

The effect of self-compassion and various factors on nursing students' attitudes towards pain assessment

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Research Article

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Abstract

Background

Accurate pain assessment is essential for effective pain management and quality patient care. While various demographic and psychological factors influence clinical skills, the specific role of self-compassion in shaping nursing undergraduates' perspectives remains underexplored.

Aim

To evaluate the effect of self-compassion and demographic factors on how nursing students perceive pain assessment.

Methods

A descriptive, cross-sectional design was utilized for this study, conducted at a university nursing department in Türkiye during the 2023–2024 academic cycle. The target population comprised 172 undergraduates with prior clinical experience. From this group, 141 individuals were recruited via convenience sampling. To gather data, three instruments were administered: a demographic questionnaire, the “Nursing Students’ Attitudes Scale Toward Pain Assessment”, and the “Self-compassion Scale”. Analyses encompassed descriptive statistics, correlational tests, and multivariate linear regressions.

Results

Participants achieved an overall mean score of 64.42 ± 9.18 (min = 25; max = 75) on the pain assessment attitude scale, and 2.82 ± 0.38 (min = 2.08; max = 4.00) on the self-compassion scale. Analysis revealed that age and gender served as significant predictors of pain assessment attitudes ($F = 5.931$; $p < 0.05$). In contrast, self-compassion levels and academic year showed no significant predictive value ($p > 0.05$).

Conclusion

Participants displayed highly favorable attitudes regarding pain assessment alongside moderate levels of self-compassion. Female participants and older students exhibited significantly more positive attitudes. Notably, a student's degree of self-compassion had no significant influence on their overall approach to evaluating pain.

Introduction

Despite all the advances in medicine, pain is still a common problem in hospitals today.[1] Studies show that inadequate pain management causes ethical problems and incurs economic and human costs [1–3]. Healthcare professionals are responsible for providing high quality treatment and care to patients [1, 4] The knowledge, attitudes and behavior of the nurses, are crucial in the pain management [5, 6]. Studies have reported that nurses do not pay enough attention to patients' pain because this issue is not

adequately addressed in university education (1,2,4,5 In a systematic review, it was reported that nursing students did not have appropriate attitudes toward pain because undergraduate nursing curricula on pain management were ineffective in translating theory into practice [7] Studies conducted in many countries such as Türkiye [5], Canada [8] Jordan [9] and China [10] revealed that nursing students have poor attitudes towards pain. According to recent findings, nursing students have positive attitudes towards pain [11–13]. Nursing students' attitudes toward pain play a significant role in shaping their future professional practice. Understanding the factors that may affect nursing students' attitudes toward pain can positively impact the quality of future patient care [7]. Therefore, it is considered to be crucial to investigate the factors influencing the attitudes of these students. Studies have indicated that factors that may have an impact on nursing students' attitudes toward pain assessment include self-efficacy [13] empathy levels [6] knowledge about the physiology of pain and the pharmacology of opioids [7, 9] perceived barriers [9] emotional intelligence [14] and belief in pain [11, 12]. Students who had a positive attitude towards pain management were found to have higher levels of knowledge [5, 7] emotional intelligence [14] empathy [6] belief in pain [12] and pain management self-efficacy [4]. Studies have also highlighted the importance of nurses' mental health in delivering quality care for patients with pain.[15, 16] Mental health is associated with self-compassion [7, 15, 17]. It has been reported that those who are sensitive to themselves and others will make efforts to alleviate the painful experiences of both them and others ([18] It is suggested that self-compassion should be integrated into the nursing curriculum because it increases students' academic success and supports both compassionate care and emotional intelligence [17]. Since self-compassion fosters mindfulness and reduces judgmental attitudes, it is theoretically expected to enhance a nurse's ability to approach a patient's pain objectively. A self-compassionate nurse is more likely to validate the patient's self-reported pain without prejudice, thereby developing a more positive and accurate attitude toward pain assessment. Accordingly, it has been predicted that nursing students with lower self-compassion levels may be less sensitive/compassionate towards patients in pain and may exhibit more negative attitudes towards pain assessment [19]. However, no study has been identified in the existing literature that investigates the impact of self-compassion on nursing students' attitudes toward pain assessment. This study aim is to investigate the effects of self-compassion and other factors on the attitudes of nursing students towards pain assessment in Türkiye.

Research Questions

1. What is the level of attitudes towards pain assessment?
2. What are the predictive factors determining nursing students' attitudes toward pain assessment?
3. What is nursing students' level of self-compassion?
4. Is there a relationship between nursing students' level of self-compassion and their attitude towards pain assessment?
5. Does the level of self-compassion of nursing students predict the level of attitude towards pain assessment?

Methods

Design and Sample

A descriptive cross-sectional approach was utilized to conduct this study, encompassing a sample of 141 nursing undergraduates. The population of the study consists of 172 nursing students receiving nursing education at a university in the 2023–2024 academic year. The sample size of the study was calculated as 119 using G*Power software, with a 95% confidence interval and a 5% margin of error [20]. The study consisted of 141 nursing students from the first through the final year of their academic years, who agreed to participate voluntarily. Participants were recruited using a convenience sampling approach. First-year nursing students completed surveys after completing their hospital practicum. All students were clearly informed about the aims of the study, and they were asked to fill out the questionnaires. To ensure confidentiality, the questionnaire forms were anonymous. The survey was completed in approximately 10–15 minutes. After the students completed the survey, the researcher checked the entire survey and asked the participants to complete the missing questions to reduce missing data. The reporting of this study was conducted in accordance with the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines for cross-sectional studies [21].

Data Collection Tool

The questionnaire form used for data collection consisted of three sections: “Descriptive Information Form”, “Attitude Scale Towards Pain Assessment of Nursing Students” and “Self-Compassion Scale”.

Researchers designed the descriptive information form utilizing insights from the literature review [4, 16, 19, 22]. This form consisted of a total of 13 questions, including age, gender, years of education etc.

To evaluate participants' levels of self-compassion, this study utilized the Self-Compassion Scale, originally introduced by Neff in 1995 [23] and later adapted into Turkish with confirmed validity and reliability by Akin et al. in 2007 [24]. This 27-item instrument employs a 5-point Likert format (ranging from 1 = Never to 5 = Always) and measures six distinct dimensions: self-kindness, isolation, self-judgment, common humanity, mindfulness, and over-identification. In this scale, individuals with higher scores on each subscale exhibit a greater degree of the characteristics assessed by that subscale. The scale also includes a total self-compassion score. According to the results obtained, 1-2.5 points = low, 2.5–3.5 points=medium, and 3.5-5 points=high level of self-compassion [24]. In the original scale, the factor loadings of the items varied as follows: 0.71–0.77 for self-kindness, 0.65–0.80 for self-judgment, 0.63–0.75 for isolation, 0.57–0.79 for common humanity, 0.65–0.78 for over-identification, and 0.62–0.80 for mindfulness. Internal consistency reliability coefficients for the subscales are between 0.75 and 0.81. Previous assessments of the tool's subscales yielded test-retest reliability scores ranging from 0.80 to 0.88. For the Turkish adaptation, internal consistency values spanned 0.72 to 0.80, with test-retest correlations falling between 0.56 and 0.69. Furthermore, corrected item-total correlations were reported between 0.48 and 0.71. Within the context of the present study, the overall Cronbach's alpha coefficient was calculated at 0.85 [24].

Created in 2022, the 'Nursing Students' Attitudes Towards Pain Assessment Scale' is designed to evaluate how nursing undergraduates perceive pain assessment. This instrument utilizes a 5-point Likert structure, ranging from 1 (Strongly disagree) to 5 (Strongly agree). Total possible scores on this scale span from a minimum of 15 to a maximum of 75 [25]. As the score from the scale increases, the students' attitudes towards pain assessment become more positive. The scale, consisting of 15 items, has a structure with 2 sub-factors (importance dimension of pain assessment, interest sub-dimension). Previous psychometric evaluations of the tool demonstrated item-test correlations between 0.46 and 0.92, alongside a test-retest reliability score of 0.73 and an initial Cronbach's alpha of 0.93 [25]. For the current study sample, Cronbach's was determined to be 0.92.

Statistical Analysis

All statistical computations were performed utilizing the 22nd iteration of the IBM SPSS software package for Windows (IBM Corp., Armonk, NY, USA) [26]. The normal distribution of the data was examined with kurtosis and skewness values [27, 28]. To analyze the data, several statistical methods were employed, including Levene's test, Pearson's correlation, independent-samples t-tests, one-way ANOVA with post hoc comparisons, and backward elimination linear regression [26, 27, 28, 29]. The strength of the correlation coefficients (r) was interpreted utilizing the following thresholds: negligible (0.00-0.10), weak (0.10–0.39), moderate (0.40–0.69), strong (0.70–0.89), and very strong (0.90-1.00) [30]. Furthermore, regression model assumptions were verified by assessing autocorrelation via Durbin-Watson statistics, while multicollinearity was evaluated using tolerance values and the variance inflation factor (VIF) [25].

Ethical Approval

Prior to data collection, ethical clearance was granted by the Health Sciences Research Ethics Committee of the University (Approval Date: April 14, 2023; Reference No: B.30.2.IEUSB.0.05.05-20-227). In addition to acquiring necessary permissions from the developers of the measurement tools, written informed consent was secured from all participating students. To guarantee privacy, all collected data were kept anonymous. Furthermore, the entire study process strictly adhered to the ethical principles outlined in the Declaration of Helsinki.

Results

The mean age of the participants was 20.79 ± 1.55 years (min = 18; max = 26) and 83.7% were female. Of the participants, 29.8% were first-year students and 53% grew up in Izmir. In the sample, 56.7% were living with their families, 67.4% had lived in a metropolitan city for most of their lives and most (92.9%) were living in a metropolitan city when the survey was conducted. 36.2% of the students' mothers and 39.7% of their fathers had a high school education. 52.5% of the students had more income than expenses. More than half (58.9%) had pain requiring analgesics in the last month. 63.1% of the students

reported that their first-degree relatives had experienced pain in the last month and 35.5% thought that the pain experienced by their relatives sometimes impaired their quality of life (Table 1).

Descriptive analysis revealed an overall mean of 64.42 ± 9.18 (min = 25; max = 75) for the students' attitudes toward pain assessment. Additionally, the sample demonstrated a mean self-compassion level of 2.82 ± 0.38 (min = 2.08; max = 4.00), as detailed in Table 2.

A statistically significant but weak positive correlation was identified between the self-compassion scale self-kindness sub-dimension and the total score of the attitude scale towards pain assessment ($r = 0.217$), and the significance sub-dimension score of the attitude scale towards pain assessment ($r = 0.230$; $p < 0.05$). No statistically significant correlation was observed between the score of the interest sub-dimension of the attitude scale towards pain assessment ($p > 0.05$). A weak statistically significant positive correlation was found between the self-compassion scale common humanity sub-dimension score and two other scores: the total score of attitudes towards pain assessment ($r = 0.197$) and the significance sub-dimension score of the attitude scale towards pain assessment ($r = 0.202$; $p < 0.05$). No statistically significant correlation was found between the score of interest sub-dimension of the attitude scale towards pain assessment ($p > 0.05$). A weak positive statistically significant relationship was found between the student's age and the total score of attitudes towards pain assessment ($r = 0.288$), significance sub-dimension score ($r = 0.288$), and interest sub-dimension score ($r = 0.242$; $p < 0.05$). A weak positive statistically significant relationship was found between the student's grade and the total score of attitudes towards pain assessment ($r = 0.254$), significance sub-dimension ($r = 0.256$), and interest sub-dimension ($r = 0.196$; $p < 0.05$). No statistically significant relationship was found between the other variables ($p > 0.05$) (Table 3).

A significant difference was found in the mean Attitude Scale Toward Pain Assessment scores between male and female participants when socio-demographic variables were considered. ($p < 0.05$). The total mean score of the female students' attitude scale towards pain assessment (65.18 ± 8.56) was found to be statistically significantly higher than the total mean score of the males (60.52 ± 11.31) ($p < 0.05$; $d = 0.515$; $\eta^2 = 0.035$). The significance sub-dimension mean scores of female students (54.11 ± 6.35) were statistically significantly higher than the corresponding scores of male students (50.91 ± 8.67) ($t = 2.072$; $p = 0.04 < 0.05$; $d = 0.472$; $\eta^2 = 0.030$). The interest sub-dimension mean score of female students (11.07 ± 2.78) was statistically significantly higher than the corresponding scores of male students (9.60 ± 3.46) ($t = 2.219$; $p = 0.028 < 0.05$; $d = 0.506$; $\eta^2 = 0.034$) (Table 4).

It was determined that the student's total mean scores on attitudes toward pain assessment differed statistically significantly according to students' academic year ($F = 3.302$; $p < 0.05$; $\eta^2 = 0.067$). The post hoc analysis revealed that the reason for the difference was that the total mean score of the 4th graders' attitude towards pain assessment (68.59 ± 5.86) was statistically significant compared to the corresponding score of the 1st graders (61.95 ± 10.14) and the 2nd graders (63.26 ± 10.96) ($p < 0.05$) (Table 4).

It was found that the students' significance sub-dimension means scores showed a significant difference according to the academic year ($F = 3.341$; $p = 0.021 < 0.05$; $\eta^2 = 0.068$). The reason is that the significance sub-dimension mean scores of the students in the 4th year (56.70 ± 4.17) were higher than the corresponding scores of both the 1st and 2nd year students ($p < 0.05$). The significance scores of the 4th-year students were statistically significantly higher than those of the 2nd-year students ($p < 0.05$). There was no statistically significant difference between the interest sub-dimension scores of the students according to their academic years ($p > 0.05$) (Table 4). No statistically significant difference was found between the sub-dimensions and total score averages of the Attitude Scale towards Pain Assessment and the province where the students grew up, economic status, mother and father's education status, the place where they spent most of their childhood, their current location, the people they live with, the presence of their pain requiring analgesics in the last month, the presence of pain in a first-degree relative in the last month, and the impairment of quality of a relative's life due to pain ($p > 0.05$) (Table 4).

In basic analyses, common humanity, self-kindness, gender, age, and academic year were all found to have statistically significant relationships, and these were examined with multiple linear regression analysis to predict the level of attitude towards pain assessment. The model created was found to be statistically significant ($F = 5.931$; $p < 0.05$). Students' self-kindness, common humanity, gender, age, and academic year they were in were found to explain 15% of the variance in the attitude scale score towards pain assessment ($R^2 = 0.150$). The attitude of female students towards pain assessment was found to be 5.663 units higher than that of male students. It was found that a 1 unit (1 year/year) increase in the age variable caused a 1.162-point increase in the attitude towards pain assessment. However, self-kindness, common humanity, and year did not predict attitudes ($p > 0.05$) (Table 5)

Discussion

A primary goal of undergraduate nursing education is to equip students with fundamental clinical competencies while simultaneously fostering favorable attitudes regarding pain management and general care [31]. In line with this overarching objective, the present study evaluated how self-compassion and various other determinants shape the pain assessment attitudes of nursing students. The secondary finding was that self-compassion levels were moderate. No study has been found in the literature examining nursing students' attitudes towards pain assessment and their self-compassion together. It has been demonstrated that nursing students exhibit negative attitudes toward pain; [5, 8–10] while in some studies it was positive [4, 11–13] in others, it was very low [5, 6]. These variations may be due to differences in nursing education curricula, sample size, and cultural factors. Based on study results, prior studies have suggested that undergraduate nursing curricula be updated to incorporate dedicated pain management courses aimed at improving knowledge and attitudes toward pain [5, 6]. These curriculum revisions in subsequent years may have positively affected students' attitudes toward pain, leading to more positive attitudes toward the alleviation of pain in this study compared to previous studies.

Nurse educators need to grasp the extent of their students' comprehension and perspectives on pain, alongside the variables shaping these constructs, as such insight is fundamental for equipping future nursing professionals [6, 31, 32]. Within the scope of the current investigation, analyses revealed no significant correlation between overall self-compassion scores and the pain assessment attitudes of nursing undergraduates. Although the effect of self-compassion on empathy and caring processes has been previously investigated, its lack of effect on pain assessment appears to be unexpected. This result suggests that other psychosocial factors (e.g., empathy, professional experience, clinical knowledge) may be more decisive in pain assessment. A plausible explanation for this non-significant finding lies in the fundamental difference between the 'assessment' and the 'management' of pain. Pain assessment is primarily a technical, cognitive, and objective clinical skill that relies heavily on theoretical knowledge and the use of standardized measurement tools. In contrast, self-compassion is an emotionally driven construct more closely associated with the behavioral and relational outcomes of care, such as compassionate pain management and intervention. Therefore, while a highly self-compassionate nurse might excel in providing emotional support and alleviating suffering, this profound emotional trait does not necessarily alter the objective, cognitive process of evaluating a patient's pain intensity.

Gender and age were significant predictors of attitude toward pain assessment. The attitude of female students toward pain assessment was 5.663 points higher than male students. These more positive attitudes may be consistent with previous literature, suggesting that women exhibit more empathic and sensitive approaches.⁴ In addition, it was determined that as age increased, the attitude level toward pain assessment increased by 1.162 points. Our finding regarding age suggests an effect of experience and maturity. This may indicate that clinical experience should be given more importance in training programs. It was determined that the students' self-kindness and common humanity sub-dimensions, gender, age, and year of study explained 15% of the variance in the attitude scale score towards pain assessment. However, students' self-kindness, common humanity and year of study were not found to predict their attitude towards pain assessment. This relatively low explained variance ($R^2 = 0.150$) indicates that the remaining 85% of the attitudes toward pain assessment are shaped by factors not included in this current model. Consistent with the literature, this unexplained variance implies that variables more directly related to clinical and cognitive skills such as the total hours of clinical practice, specific pain management courses taken during undergraduate education, knowledge of pain neurophysiology, and empathy levels might play a more dominant role in shaping these attitudes. In the study of Irmak et al., it was found that the academic year affected the attitudes of students towards pain assessment [12]. In the study of Köse Tosunöz and Deniz Doğan, similar to this study, it was determined that the academic year did not affect the attitudes of students towards pain assessment [11]. In contrast to this study, some studies have reported that gender does not affect students' attitudes toward pain assessment [11, 12]. Şenyuva et al. reported that nursing students with low self-compassion levels are less likely to be sensitive/compassionate to patients in pain [19]. The sample size of this study was limited and it was conducted in a single nursing department, therefore, to clarify the relationship, it is necessary to examine the relationship between nursing students' self-compassion and their attitudes toward pain assessment on larger scales and in different cultures. It should be noted that there is no

course on self-compassion in the nursing department under focus, and it is recommended that educational curricula should be revised to increase the self-compassion levels of nursing students.

There was no difference in the attitude scores towards pain assessment according to the following variables: the province where the students grew up, economic status, mother and father's education status, the place where they spent most of their childhood, the place where they currently live, the people they live with, the experience of pain requiring analgesics in the last month, the presence of pain in a first-degree relative in the last month, and the degree to which a relative's pain disrupts their quality of life. The effects of these variables can be examined in larger sample and multicenter studies.

Limitations

The findings of the present investigation should be interpreted in light of certain methodological constraints. First, the study was conducted at a single university only. Moreover, the study's findings are founded on self-reported data. Due to these limitations, the study's findings may have limited generalizability. However, because no study was found that combined both nursing students' attitudes toward pain assessment and their self-compassion, this study may provide data for upcoming study. In this direction, it is thought that the findings may play a role in the process of revising the undergraduate nursing education curriculum.

Conclusion

Ultimately, this study illuminated the pain assessment attitudes and self-compassion levels of nursing undergraduates, while identifying key determinants of these attitudes. The findings indicated that students generally hold positive views regarding pain assessment, though their degree of self-compassion showed no significant bearing on these perspectives. Instead, demographic factors, specifically age and gender emerged as reliable predictors. Female students displayed notably more favorable attitudes compared to their male counterparts, and these positive perspectives tended to strengthen as students grew older. Consequently, these insights offer valuable guidance for nursing educators and clinical administrators by highlighting how individual variations shape learning outcomes. The distinct influence of age and gender underscores a vital need to integrate tailored personal and clinical experiences into nursing education programs.

Declarations

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Author contributions

Concept – A.S, A.G; Design – A.S, A.G.; Supervision – A.S.; Materials – A.S, A.G.; Data Collection and/or Processing - A.G.; Analysis and/or Interpretation - A.S.; Literature Review – A.S.; Writing –A.S.; Critical Review – A.S.

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Data availability

The dataset presented in the study is available on request from the corresponding author during submission or after publication

Ethics approval and consent to participate

The study was approved by the Health Sciences Ethics Committee of a Izmir University of Economics in Türkiye (Ethics Code: B.30.2.IEUSB.0.05.05-20-227). Informed consent was obtained from participants, and permission to use the measurement tools was granted by the developers or adaptors of the scales. The study adhered to the tenets of the declaration of Helsinki. Confidentiality protocols were strictly adhered to throughout data acquisition and subsequent analytical procedures.

Consent for publication

Not applicable.

Clinical Trial Registration

Not applicable.

Conflict of Interest

The authors have no conflicts of interest to declare.

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Tables

Table 1
Descriptive information of nursing students

Characteristics	n	%
Age ($\bar{X} \pm SD = 20.79 \pm 1.55$ (min = 18; max = 26)	141	100
Gender		
Female	118	83.70
Male	23	16.30
Academic year		
First year	42	29.80
Second year	34	24.10
Third year	38	27.00
Fourth year	27	19.10
Province of childhood		
Izmir	76	53.90
Outside Izmir	65	46.10
Income		
Lower than expenses	4	2.80
Moderate	63	44.70
Higher than expenses	74	52.50
Mother's education status		
Primary education	34	24.10
Middle school	26	18.40
High school	51	36.20
University	30	21.30
Father's education status		
Primary education	24	17.00
Middle school	24	17.00
High school	56	39.70
University	37	26.20
Province of longest childhood residence		
Village	16	11.30
Town	30	21.30
City	95	67.40
Place of residence		
Village	5	3.50
Town	5	3.50
City	131	92.90
$\bar{X}$ = Mean; SD=Standard Deviation		

Characteristics	n	%
Living with		
Outside the family	61	43.30
With family	80	56.70
Experience of pain requiring analgesic in the last month		
Yes	83	58.90
No	58	41.10
Presence of pain in a first-degree relative in the last month		
Yes	89	63.10
No	52	36.90
Perceived impact of relative's pain on quality of life (According to the student)		
Never	10	7.10
Rarely	17	12.10
Sometimes	50	35.50
Many times	47	33.30
I have no idea	17	12.10
X̄= Mean; SD=Standard Deviation		

Table 2

Attitude towards pain assessment scale and self-compassion scale total and sub-dimension score means (n = 141)

Scale/Sub-dimension	X̄±SD	Min.	Maks.	Kurtosis	Skewness	Alpha
Attitude scale towards pain subscales						
Factor 1 (significance)	53.58 ±	21.00	60.00	0.145	-1.425	0.912
Factor 2 (interest)	6.84	3.00	15.00	-0.101	-0.420	0.902
Total	10.83 ±	25.00	75.00	0.369	-1.214	0.926
	2.94					
	64.42 ±					
	9.18					
Self-compassion subscales						
Self-kindness	3.06 ± 0.76	1.40	5.00	-0.427	0.176	0.826
Self-judgement	2.51 ± 0.58	1.40	4.40	0.167	0.597	0.837
Common humanity	2.94 ± 0.71	1.25	5.00	0.113	0.385	0.849
Isolation	2.55 ± 0.94	1.00	5.00	-0.350	0.567	0.822
Mindfulness	2.87 ± 0.54	1.50	4.50	0.174	0.302	0.806
Over-identification	3.04 ± 0.67	1.25	4.50	-0.598	-0.024	0.842
Total	2.82 ± 0.38	2.08	4.00	-0.107	0.339	0.856
X̄= Mean; SD=Standard Deviation						

Table 3

Correlation analysis between attitude towards pain assessment and independent variables

		Attitude Towards Pain Assessment Scale Total Score	Significance	Interest
Self-compassion total	r	0.140	0.157	0.072
	p	0.097	0.063	0.396
Self-kindness	r	0.217**	0.230**	0.140
	p	0.010	0.006	0.097
Self-judgement	r	-0.046	-0.018	-0.103
	p	0.587	0.837	0.222
Common humanity	r	0.197*	0.202*	0.145
	p	0.019	0.016	0.087
Isolation	r	-0.099	-0.082	-0.119
	p	0.241	0.334	0.158
Mindfulness	r	0.084	0.097	0.037
	p	0.322	0.254	0.662
Over-identification	r	0.126	0.098	0.165
	p	0.137	0.246	0.051
Age	r	0.288**	0.282**	0.242**
	p	0.001	0.001	0.004
Academic Year	r	0.254**	0.256**	0.196*
	p	0.002	0.002	0.020
* <0.05 ; ** <0.01 ; r: Pearson correlation analysis				

Table 4

Attitude scale towards pain assessment and sub-dimension mean scores according to descriptive characteristics

Characteristics	n	Attitude scale towards pain total	Significance	Interest
Gender		$\bar{X} \pm SD$	$\bar{X} \pm SD$	$\bar{X} \pm SD$
Female	118	65.18 ± 8.56	54.11 ± 6.35	11.07 ± 2.78
Male	23	60.52 ± 11.31	50.91 ± 8.67	9.60 ± 3.46
t		2.260	2.072	2.219
p		0.025	0.040	0.028
Academic Year		$\bar{X} \pm SD$	$\bar{X} \pm SD$	$\bar{X} \pm SD$
First year	42	61.95 ± 10.14	51.64 ± 7.45	10.31 ± 3.25
Second year	34	63.26 ± 10.96	52.91 ± 8.29	10.35 ± 3.23
Third year	38	65.23 ± 7.23	54.13 ± 5.49	11.10 ± 2.52
Fourth year	27	68.59 ± 5.86	56.70 ± 4.17	11.88 ± 2.35
F		3.302	3.341	2.059
p		0.022	0.021	0.109
Post Hoc		4 > 1. 4 > 2 (p < 0.05)	4 > 1. 4 > 2 (p < 0.05)	
Province of childhood		$\bar{X} \pm SD$	$\bar{X} \pm SD$	$\bar{X} \pm SD$
Izmir	76	64.13 ± 9.67	53.19 ± 7.24	10.93 ± 3.02
Outside Izmir	65	64.76 ± 8.64	54.04 ± 6.38	10.72 ± 2.85
t		-0.410	-0.732	0.424
p		0.683	0.465	0.672
F: Anova Test; t: Independent Groups T-Test; Post Hoc: Tukey. LSD;				
$\bar{X}$ = Mean; SD=Standard Deviation				

Characteristics	n	Attitude scale towards pain total	Significance	Interest
Income		$\bar{X} \pm SD$	$\bar{X} \pm SD$	$\bar{X} \pm SD$
Lower than expenses	4	66.50 ± 5.74	56.50 ± 2.38	10.00 ± 3.55
Moderate	63	64.03 ± 9.33	53.01 ± 6.86	11.01 ± 2.87
Higher than expenses	74	64.64 ± 9.27	53.91 ± 6.98	10.73 ± 2.99
F		0.180	0.664	0.324
p		0.836	0.516	0.723
Mother's education status		$\bar{X} \pm SD$	$\bar{X} \pm SD$	$\bar{X} \pm SD$
Primary education	34	65.29 ± 8.27	54.29 ± 6.25	11.00 ± 2.51
Middle school	26	63.03 ± 9.81	52.38 ± 6.88	10.65 ± 3.47
High school	51	64.70 ± 8.23	53.86 ± 6.21	10.84 ± 2.78
University	30	64.16 ± 11.25	53.36 ± 8.51	10.80 ± 3.27
F		0.318	0.420	0.069
p		0.812	0.739	0.977
Father's education status		$\bar{X} \pm SD$	$\bar{X} \pm SD$	$\bar{X} \pm SD$
Primary education	24	64.45 ± 7.49	53.87 ± 5.40	10.58 ± 2.71
Middle school	24	64.00 ± 9.07	53.37 ± 6.47	10.62 ± 3.22
High school	56	65.53 ± 7.30	54.42 ± 5.35	11.10 ± 2.66
University	37	63.00 ± 12.40	52.27 ± 9.49	10.73 ± 3.34
F		0.582	0.755	0.271
F: Anova Test; t: Independent Groups T-Test; Post Hoc: Tukey. LSD;				
$\bar{X}$ = Mean; SD=Standard Deviation				

Characteristics	n	Attitude scale towards pain total	Significance	Interest
p		0.628	0.521	0.846
Province of longest childhood residence		$\bar{X} \pm SD$	$\bar{X} \pm SD$	$\bar{X} \pm SD$
Village	16	66.06 $\pm$ 7.48	54.75 $\pm$ 5.54	11.31 $\pm$ 2.77
Town	30	62.93 $\pm$ 9.83	52.40 $\pm$ 6.96	10.53 $\pm$ 3.31
City	95	64.62 $\pm$ 9.25	53.76 $\pm$ 7.02	10.85 $\pm$ 2.86
F		0.668	0.711	0.367
p		0.514	0.493	0.694
Place of residence		$\bar{X} \pm SD$	$\bar{X} \pm SD$	$\bar{X} \pm SD$
Village	5	65.60 $\pm$ 5.55	55.20 $\pm$ 4.55	10.40 $\pm$ 2.19
Town	5	61.40 $\pm$ 12.34	51.20 $\pm$ 8.72	10.20 $\pm$ 3.63
City	131	64.49 $\pm$ 9.21	53.61 $\pm$ 6.87	10.87 $\pm$ 2.95
F		0.313	0.440	0.183
p		0.732	0.645	0.833
Living with		$\bar{X} \pm SD$	$\bar{X} \pm SD$	$\bar{X} \pm SD$
Outside the family	61	64.47 $\pm$ 8.16	53.75 $\pm$ 6.04	10.72 $\pm$ 2.77
With family	80	64.38 $\pm$ 9.94	53.46 $\pm$ 7.44	10.92 $\pm$ 3.07
t		0.056	0.250	-0.406
p		0.955	0.803	0.685
Experience of pain requiring analgesic in the last month		$\bar{X} \pm SD$	$\bar{X} \pm SD$	$\bar{X} \pm SD$
Yes	83	64.89 $\pm$ 8.26	54.00 $\pm$ 6.15	10.89 $\pm$
F: Anova Test; t: Independent Groups T-Test; Post Hoc: Tukey. LSD;				
$\bar{X}$ = Mean; SD=Standard Deviation				

Characteristics	n	Attitude scale towards pain total	Significance	Interest
				2.75
No	58	63.75 ± 10.40	53.00 ± 7.75	10.75 ± 3.21
t		0.719	0.852	0.263
p		0.473	0.396	0.793
Presence of pain in a first-degree relative in the last month		$\bar{X} \pm SD$	$\bar{X} \pm SD$	$\bar{X} \pm SD$
Yes	89	65.46 ± 7.87	54.38 ± 5.84	11.07 ± 2.65
No	52	62.65 ± 10.93	52.23 ± 8.17	10.42 ± 3.36
t		1.764	1.814	1.280
p		0.109	0.100	0.203
Perceived impact of relative's pain on quality of life (According to the student)		$\bar{X} \pm SD$ Test value	$\bar{X} \pm SD$ Test value	$\bar{X} \pm SD$ Test value
Never	10	58.30 ± 11.33	49.00 ± 8.89	9.30 ± 3.12
Rarely	17	60.70 ± 9.15	51.17 ± 7.01	9.52 ± 2.83
Sometimes	50	65.12 ± 7.69	54.06 ± 5.51	11.06 ± 2.78
Many times	47	65.78 ± 10.14	54.51 ± 7.64	11.27 ± 3.08
I have no idea	17	65.94 ± 7.59	54.76 ± 5.64	11.17 ± 2.62
F		2.340	2.111	1.966
p		0.058	0.083	0.103
F: Anova Test; t: Independent Groups T-Test; Post Hoc: Tukey. LSD;				
$\bar{X}$ = Mean; SD=Standard Deviation				

Table 5
Factors affecting attitude towards pain assessment

Independent variables	Unstandardized coefficients		Standardized coefficients	t	p	95.0% CI	
	B	SE	β			Lower Bound	Upper Bound
(Constant)	25.259	11.248		2.246	0.026	3.014	47.504
Self-kindness	1.503	1.365	0.125	1.102	0.273	-1.196	4.202
Common humanity	0.878	1.448	0.068	0.606	0.545	-1.986	3.743
Gender (R=male)	5.663	1.965	0.229	2.882	0.005	1.776	9.549
Age	1.162	0.577	0.197	2.015	0.046	0.021	2.303
Year	1.307	0.810	0.157	1.613	0.109	-0.296	2.909
Dependent variable: Attitude Towards Pain Assessment Scale Score							
Durbin-Watson = 2.068; F = 5.931; p < 0.005; R = 0.424; R ² = 0.150;							
Abbreviations: CI= confidence interval; SE= standard error; β = standardized regression coefficient; B= unstandardized coefficients							

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