

# Nursing Students' Attitudes Toward Pain Assessment: A Critical Component in Pain Management- A Descriptive and Cross-Sectional Study

İpek Köse Tosunöz<sup>1</sup> , Sevgi Deniz Doğan<sup>2</sup>

<sup>1</sup> Assistant professor, RN, PhD, Hatay Mustafa Kemal University, Faculty of Health Sciences, Nursing Department, Hatay, Turkey

<sup>2</sup> Assistant professor, RN, PhD, Isparta University of Applied Sciences, Uluborlu Selahattin Karasoy Vocational School, Health Services Department, Isparta, Turkey

## ABSTRACT

**Purpose:** This study aimed to examine nursing students' attitudes toward pain assessment.

**Methods:** This descriptive cross-sectional study sample consisted of 184 nursing students (2nd, 3rd, and 4th grade) studying at a state university. Data were collected online between July and September 2023 using the "Participant Information Form" and "Nursing Students' Attitudes Scale Toward Pain Assessment" (NSASPA). Data was analyzed using the independent samples t-test, ANOVA, Pearson correlation, and linear regression analysis.

**Results:** Of the students, 71.7% were females, and 88% believed in the effectiveness of nurses in pain management. The mean score of the students' perceived pain assessment success in their clinical practice was  $6.86 \pm 1.71$  (min-max: 1-10; on a scale from 0 to 10). The mean total score of NSASPA was  $63.65 \pm 7.23$ . The mean total score of the students who believed in the effectiveness of nurses in pain management and used pain assessment tools was statistically significantly higher ( $p < 0.05$ ). The students' attitudes toward pain assessment had a statistically significant effect on their perceived success in pain assessment, explaining 13.7% of the variance. The statement most frequently agreed with by students was "I would like to receive more pain assessment training."

**Conclusions:** Nursing students' attitudes toward pain assessment were positive. Students who believed in nurses' effectiveness in pain management and used pain assessment tools had more positive attitudes toward pain assessment. Students' positive attitudes toward pain assessment positively predicted their perceived success in pain assessment. Students most frequently agreed that they wanted more training in pain assessment.

**Keywords:** Attitude, nursing, students, pain, pain assessment.

## ÖZET

**Amaç:** Bu çalışmanın amacı, hemşirelik öğrencilerinin ağrı değerlendirmesine yönelik tutumlarını belirlemektir.

**Yöntemler:** Tanımlayıcı ve kesitsel tipteki çalışmanın evrenini bir devlet üniversitesinde öğrenim gören 184 hemşirelik öğrencisi (2., 3. ve 4. sınıf) oluşturmuştur. Veriler, Temmuz-Eylül 2023 tarihleri arasında "Katılımcı Bilgi Formu" ve "Hemşirelik Öğrencilerinin Ağrı Değerlendirmesine Yönelik Tutum Ölçeği (HÖADTÖ)" kullanılarak çevrimiçi olarak toplanmıştır. Veriler, bağımsız grup t-testi, ANOVA, Pearson korelasyon analizi ve doğrusal regresyon analizi kullanılarak analiz edilmiştir.

**Bulgular:** Öğrencilerin %71.7'si kadın olup %88'i hemşirelerin ağrı yönetiminde etkili olduğuna inanmaktaydı. Öğrencilerin klinik uygulamalarında ağrı değerlendirmesine yönelik algıladıkları başarı puan ortalamalarının  $6.86 \pm 1.71$  (min-maks: 1-10; 0 ile 10 arasında bir ölçeğe) olduğu belirlenmiştir. Öğrencilerin HÖADTÖ toplam puan ortalaması  $63.65 \pm 7.23$ 'tür. Hemşirelerin ağrı yönetimindeki etkinliğine inanan ve ağrı değerlendirme araçlarını kullanan öğrencilerin ölçek toplam puan ortalamaları istatistiksel olarak anlamlı düzeyde daha yüksekti ( $p < 0.05$ ). Öğrencilerin ağrı değerlendirmesine yönelik tutumları, ağrı değerlendirmesindeki algılanan başarıları üzerinde istatistiksel olarak anlamlı bir etkiye sahipti ve değişimin %13.7'sini açıklamaktadır. Öğrencilerin en sık katıldığı ölçek ifadesi "Daha fazla ağrı değerlendirmesi eğitimi almak istiyorum (%74.5)" idi.

**Sonuçlar:** Hemşirelik öğrencilerinin ağrı değerlendirmesine yönelik tutumları olumluydu. Hemşirelerin ağrı yönetimindeki etkinliğine inanan ve ağrı değerlendirme araçlarını kullanan öğrenciler, ağrı değerlendirmesine yönelik daha olumlu tutuma sahipti. Öğrencilerin ağrı değerlendirmesine yönelik olumlu tutumları, ağrı değerlendirmesindeki algılanan başarılarını anlamlı düzeyde tahmin etti. Öğrencilerin çoğunluğu ağrı değerlendirmesi konusunda daha fazla eğitim istedikleri konusunda hemfikir idi.

**Anahtar Kelimeler:** Tutum, hemşirelik, öğrenciler, ağrı, ağrı değerlendirme.

İpek KÖSE TOSUNÖZ  
0000-0003-2055-6260

Sevgi DENİZ DOĞAN  
0000-0003-0311-2123

**Correspondence:** İpek Köse Tosunöz  
Assistant professor, RN, PhD, Hatay Mustafa Kemal University, Faculty of Health Sciences, Nursing Department, Hatay, Turkey  
**Phone:** +90 (326) 221 33 17  
**E-mail:** kosepek@hotmail.com

**Received:** 27.11.2024

**Accepted:** 25.02.2025

**P**ain is a personal experience that is difficult to understand and describe (1). Pain is “an unpleasant sensory and emotional experience associated with or resembling actual or potential tissue damage” (2). Despite advances in healthcare, pain continues to be a major health problem. It is estimated that 30-70% of hospitalized patients experience pain. High pain prevalence is associated with increased mortality and morbidity, decreased quality of life, and increased healthcare costs (3). Uncontrolled and unrelieved pain may cause various physiological and psychological disorders in individuals. Therefore, pain should be prevented and controlled (4).

Effective pain management is a mandatory part of nursing care and is considered one of the most basic patient rights (4, 5). The first step in effective pain management is a valid and reliable pain assessment. It is emphasized that pain should be considered as the fifth vital sign, monitored, and assessed regularly (4). Individuals’ intention to perform a behavior is determined by their attitudes toward the behavior, their subjective norms, and their perception of behavioral control. Therefore, it is accepted that our attitudes determine our behavior (6). Nurses’ pain assessment depends on their attitudes toward pain and pain assessment (1,4,7). Nurses’ negative attitudes toward pain are a significant barrier to effective pain management (8).

Pain is one of the most frequently identified nursing diagnoses by nursing students (9). Nursing students are expected to play an active role in pain control. Therefore, nursing students’ attitudes toward pain assessment, which may affect pain assessment, are of critical importance (4). Nursing students who have negative attitudes toward pain management and cannot evaluate pain accurately may not be able to contribute to pain management adequately (10). Assessment and management of pain are fundamental in nursing care, and nurses need to be equipped with adequate knowledge and positive attitudes toward pain assessment and management (11, 12). Nursing education should provide students with the knowledge and awareness to assess pain accurately when working as professional nurses (4). Pain management is included in the nursing curriculum as part of some courses or elective courses. However, studies have shown that nursing curricula lack the educational content to enable students to effectively manage their patients’ pain (13). Students can be trained as nurses who can perform effective and accurate pain assessment not only by evaluating the knowledge provided through

education but also by evaluating their attitudes toward pain assessment in their clinical practice and developing positive attitudes (14). Nurse educators are responsible for ensuring that students are well-prepared for pain management. Nurse educators should assess students’ knowledge and attitudes toward pain and create strategies to improve their readiness for pain management (15). It has been reported that although nursing students receive adequate pain assessment education and knowledge, they have difficulty in pain assessment because of their negative attitudes about pain and pain assessment (14). Nursing students’ knowledge of pain management has not improved over the past 20 years despite curriculum renewal (16). In the literature, studies have mostly focused on nursing students’ attitudes toward pain and pain management. Few studies have examined pain assessment. Effective pain assessment forms the basis of effective pain management, and studies on this subject, play a critical role in improving the quality of patient care. Therefore, more research is needed on this subject to increase the knowledge and skills of nursing students regarding pain assessment. This study was conducted to investigate nursing students’ attitudes toward pain assessment.

## Material and Method

### *Study Design and Setting*

A descriptive cross-sectional study was conducted at the nursing department of a state university in the south of Turkey between July and September 2023.

### *Sampling and Recruitment*

The study population consisted of 2nd, 3rd, and 4th-grade undergraduate nursing students who continued their education in the 2022-2023 academic year (N=406). The distribution of the population by grade level is as follows: 2nd grade: 136 students, 3rd grade: 129 students, and 4th grade: 141 students. All students who met the inclusion criteria were included in the study. The inclusion criteria were as follows: having access to electronic and internet devices, having experience in providing patient care, and volunteering to participate in the study. The students included in the study all possessed experience in patient care. First-year students were not included in the sample because they could not participate in clinical practice due to two major earthquake disasters that affected 11 provinces of Turkey.

According to the sample size calculated using the Raosoft sample-size calculator, with a 90% confidence level and a 5% margin of error, a minimum response rate of 163 would be required. The study was completed with 184 nursing students. The post hoc power analysis, conducted using the G-Power 3.1.9.7 software to compare mean scores between groups using and not using pain assessment tools via the Independent t-tests, yielded a power of 99% (effect size  $d = 1.61$ ,  $\alpha = 0.05$ ). This analysis indicates that the sample size represented the population well (17, 18).

### Instruments

Data were collected with the "Participant Information Form" and "Nursing Students' Attitudes Scale toward Pain Assessment (NSASPA)".

Participant Information Form, created using the literature (4, 10), consists of six questions in which the sociodemographic characteristics of the students and some characteristics related to pain assessment are questioned. The questions were based on the student's gender, study year, perceived success in pain assessment, taking an elective course on pain management, using pain assessment tools, and belief in the effectiveness of nurses in pain assessment. To evaluate students' perceived success in pain assessment in their clinical practice, students were asked to mark on a scale from 0 to 10, with 0 indicating the lowest and 10 indicating the highest success.

Nursing Students' Attitudes Scale Toward Pain Assessment (NSASPA) was developed by Bulut et al. (4). It consists of 15 items and is a 5-point Likert type. Students indicate their level of agreement with the items as "strongly disagree (1)", "disagree (2)", "undecided (3)", "agree (4)" and "strongly agree (5)". The scale consists of two subscales: "significance" and "interest". The "Significance" subscale consisted of 12 reverse-scored negative items on the significance of pain assessment. The "Interest" subscale consisted of three positive items. The total score ranged between 15 and 75. Higher scores indicated more positive attitudes toward pain assessment. Cronbach's Alpha value of the scale was 0.93 for the total scale, 0.95 for the "Significance" subscale, and 0.70 for the "Interest" subscale. In this study, Cronbach's alpha value was 0.80 for the total scale, 0.80 for the "Significance" subscale, and 0.82 for the "Interest" subscale.

### Data Collection

The study was designed as a self-administered online survey. The data were collected between July and September 2023. After approval of the study, the online survey link was sent to all students via WhatsApp through the class representatives of each class. The participating students completed the survey via Google Forms. Before accessing the survey, participants were presented with an informed consent at the beginning of the online data collection form. Participants were required to indicate their consent by affirmatively responding "Yes" to the question "Would you like to participate in this study?" after reviewing the informed consent information.

### Data Analysis

Data were analyzed using IBM SPSS Statistics version 22.0. There was no missing data. The conformity of the data to normal distribution was evaluated with kurtosis and skewness values. Since the skewness and kurtosis values in the total scale and its sub-dimensions were within  $\pm 2$ , it was assumed that the data were normally distributed (19). Therefore, parametric tests were used. While the "Independent Samples t-test" was used to compare the means of two independent groups, the One-way analysis of variance (ANOVA) was used to compare the mean scores of three or more independent groups. Pearson correlation coefficient analysis was used to determine the correlation between students' attitudes toward pain assessment and their perceived success in assessing their patients' pain in clinical practice. The prediction of perceived success in pain assessment by levels of students' attitudes toward pain assessment was evaluated with simple linear regression analyses.

### Validity and Reliability

The scale that was validated for the Turkish population and showed good validity and reliability was used in the study. Measurements with a reliability coefficient of 0.70 and above are considered reliable (20). In this study, Cronbach's alpha coefficient value of the total scale was 0.80.

### Ethical Considerations

The study was conducted in conformity with the Helsinki Declaration principles. The ethics committee approval (Isparta University of Applied Sciences Scientific Research

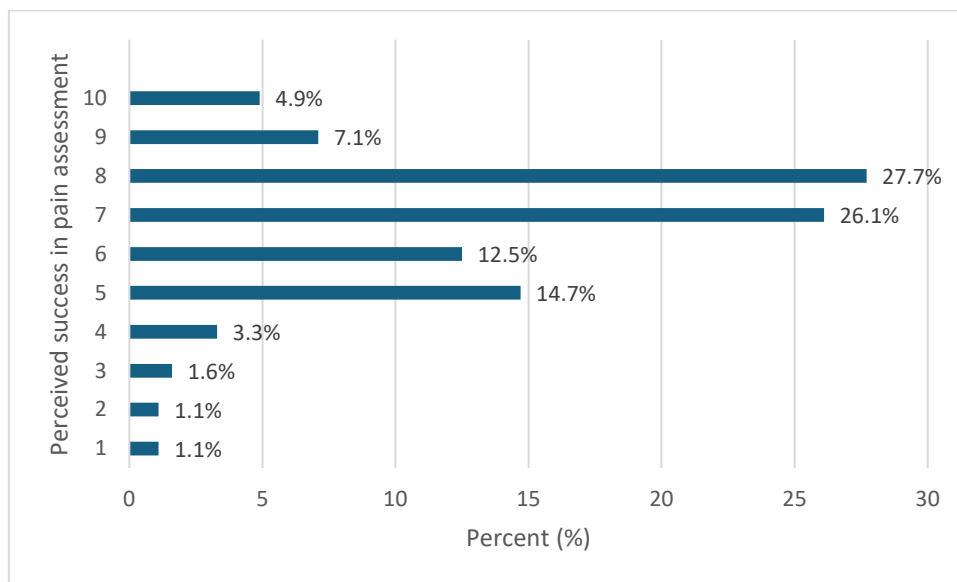
and Publication Ethics Committee, Date: 14.06.2023, Number of meetings:155, Decision no: 16, Page: 17/16) and institutional permission were obtained before starting the study. Permission to use the scale was received from the author via e-mail. All students were informed about the purpose of the study, the right to withdraw, and the confidentiality of their personal information with the online voluntary participation form. The students could see the study questions after reading the voluntary participation form and responding "Yes" to the "Would you like to participate in the study?". Students were also informed that whether they participated in the study would not affect their course evaluations. All data were collected anonymously.

## Results

The study sample consisted of 184 nursing students. Of the participating students, 40.8% were 3rd-grade students and 71.7% were female. Most students (72.3%) took an elective course on pain management, 87% used pain assessment tools when evaluating their patients' pain in clinical settings, and 88% believed in the effectiveness of nurses in pain management (Table 1).

The score distributions for the students' perceived pain assessment success are given in Figure 1. On a scale of 0 (lowest) to 10 (highest) points, the mean score of the students' perceived pain assessment success in their clinical practice was  $6.86 \pm 1.71$  (min-max:1-10).

Table 1: Participants' characteristics and comparison of the student's NSASPA mean scores to some characteristics (n=184)					
Characteristics	n	%	$\bar{X}$	S.D.	Test* and p
Study year					
Second year	49	26.6	62.91	8.25	F= 0.397 p= 0.673
Third year	75	40.8	63.74	7.01	
Fourth-year	60	32.6	64.15	6.67	
Gender					
Female	132	71.7	64.26	6.56	t=1.625 p= 0.108
Male	52	28.3	62.11	8.60	
Taking an elective course on pain management					
Yes	133	72.3	64.15	6.96	t=1.519 p= 0.130
No	51	27.7	62.35	7.84	
Using pain assessment tools					
Yes	160	87.0	65.00	5.96	t=5.622 p= 0.000
No	24	13.0	54.70	8.66	
Belief in the effectiveness of nurses in pain management					
Yes	162	88.0	64.70	6.25	t=5.809 p=0.000
No	22	12.0	55.90	9.22	
n: Number, $\bar{X}$ : Mean, SD: Standard deviation, NSASPA: Nursing Students' Attitudes Scale Toward Pain Assessment *: Independent Samples t-test, F: ANOVA					



**Figure 1:** Perceived success in pain assessment in clinical practice (n=184)

Students' total mean scores of NSASPA were  $63.65 \pm 7.23$ . The mean score of the "significance" subscales was  $52.40 \pm 5.98$  and  $11.25 \pm 2.85$  for the "Interest" subscales (Table 2).

A statistically significant difference was observed between NSASPA mean scores and belief in the effectiveness of nurses in pain management and using pain assessment tools ( $p < 0.05$ ). Accordingly, students who believed in the effectiveness of nurses in pain management and those who used pain assessment tools showed higher attitudes toward pain assessment ( $p < 0.05$ ).

There was a statistically significant positive correlation between NSASPA total and its Significance sub-scale mean scores and success in pain assessment in clinical practice

( $r=0.370$ ;  $r=0.391$ ,  $p < 0.001$ ; respectively). The correlation between the perceived success in pain assessment and Interest sub-scale mean scores was not statistically significant ( $r=0.119$ ,  $p > 0.05$ ) (Not shown in a table).

The linear regression model results were significant,  $F(1,182) = 28,853$ ,  $p < 0.001$ ,  $R^2 = 0.137$ , indicating that approximately 13.7% of the variance in perceived success in pain assessment is explainable by students' attitudes toward pain assessment. Students' attitudes toward pain assessment significantly predicted perceived success in pain assessment,  $B = 0.087$ ,  $t = 5.372$ ,  $p < 0.001$ . This indicates that on average, a one-unit increase in NSASPA will increase the value of perceived success in pain assessment by 0.087 units (Table 3).

**Table 2:** Distribution of NSASPA mean scores (n=184)

NSASPA	Number of items	Possible range	Observed range	$\bar{X} \pm SD$	Cronbach $\alpha$
Significance	12	12-60	31-60	$52.40 \pm 5.98$	0.80
Interest	3	3-15	3-15	$11.25 \pm 2.85$	0.82
Total	15	15-75	42-75	$63.65 \pm 7.23$	0.80

$\bar{X}$ : Mean, SD: Standard deviation; NSASPA: Nursing Students' Attitudes Scale Toward Pain Assessment

**Table 3:** The effect of students' attitudes toward pain assessment on perceived success in pain assessment (n=184)

Variable	B	SE	$\beta$	t	p	95.00% CI [Lower, Upper]
Constant	1.299	1.043	-	1.246	0.214	[-0.758, 3.357]
NSASPA	0.087	0.016	0.370	5.372	0.000	[0.055, 0.120]

Note. Results:  $F(1,182) = 28,853$ ,  $p < 0.001$ ,  $R=0.370$ ,  $R^2 = 0.137$

Unstandardized Regression Equation: Perceived success in pain assessment =  $1.299 + 0.087 * \text{NSASPA}$

The distribution of students' responses to NSASPA statements is given in Table 4. The "Strongly agree" and "Agree" responses given by the students in the scale expressions were combined as "Agree". Likewise, the numbers of students who answered "Disagree" and "Strongly disagree" responses were also combined as "Disagree". The three statements that students agreed with most frequently were "I would like to receive more

pain assessment training." (74.5%), "I am aware of my own culture and family values regarding pain assessment" (66.8%), and "I volunteer to conduct pain assessment." (61.4%). The statement they were most often undecided about (30.4%) was "I enjoy conducting pain assessment" and the statement they most frequently disagreed with (96.2%) was "I think that pain assessment is unnecessary" (Table 4).

**Table 4:** Distribution of responses to NSASPA expressions (n=184)

NSASPA scale expressions	Agree	Undecided	Disagree
	n(%)		
1. I think that pain assessment is unnecessary.	1 (0.5)	6 (3.3)	177 (96.2)
2. I do not like performing pain assessment.	18 (9.8)	24 (13.0)	142 (77.2)
3. I would remove pain training from the undergraduate curriculum if I could.	11 (6.0)	12 (6.5)	161 (87.5)
4. I do not think that pain assessment reflects the actual pain experienced by the patient.	11 (6.0)	14 (7.6)	159 (86.4)
5. I do not think that pain assessment is necessary.	8 (4.3)	4 (2.2)	172 (93.5)
6. I conduct a pain assessment because I have to.	7 (3.8)	15 (8.2)	162 (88.0)
7. I think that it is a waste of time to conduct a pain assessment.	4 (2.2)	5 (2.7)	175 (95.1)
8. I get bored when conducting a pain assessment.	11 (6.0)	22 (12.0)	151 (82.1)
9. I have a hard time concentrating when conducting a pain assessment.	2 (1.1)	16 (8.7)	166 (90.2)
10. I do not believe that pain assessment is effective.	5 (2.7)	7 (3.8)	172 (93.5)
11. I am hesitant to perform a pain assessment.	12 (6.5)	23 (12.5)	149 (81.0)
12. I am aware of my own culture and family values regarding pain assessment.	123(66.9)	26 (14.1)	35 (19.0)
13. I would like to receive more pain assessment training.	137 (74.5)	28 (15.2)	19 (10.3)
14. I volunteer to conduct pain assessment.	113 (61.4)	49 (26.6)	22 (12.0)
15. I enjoy conducting pain assessment.	97 (52.8)	56 (30.4)	31 (16.8)

## Discussion

Nurses' attitudes toward pain and its assessment are crucial factors in pain management. Studies have mostly focused on attitudes toward pain and its management (21). This study, however, focused on pain assessment, which is a part of pain management using a different scale specifically developed for nursing students. This study provides important insights into nursing students' attitudes toward pain assessment.

In this study, students' total mean scores of NSASPA were  $63.59 \pm 7.25$ . Considering the lowest (15) and highest (75) scores that can be obtained from the scale, it can be said that the scale mean scores of the students are above the scale average. The findings showed that nursing students have positive attitudes toward pain assessment. Contrary to our study findings, two different systematic reviews reported that nursing students' positive attitudes toward pain were not at the desired level (16, 22). A systematic review, which included six studies with 1454 participants, emphasizes that nursing students' knowledge and attitudes toward pain management have not improved over the past 20 years (16). Another systematic review indicated that nursing students have limited knowledge

and often hold negative attitudes toward pain (23). Hançer and Yılmaz (24) found that nursing students did not have a positive attitude toward pain management. Reyala (25) also determined that nursing students had negative attitudes toward pain assessment and management. Hroch et al. (10) found that nursing students did not have positive attitudes about pain assessment and management. The difference between our study and the literature may be related to cultural differences.

In the current study, students who believed in the effectiveness of nurses in pain management had more positive attitudes toward pain assessment. This finding shows that when students believe nurses are effective in pain management, they exhibit more positive attitudes toward pain assessment. The literature shows that nursing students' positive perceptions of the nursing profession have a significant effect on their professional performance (26, 27). These findings suggest that as nursing students' belief in the profession's competence increases, they take their professional responsibilities more seriously and give more importance to pain assessment. It is thought that trainings that especially emphasize the role of nurses in pain management can positively affect students' attitudes toward pain assessment.



In this study, the majority of nursing students were using pain assessment tools. In Reyala's (25) study, the rate of student nurses using pain assessment tools was lower than in our study. Furthermore, we determined that nursing students who used pain assessment tools exhibited more positive attitudes toward pain assessment, this result is consistent with the study of Reyala's (25) and Al-Khawaldeh (13) who found a significant statistical difference in the level of nursing students' knowledge and attitude score about the frequency of using pain assessment tools. Alsaqri (28) reported that students who used pain scales more frequently had significantly higher knowledge and attitude scores toward pain management. Similarly, Santos et al. (29) reported that nursing students using pain assessment tools had a higher level of knowledge about pain assessment. These findings suggest that students with a more favorable attitude toward pain assessment may be more inclined to use assessment tools.

In the current study, we found that students' positive attitudes toward pain assessment positively predicted their perceived success in pain assessment. Supporting our study, Al-Sayagh et al. (11) stated that nurses who have inadequate knowledge and negative attitudes toward pain management are inadequate in pain assessment. These findings emphasize the importance of enhancing nursing students' positive attitudes toward pain assessment. Students' positive attitudes toward pain assessment contributed to them feeling more competent in pain assessment. This shows the importance of positive attitudes in increasing student motivation and self-efficacy. Developing positive attitudes toward pain assessment will enable students to perform their professional skills more effectively and confidently.

Participating students most frequently agreed that they wanted more pain assessment education. Students' desire for more training in pain assessment should raise questions about the adequacy of current educational programs in this regard. In the systematic review conducted by Cousins et al. (16) to explore whether nursing students' level of pain knowledge and attitudes toward pain management has improved over the past 20 years, it was concluded that nursing education does not include sufficient focus on pain identification and management and that over the past 20 years, nursing students' knowledge of pain management has not improved despite curriculum renewal. Providing more comprehensive and effective training on this subject by nursing educators will contribute to meeting these demands of students. The other most common situation that students agreed on was

being aware of their culture and family values regarding pain assessment. Students' awareness of their culture and values regarding pain assessment can be considered an indicator of their awareness that these values can play a role in pain assessment and management processes. This allows students to be aware of personal biases during pain assessment, to manage them consciously in patient care, and to make more objective and professional assessments. These will contribute to effective pain management by providing an effective assessment. In the literature, the importance of meeting the care needs of patients in line with their cultural values and providing holistic care is emphasized (30). In this context, this finding can also be considered as a desired finding that reflects the cultural sensitivity of students in pain assessment, and their efforts to understand the cultural needs of patients and provide holistic care. In this study, the statement they most frequently disagreed with was "I think that pain assessment is unnecessary". This finding was desired and can be considered a positive finding in terms of pain assessment. In addition, this finding may be a positive sign about the professional development of students during the educational process. The students' low agreement with this statement shows their awareness of the necessity and importance of pain assessment as nurse candidates. In a study that supports our study finding, most nurses reported that pain assessment is a top priority for patients with pain (1). However, considering the importance of pain assessment in pain control, the presence of students who disagree with this statement, albeit at a low rate, should not be ignored. These students may have a different attitude due to their experiences or beliefs regarding pain assessment. Identifying and eliminating the underlying reasons for these thoughts of students who do not find pain assessment necessary will contribute to training nurses who are competent in pain management.

### *Limitations and strengths*

Since pain is a multidimensional factor, the study's cross-sectional design can be considered a limitation. Also, the study results were limited to nursing students registered in only one state university. The fact that a valid and reliable scale developed specifically for nursing students was used in this study can be considered a strength of the study. Another strength of the study is the large effect size, indicating a substantial difference between the groups.

## Conclusion

The majority of students believed in the effectiveness of nurses in pain management. Nursing students' attitudes toward pain assessment were positive. Nursing students who believed in the effectiveness of nurses in pain management and used pain assessment tools had more positive attitudes toward pain assessment. Students' positive attitudes toward pain assessment positively predicted their perceived success in pain assessment. Students most frequently agreed that they wanted more training in pain assessment.

It is recommended that pain assessment be included more in the nursing curriculum, that nursing educators provide more comprehensive and effective training on this subject, and that the effectiveness of the students should be emphasized in training. Nursing educators should make plans to increase the success and positive experiences of students in pain assessment. Students should be informed about pain assessment scales used in pain management and encouraged to use them in clinical practice. To obtain more detailed information on the subject, studies with different study designs and larger samples can be conducted.

## Declarations

### Funding

There is no funding.

### Conflict of interest

The author declared that there is no conflict of interest.

### Ethics approval

This study was approved by the Isparta University of Applied Sciences Scientific Research and Publication Ethics Committee (Date: 14.06.2023, Number of meetings:155, Decision no: 16, Page: 17/16).

### Availability of data

The data and material are available upon request.

### Author Contributions

Conceptualization: İKT, SDD; Methodology: İKT, SDD; Formal analysis and investigation: İKT, SDD; Writing - original draft preparation: İKT, SDD; Writing - review and editing: İKT, SDD; Supervision: İKT, SDD

## References

1. Özveren H, Faydalı S, Gülnar E, et al. Attitude and applications of nurses to evaluate pain. *J Contemp Med*. 2018;8:60-66. DOI:10.16899/GOPCTD.388195
2. Raja SN, Carr, DB, Cohen M, et al. The revised International Association for the Study of Pain definition of pain: Concepts, challenges, and compromises. *Pain*. 2020;161:1976-82. DOI:10.1097/j.pain.0000000000001939
3. Zuazua-Rico D, Mosteiro-Diaz MP, Collado-Boira E, et al. Knowledge about pain in Spanish nursing students. *Pain Manag Nurs*. 2022;23:871-7. DOI:10.1016/j.pmn.2022.03.006
4. Bulut H, Güler S, Mercan Annak I et al. Development of Nursing Students' Attitudes Scale Toward Pain Assessment. *Pain*. 2022;34:245-53. DOI:10.14744/agri.2022.90018
5. Issa MR, Awajeh AM, Khraisat FS, et al. Impact of an educational program on the knowledge and attitude about pain assessment and management among critical care nurses. *Dimens Crit Care Nurs*. 2019;38:271-7. DOI:10.1097/DCC.0000000000000375
6. Alzghoul BI and Chew Abdullah NA. Psychosocial theories and pain management practices: A review of empirical research. *Mediterranean Journal of Social Sciences*. 2015;6:60. DOI:10.5901/mjss.2015.v6n6s2p60
7. Kalkan N, Güler S, Bulut H et al. Views of students on the use of crossword and word search puzzle as a teaching technique in nursing education: A mixed-method study. *Nurse Educ Today*. 2022;119:105542. DOI:10.1016/J.NEDT.2022.105542
8. Duke G, Haas BK, Yarbrough S et al. Pain management knowledge and attitudes of baccalaureate nursing students and faculty. *Pain Manag Nurs*. 2013;14:11-9. DOI:10.1016/j.pmn.2010.03.006
9. Bölükbaş N, İrmak B, Bulut G et al. Evaluation of nursing diagnoses and interventions determined by students in surgical diseases nursing summer internship files. *Ordu University J Nurs Stud*. 2020;3:1-9. DOI:10.38108/ouhcd.715689
10. Hroch J, VanDenKerkhof EG, Sawhney M et al. Knowledge and attitudes about pain management among Canadian nursing students. *Pain Manag Nurs*. 2019;20:382-9. DOI:10.1016/j.pmn.2018.12.005
11. Al-Sayaghi KM, Fadlalmola HA, Aljohani WA, et al. Nurses' knowledge and attitudes regarding pain assessment and management in Saudi Arabia. *Healthcare*. 2022;10:528. DOI:10.3390/healthcare10030528
12. El-Aqoul A, Obaid A, Jarrah I, et al. Effectiveness of education program on nursing knowledge and attitude toward pain management. *Asia Pac J Oncol Nurs*. 2020; 7:382-8. DOI:10.4103/apjon.apjon\_17\_20
13. Al-Khawaldeh OA, Al-Hussami M and Darawad M. Knowledge and attitudes regarding pain management among Jordanian nursing students. *Nurse Educ Today*. 2013;33:339-45. DOI:10.1016/j.nedt.2013.01.006
14. Yılmaz M, Özüm Ü, Gürler H et al. Knowledge status-related concept of pain of seniors who has been educated in the field of health. *Journal of Research and Development in Nursing*. 2010;2:17-27.
15. Chow KM and Chan JCY. Pain knowledge and attitudes of nursing students: A literature review. *Nurse Educ Today*. 2015;35:366-72. DOI:10.1016/j.nedt.2014.10.019
16. Cousins, M., Lane-Krebs, K., Matthews, J et al. Student nurses' pain knowledge and attitudes towards pain management over the last 20 years: A systematic review. *Nurse Educ Today*. 2022;108:105169. DOI:10.1016/j.nedt.2021.105169
17. Cohen J. *Statistical Power Analysis for the Behavioral Sciences*. 2nd ed. Routledge: 1988. DOI:10.4324/9780203771587



18. Faul F, Erdfelder E, Lang AG et al. G\*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behav Res Methods*. 2007;39:175–91. DOI:10.3758/bf03193146
19. George D and Mallery P. SPSS for Windows step by step: A simple guide and reference. Pearson: 2010.
20. Jain S and Angural V. Use of Cronbach's Alpha in dental research. *Med Res Chronicles*. 2017;4:285–91. <https://medrech.com/index.php/medrech/article/view/242>
21. Karaman E, Yıldırım Y and Vural Doğru B. Knowledge and attitudes of nursing students about pain management. *Pain*. 2018;31(2):70-8. DOI:10.5505/agri.2018.10437
22. Ung A, Salamonson Y, Hu W et al. Assessing knowledge, perceptions, and attitudes to pain management among medical and nursing students: A review of the literature. *Br J Pain*. 2016;10:8–21. DOI:10.1177/2049463715583142
23. Alshehri FA, Levett-Jones T and Pich J. Nursing students' knowledge of and attitudes towards pain management: An integrative review. *Nurse Educ Today*. 2024;106207. DOI:10.1016/j.nedt.2024.106207
24. Hançer AT and Yılmaz M. Determination of knowledge and attitudes related to the pain of nursing students in Turkey. *Int J Caring Sci*. 2020;13:716-24.
25. Reyala MRA. Nursing students' knowledge and attitude toward pain management in Gaza Strip, Palestine. *J Clin Anesth Pain Manag*. 2020;4:101-6. DOI:10.36959/377/338
26. Shabani Z and Osmanaga, F. Students' perceptions about the profession of nursing. *Athens Journal of Health and Medical Sciences*. 2021;8:135-48. DOI:10.30958/ajhms.8-2-4
27. Tekir Ö, Kocaçal E, Çam B et al. Nursing profession from nursing students' perspectives: A cross-sectional study. *Izmir Democracy University Health Sciences Journal*. 2022;5:773-85. DOI:10.52538/идуhes.1181284
28. Alsaqri SH. Nursing student's knowledge and attitudes toward pain management at Hail University, Saudi Arabia. *International Journal of Advanced and Applied Sciences*. 2018;5:75-81. DOI:10.21833/ijaas.2018.03.011
29. Santos AF, Machado RR, Ribeiro CJN et al. Nursing students' knowledge about pain assessment. *Brazilian Journal of Pain*. 2018;1:325-30. DOI:10.5935/2595-0118.20180062
30. Lin MH, Wu CY and Hsu H.C. Exploring the experiences of cultural competence among clinical nurses in Taiwan. *Appl Nurs Res*. 2019;45:6-11. DOI:10.1016/j.apnr.2018.11.001