). The study population consisted of 2000 nursing students. The sample consisted of 484 volunteers (25% of participation rate). Participants were recruited using convenience sampling.

The inclusion criteria were as follows:

- Being a 1st, 2nd, 3rd, or 4th year nursing student
- Having received theoretical and skill training in pain
- Having access to the Internet
- Having clinical experience
- Volunteering

The exclusion criteria were as follows:

- Failing to fill out the data collection tools
- Withdrawing

Data collection tools and methods

The data were collected using a personal information form, the Pain Management Self-Efficacy Questionnaire (PMSEQ), and the Attitude Towards Pain Assessment Scale (ATPAS).

Descriptive characteristics form. The researchers developed the personal information form, which consisted of nine items on descriptive characteristics.[6,18–20]

Pain Management Self-Efficacy Questionnaire (PMSEQ). The Pain Management Self-Efficacy Questionnaire (PMSEQ) was developed by Macindo et al. (2018)[21] and adapted into Turkish by Sayılan et al. (2022).[6] The questionnaire measures the perceived confidence of both nurses and nursing students in providing pain management to a range of patients. The questionnaire consists of 21 items rated on a six-point bipolar Likert-type scale ("0 = not confident at all" to "5 = highly confident"). The questionnaire has three subscales: comprehensive pain management self-efficacy (C-PMSE; 14 items), evaluative pain management self-efficacy (E-PMSE; four items), and supplemental pain management self-efficacy (S-PMSE; three items). The total score is the sum of the scores of all subscales. No items are reverse-scored. The total score ranges from 0 to 105, with

higher scores indicating more self-efficacy in pain management. The questionnaire has no cut-off point. The Turkish version has a Cronbach's alpha score of 0.90,[6] which was 0.967 in the present study.

Attitude Towards Pain Assessment Scale (ATPAS). The Attitude Towards Pain Assessment Scale (ATPAS) was developed by Bulut et al. (2022).[19] The instrument consists of 15 items rated on a five-point Likert-type scale. The total score ranges from 15 to 75, with higher scores indicating more positive attitudes toward pain assessment. The scale has a Cronbach's alpha score of 0.918,[19] which was 0.891 in the present study.

Data collection

The data were collected online (Google Forms). Each participant was sent a link to the online survey through the student information system. The data were collected between May and June 2023. Each participant took 10–15 min to fill out the data collection tools.

Data analysis

The data were analyzed using the Statistical Package for Social Sciences (IBM, SPSS Corp., Armonk, NY, USA). Numbers, percentages, means, standard deviations (SD), and minimum (min) and maximum (max) values were used for descriptive statistics. The independent t-test and one-way analysis of variance (ANOVA) were used to compare two independent groups. Pearson's correlation coefficients were used to determine the relationship between scale scores (0.00–0.25 very weak correlation, 0.26–0.49 weak correlation, 0.50–0.69 moderate correlation, 0.70–0.89 strong correlation, and 0.90–1.00 very strong correlation).[22]

Table 1. Descriptive characteristics (n = 484).

Descriptive characteristics	n (%)[a]
Gender	
Woman	407 (84.1)
Man	77 (15.9)
Grade Level	
1	164 (33.9)
2	93 (19.2)
3	62 (12.8)
4	165 (34.1)
Choosing the nursing profession willingly	
Yes	332 (68.6)
No	152 (31.4)
Having received training in pain management before	
Yes	228 (47.1)
No	256 (52.9)
Encountering patients in pain in the clinic (n = 482)	
Never	4 (0.8)
Rarely	111 (23)
Often	343 (71.2)
Always	24 (5)
Assessing pain in the clinic	
Never	16 (3.3)
Rarely	158 (33.6)
Often	270 (55.8)
Always	40 (8.3)
Believing in the necessity of pain assessment	
Yes, absolutely.	380 (78.5)
Yes, sometimes.	102 (21.1)
No, never.	2 (0.4)
The method for assessing pain	
Observing	161 (33.3)
Using pain scales	323 (66.7)
Using pain scales	
Yes	295 (61)
No	189 (39)

[a]Numbers, percentages

Results

Participants had a mean age of 20.97 ± 1.81 years. Most participants were women (84.1%). More than a quarter of the participants were fourth-year students (34.1%). More than half of the participants chose the nursing profession willingly (68.6%). Less than half of the participants had received no training in pain management before (47.1%). Over half of the participants often had patients with pain (71.2%). More than half of the participants performed pain assessments (55.8%). Over half of the participants believed pain assessment was absolutely necessary (78.5%). Over half of the participants used scales to assess pain (66.7%). Over half of the participants used pain scales (61%) (Table 1).

Participants had a total mean PMSEQ score of 72.03 ± 17.13. They had mean "C-PMSE," "E-PMSE," and "S-PMSE" subscale scores of 48.60 ± 11.61, 14.05 ± 3.42, and 9.36 ± 2.87, respectively. They had a total mean ATPAS score of 59.61 ± 8.66. They had mean ATPAS "significance" and "attention" subscale scores of 48.86 ± 7.61 and 10.75 ± 2.68, respectively (Table 2).

Fourth graders had significantly higher mean PMSEQ and ATPAS scores than other grades ($p < 0.05$). Participants who chose the nursing profession willingly had significantly higher mean PMSEQ and ATPAS scores than those who did not ($p < 0.05$). Participants who had received training in pain management before had significantly higher mean PMSEQ and ATPAS scores than those who had not ($p < 0.05$). Participants who always encountered patients in pain had significantly higher mean PMSEQ and ATPAS scores than those who did not ($p < 0.05$). Participants who used pain scales had significantly higher mean PMSEQ and ATPAS scores than those who did not ($p < 0.05$). Participants who always assessed pain had significantly higher mean PMSEQ and ATPAS scores than those who did not ($p < 0.05$). Participants who believed pain assessment was absolutely necessary had significantly higher mean PMSEQ and ATPAS scores than those who did not ($p < 0.05$) (Table 3).

Table 2. Pain self-efficacy and pain attitude scale subscale and total scores (n = 484).

Scales and subscales	$\bar{x} \pm SD$[a]	Min[b]	Max[b]
Pain Management Self-Efficacy Questionnaire Subscales			
Comprehensive Pain Management Self-Efficacy	48.60 ± 11.61	.00	70.00
Evaluative Pain Management Self-Efficacy	14.05 ± 3.42	.00	20.00
Supplemental Pain Management Self-Efficacy	9.36 ± 2.87	.00	15.00
Pain Management Self-Efficacy Questionnaire	72.03 ± 17.13	.00	105.00
Attitude Towards Pain Assessment Scale Subscales			
Significance	48.86 ± 7.61	12.00	60.00
Attention	10.75 ± 2.68	3.00	15.00
Attitude Towards Pain Assessment Scale	59.61 ± 8.66	15.00	75.00

[a]Means, standard deviation.
[b]minimum and maximum values.

There was a strong positive correlation between C-PMSE, E-PMSE, and S-PMSE scores. There was a strong positive correlation between PMSEQ and C-PMSE scores. There was a weak positive correlation between PMSEQ and ATPAS scores. There was a strong correlation between E-PMSE and S-PMSE scores (Table 4).

A one-unit increase in the ATPAS score led to a 0.527-unit increase in PMSEQ scores. A one-unit increase in ATPAS "attention" score led to a 0.821-unit increase in PMSEQ scores ($F = 33.884$, $p = 0.000$). These parameters affected 12% of the scale score (Table 5).

Discussion

This study investigated nursing students' pain management self-efficacy and attitudes toward pain assessment. Participants had a mean PMSEQ score above the average. Pain management self-efficacy refers to nurses' belief in their ability to assess and manage pain.[21] Belli (2022) found that nursing students (n = 123) had a mean PMSEQ score above the average.[7] Self-efficacy in pain management refers to safe and quality care and includes access to safe and effective treatment.[21]

Our participants had a mean ATPAS score above the average, suggesting that they had positive attitudes toward pain assessment. Kusi Amponsah et al. (2019) reported that nursing students had insufficient knowledge and negative attitudes toward pediatric pain.[23] Hroch et al. (2019) documented that most nursing students had insufficient knowledge and attitudes toward pain assessment and management.[24] Karaman et al. (2019) also determined that nursing students knew little about pain management and had negative attitudes toward it.[25] These results indicate that nursing students have gaps in their knowledge of pain and negative attitudes toward pain assessment and management. However, our results suggest that nursing students have positive attitudes toward pain assessment, which may have two reasons. First, those researchers used different scales. Second, our participants were recruited from a different university. Nursing students' decisions concerning pain assessment and pain-related issues may be influenced more by their own attitudes and misconceptions about pain rather than accurately diagnosing the current condition of patients.[9] Moreover, nursing students with more positive attitudes toward pain assessment are likely to prioritize pain, approach patients in pain more holistically, and use pain assessment scales more frequently. Therefore, we must ensure nursing students develop positive attitudes toward pain management and assessment. Our participants who used scales to assess pain had a significantly higher mean ATPAS score than those who assessed pain through observations. Moreover, our participants who believed pain assessment was necessary had a significantly higher mean ATPAS score than those who did not. These findings suggest that nursing students generally hold positive attitudes toward pain assessment and are inclined to depend on objective data for evaluating pain. Since pain is a subjective experience, believing the person experiencing pain and assessing and managing pain accordingly is crucial.[26]

Participants who used pain scales had significantly higher mean PMSEQ and ATPAS scores than those who did not. Participants who believed pain assessment was absolutely necessary had significantly higher mean PMSEQ and ATPAS scores than those who did not. Participants who always assessed pain had significantly higher mean PMSEQ and ATPAS scores than those who did not. Ortiz et al. (2022) conducted a meta-analysis with 7942 nurses and reported two important results.[27] First, nurses had moderate levels of knowledge of pain. Second, nurses who had received training in pain before knew more about pain management and assessment. Molaee et al. (2020) reported that emergency nurses (n = 187) who cared for more patients knew more about pain and had more positive attitudes toward pain management and assessment.[28] These results suggest that experience makes nurses and nursing students more knowledgeable about pain, resulting in higher pain management self-efficacy. Since pain management self-efficacy refers to nurses' belief in their ability to assess and manage pain,[8] nursing students who encounter more patients in pain and use pain scales more frequently have higher pain management self-efficacy.

Fourth graders had significantly higher mean PMSEQ and ATPAS scores than other grades. The results indicated a positive correlation between grade levels and PMSEQ and ATPAS scores. Similarly, Çıtlık Sarıtaş et al. (2020) reported a positive correlation between academic performance, grade level, and pain management self-efficacy.[29] They also documented that fourth graders had a significantly higher mean PMSEQ score than other grade levels. These results suggested that older students had more positive attitudes

Table 3. Comparison of the mean scores of nursing students' self-efficacy scale in pain management and attitudes towards pain assessment scale according to descriptive characteristics **(n = 484)**.

Descriptive characteristics	Comprehensive pain management self-efficacy $\bar{x} \pm SD$	Evaluative pain management self-efficacy $\bar{x} \pm SD$	Supplemental pain management self-efficacy $\bar{x} \pm SD$	Pain management self-efficacy questionnaire $\bar{x} \pm SD$	Significance $\bar{x} \pm SD$	Attention $\bar{x} \pm SD$	Attitude towards pain assessment scale $\bar{x} \pm SD$
Grade level							
1	45.59 ± 11.85	13.20 ± 3.32	8.80 ± 2.90	67.60 ± 17.40	46.64 ± 6.86	9.97 ± 2.28	56.61 ± 7.71
2	48.07 ± 10.64	13.89 ± 2.95	9.06 ± 2.66	71.03 ± 15.30	50.25 ± 6.80	11.38 ± 2.41	61.64 ± 7.65
3	47.01 ± 9.059	13.40 ± 3.31	9.11 ± 2.218	69.53 ± 13.72	49.06 ± 6.38	10.66 ± 2.52	59.72 ± 7.52
4	52.48 ± 11.75	15.24 ± 3.49	10.20 ± 3.01	77.93 ± 17.45	50.22 ± 8.66	11.20 ± 3.06	61.42 ± 9.66
Statistical evaluation[a]	F = 10.883 p = .000	F = 11.606 p = .000	F = 7.498 p = .000	F = 11.416 p = .000	F = 7.775 p = .000	F = 8.212 p = .000	F = 11.334 p = .000
	4 > 3, 4 > 2, 4 > 1	4 > 3, 4 > 2, 4 > 1	4 > 3, 4 > 2, 4 > 1	4 > 3, 4 > 2, 4 > 1	2 > 4 > 1	2 > 4 > 1	2 > 4 > 1
Choosing the nursing profession willingly							
Yes	49.65 ± 10.89	14.37 ± 3.16	9.57 ± 2.78	73.61 ± 16.00	49.48 ± 7.02	10.92 ± 2.67	60.41 ± 8.15
No	46.30 ± 12.79	13.36 ± 3.86	8.91 ± 3.02	68.59 ± 18.96	47.51 ± 8.64	10.36 ± 2.68	57.88 ± 9.48
Statistical evaluation[b]	t = 2.801 p = .005	t = 2.833 p = .005	t = 2.368 p = .018	t = 2.841 p = .005	t = 2.455 p = .015	t = 2.135 p = .033	t = 2.835 p = .005
Having received training in pain management before							
Yes	50.71 ± 10.76	14.65 ± 3.16	9.77 ± 2.75	75.14 ± 15.91	50.24 ± 6.76	11.33 ± 2.48	61.58 ± 7.77
No	46.71 ± 12.03	13.52 ± 3.56	9.01 ± 2.93	69.25 ± 17.72	47.64 ± 8.12	10.23 ± 2.75	57.87 ± 9.04
Statistical evaluation[b]	t = 3.836 p = .000	t = 3.709 p = .000	t = 2.925 p = .004	t = 3.832 p = .000	t = 3.806 p = .000	t = 4.623 p = .000	t = 4.811 p = .000
Encountering patients in pain in the clinic							
Never	27.25 ± 21.66	10.25 ± 4.50	4.50 ± 5.19	42.00 ± 30.69	37.00 ± 18.95	11.00 ± 3.16	48.00 ± 17.62
Rarely	47.38 ± 12.15	13.23 ± 3.76	9.07 ± 3.08	69.69 ± 18.26	47.38 ± 7.79	10.24 ± 2.61	57.63 ± 9.09
Often	48.92 ± 11.14	14.25 ± 3.24	9.47 ± 2.68	72.65 ± 16.27	49.41 ± 7.27	10.87 ± 2.70	60.28 ± 8.25
Always	54.37 ± 8.80	16.00 ± 2.73	10.37 ± 2.90	80.75 ± 13.71	49.33 ± 7.17	11.33 ± 2.33	60.66 ± 8.38
Statistical evaluation[a]	F = 7.264 p = .000	F = 6.997 p = .000	F = 5.569 p = .001	F = 7.311 p = .000	F = 5.381 p = .001	F = 1.980 p = .116	F = 5.272 p = .001
Assessing pain in the clinic							
Never	43.11 ± 20.78	13.00 ± 4.44	7.88 ± 4.51	64.00 ± 29.09	47.88 ± 4.19	9.44 ± 3.39	57.33 ± 4.89
Rarely	44.61 ± 11.93	12.85 ± 3.55	8.59 ± 2.87	66.05 ± 17.46	46.75 ± 8.15	10.00 ± 2.51	56.76 ± 8.85
Often	50.27 ± 10.38	14.62 ± 3.16	9.69 ± 2.68	74.59 ± 15.45	49.89 ± 6.90	11.10 ± 2.63	60.99 ± 7.93
Always	52.82 ± 12.63	14.61 ± 3.48	10.35 ± 3.24	77.79 ± 18.70	49.41 ± 9.90	11.29 ± 2.98	60.70 ± 11.44
Statistical evaluation[a]	F = 10.587 p = .000	F = 9.92 p = .000	F = 7.190 p = .000	F = 10.714 p = .000	F = 5.811 p = .001	F = 6.854 p = .000	F = 8.562 p = .000
Believing in the necessity of pain assessment							
Yes, absolutely	49.47 ± 11.67	14.32 ± 3.42	9.43 ± 2.87	73.24 ± 17.23	50.28 ± 6.92	11.02 ± 2.70	61.31 ± 7.92
Yes, sometimes	45.68 ± 10.78	13.16 ± 3.2	9.22 ± 2.75	68.07 ± 15.85	43.70 ± 7.66	9.74 ± 2.28	53.45 ± 8.17
No, never	31.00 ± 2.82	9.00 ± 1.41	3.50 ± 3.53	43.50 ± 7.77	42.50 ± 19.09	10.50 ± 6.36	53.00 ± 25.45

(continued)

Table 3. Continued.

Descriptive characteristics	Comprehensive pain management self-efficacy $\bar{x} \pm SD$	Evaluative pain management self-efficacy $\bar{x} \pm SD$	Supplemental pain management self-efficacy $\bar{x} \pm SD$	Pain management self-efficacy questionnaire $\bar{x} \pm SD$	Significance $\bar{x} \pm SD$	Attention $\bar{x} \pm SD$	Attitude towards pain assessment scale $\bar{x} \pm SD$
Statistical evaluation[a]	F = 6.751 p = .001	F = 6.942 p = .001	F = 4.469 p = .012	F = 6.585 p = .002	F = 35.019p = .000	F = 9.445 p = .000	F = 38.951 p = .000
The method for assessing pain							
Observing	45.91 ± 12.47	13.27 ± 3.75	8.96 ± 3.15	68.14 ± 18.65	47.49 ± 8.34	10.47 ± 2.54	57.96 ± 9.03
Using pain scales	49.94 ± 10.93	14.44 ± 3.18	9.57 ± 2.71	73.96 ± 16.00	49.55 ± 7.14	10.88 ± 2.74	60.44 ± 8.36
Statistical evaluation[b]	t = -3.486 p = .001	t = -3.409 p = .001	t = -2.100 p = .037	t = -3.384 p = .001	t = -2.685 p = .008	t = -1.626 p = .105	t = -2.907 p = .004
Using pain scales							
Yes	50.32 ± 10.46	14.60 ± 3.03	9.70 ± 2.73	74.63 ± 15.47	50.09 ± 6.55	11.08 ± 2.57	61.18 ± 7.80
No	45.91 ± 12.7	13.20 ± 3.81	8.84 ± 3.01	67.96 ± 18.76	46.94 ± 8.71	10.22 ± 2.77	57.17 ± 9.36
Statistical evaluation[b]	t = 4.151 p = 0.000	t = 4.462 p = .000	t = 3.255 p = .000	t = 4.254 p = .000	t = 4.528 p = .000	t = 3.479 p = .000	t = 5.096 p = .000

[a]ANOVA.
[b]Student t-test.

Table 4. The relationship between pain self-management and pain attitude scale subscale and total scores of nursing students **(n = 484)**.

Pain management self-efficacy questionnaire / attitude towards pain assessment scale		Pain management self-efficacy questionnaire subscales[a]		Pain management self-efficacy questionnaire[a]	Attitude towards pain assessment scale subscales[a]		Attitude towards pain assessment scale[a]
		Evaluative pain management self-efficacy	Supplemental pain management self-efficacy	Total	Significance	Attention	Total
Pain Management Self-Efficacy Questionnaire Subscales	Comprehensive Pain Management Self-Efficacy	r = 0.862[b] p = 0.000	r = 0.841[b] p = 0.000	r = 0.991[b] p = 0.000	r = 0.293[b] p = 0.000	r = 0.277[b] p = 0.000	r = 0.344[b] p = 0.000
	Evaluative Pain Management Self-Efficacy		r = 0.706[b] p = 0.000	r = 0.903[b] p = 0.000	r = 0.304[b] p = 0.000	r = 0.286[b] p = 0.000	r = 0.356[b] p = 0.000
	Supplemental Pain Management Self-Efficacy			r = 0.879[b] p = 0.000	r = 0.153[b] p = 0.001	r = 0.135[b] p = 0.003	r = 0,.177[b] p = 0.000
Pain Management Self-Efficacy Questionnaire	Total score				r = 0.285[b] p = 0.000	r = 0.268[b] p = 0.000	r = 0.334 p = 0.000
Attitude Towards Pain Assessment Scale subscales	Significance					r = 0.240[b] p = 0.000	r = 0.954[b] p = 0.000
	Attention						r = 0.521[b] p = 0.000

[a]Pearson's correlation coefficient.
[b]0.00–0.25 very weak correlation, 0.26–0.49 weak correlation, 0.50–0.69 moderate correlation, 0.70–0.89 strong correlation, and 0.90–1.00 very strong correlation.

Table 5. Results of linear regression analysis between total pain attitude and attention subscales of nursing students' pain self-efficacy **(n = 484)**.

	B (95% CI)	Beta	t	P	Zero-order	partial
Constant	31.757 (21.741–41.773)		6.23			
Attitude Towards Pain Assessment Scale	0.527 (0.333–0.722)	0.0235	5.334	0.000	0.334	0.236
Attention	0.821 (0.194–1.448)	0.0140	2.573	0.010	0.268	0.117

B: Unstandardized coefficient, Beta: Sstandardized coefficient, F:33.884, p:0.000, Adj R^2:0.120, SE:16.07.

toward pain and higher self-efficacy in pain management because they had more clinical experience and used valid and reliable scales more often to assess pain. Another reason may be choosing the nursing profession willingly. Participants who willingly chose the nursing profession exhibited significantly higher mean scores on PMSEQ and ATPAS than those who did not willingly choose the profession. This suggested that students who actively chose nursing as their profession tended to exhibit greater self-efficacy in pain management and had more positive attitudes toward pain assessment and management. The decision to willingly enter the nursing field may contribute to a mindset that values and prioritizes effective pain management practices, influencing both the individual's confidence in their abilities and their overall attitudes toward the importance of pain assessment and management. Therefore, universities should provide nursing students with the right setting where they can put their knowledge into practice.

There was a weak positive correlation between PMSEQ and ATPAS scores. The regression analysis showed that a one-unit increase in the ATPAS score led to a 0.527-unit increase in the PMSEQ score. Moreover, a one-unit increase in the ATPAS "attention" subscale score led to a 0.821-unit increase in the PMSEQ score. Belli (2022) also reported a moderate positive correlation between pediatric pain management and pain management self-efficacy.[7] Nursing students build more self-confidence and develop more positive attitudes toward pain management and assessment as they learn more about it through education and clinical experience.[9] From this perspective, nursing departments should adopt a three-stage education system that focuses on knowledge, skills, and attitudes to equip nursing students with the right credentials to manage and assess pain accurately.

Limitations

This study had two limitations. First, no researchers have used ATPAS before. Therefore, it led to limitations in discussion. Second, the results are sample-specific and cannot be generalized to all nursing students.

Conclusion

Our results showed that participants had above-average pain management self-efficacy and attitudes toward pain assessment. There was a weak positive correlation between their pain management self-efficacy and attitudes toward pain assessment. Participants who had received training in pain management before had significantly higher mean PMSEQ and ATPAS scores than those who had not. Furthermore, participants who always encountered patients in pain and used pain scales had significantly higher mean PMSEQ and ATPAS scores than those who did not. Participants who believed pain assessment was absolutely necessary had significantly higher mean PMSEQ and ATPAS scores than those who did not. These results suggest that academics should take into account these factors and employ active methods that can help nursing students develop pain management self-efficacy and positive attitudes toward pain assessment. Universities should revise their curricula to encompass knowledge, skills, and attitudes. Everybody experiences pain differently. Therefore, nursing students should develop the insight that pain is a subjective experience. This can help them assess and manage pain more effectively, resulting in more positive care outcomes. Researchers should recruit larger samples and conduct similar studies to better understand the association between nursing students' pain management self-efficacy and attitudes toward pain assessment.

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Statements and declarations

Ethical considerations

The study was approved by the scientific research ethics committee of Karadeniz Technical University (Date: 19/01/2023 and No: 2023/01). Permission was obtained from the universities. All students were briefed on the research purpose and procedure. They were also informed that they could withdraw at any time. Informed consent was obtained from all participants.

Informed consent

Written informed consent was obtained from all participating subjects

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