

Relationship between Emotional Literacy in Surgical Nurses and Patients' Pain Management: A cross-sectional study

Gonca Tan¹, Özlem Karatana Çalış^{2*}

¹ Sağlık Bilimleri University Sancaktepe Prof. Dr. İlhan Varank Health Application and Research Hospital, İstanbul, Türkiye

² Yalova University, Faculty of Health Sciences, Nursing Department, Yalova, Türkiye

ABSTRACT

Purpose: This study was conducted to determine the relationship between the emotional literacy levels of nurses working in surgical departments and the pain management of surgical patients.

Methods: This descriptive and cross-sectional study was conducted on 330 volunteer surgical nurses. We conducted the study on 330 voluntary surgical nurses. 'Personal Information Form', 'Emotional Literacy Skills Scale' and 'Self-Efficacy Scale in Pain Management' were used to collect the data.

Results: It was determined that nurses had good levels of emotional literacy and self-efficacy in pain management. It was determined that the emotional literacy levels of nurses working in surgical clinics were positively and significantly related to the pain management of surgical patients. The emotional awareness ($\beta = 0.791$; $p < 0.05$), emotional understanding ($\beta = 0.690$; $p < 0.05$), and emotional self-efficacy ($\beta = 0.522$; $p < 0.05$) sub-dimensions significantly and positively predicted the pain management self-efficacy. Independent variables explain 18.3% of the pain management self-efficacy.

Conclusion: There is a need to improve nurses' emotional literacy skills to provide more effective care for patients. It is recommended to plan and implement interventions to increase the emotional literacy and pain management levels of nurses in nursing education curricula and health institutions.

Keywords: surgical nurse; emotional literacy; pain management

ÖZET

Amaç: Bu çalışma, cerrahi servislerde çalışan hemşirelerin duygusal okuryazarlık düzeyleri ile cerrahi hastalarının ağrı yönetimleri arasındaki ilişkiyi belirlemek amacıyla yapılmıştır.

Yöntem: Tanımlayıcı ve kesitsel nitelikte olan bu çalışma, gönüllü 330 cerrahi hemşire üzerinde gerçekleştirilmiştir. Verilerin toplanmasında "Kişisel Bilgi Formu", "Duygusal Okuryazarlık Becerileri Ölçeği" ve "Ağrı Yönetiminde Öz Yeterlilik Ölçeği" kullanılmıştır.

Bulgular: Hemşirelerin, iyi düzeyde duygusal okuryazarlık ve ağrı yönetiminde öz yeterlilik düzeylerine sahip olduğu belirlenmiştir. Cerrahi kliniklerinde çalışan hemşirelerin duygusal okuryazarlık düzeyleri ile cerrahi hastaların ağrı yönetimi arasında pozitif ve anlamlı bir ilişki olduğu belirlenmiştir. Duygusal farkındalık ($\beta = 0,791$; $p < 0,05$), duygusal anlayış ($\beta = 0,690$; $p < 0,05$) ve duygusal öz yeterlilik ($\beta = 0,522$; $p < 0,05$) alt boyutları, ağrı yönetimi öz yeterliliğini anlamlı ve pozitif olarak tahmin etmiştir. Bağımsız değişkenler, ağrı yönetimi öz yeterliliğinin %18,3'ünü açıklamaktadır.

Sonuç: Hastalara daha etkili bakım sunmak için hemşirelerin duygusal okuryazarlık becerilerinin geliştirilmesi gerekmektedir. Hemşirelik eğitim müfredatlarında ve sağlık kurumlarında hemşirelerin duygusal okuryazarlık ve ağrı yönetimi düzeylerini artırmaya yönelik girişimlerin planlanması ve uygulanması önerilmektedir.

Anahtar Kelimeler: cerrahi hemşire, duygusal okuryazarlık, ağrı yönetimi

Gonca TAN
0009-0008-7258-7951
Özlem KARATANA ÇALIŞ
0000-0002-1985-8256

Correspondence: Özlem Karatana Çalış
Yalova University, Faculty of Health Sciences,
Nursing Department, Yalova, Türkiye
Phone: +90 507 958 34 46
E-mail: ozlemkaratana@gmail.com
ozlem.calis@yalova.edu.tr

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Pain represents a major global health challenge, and its management is inherently complex and multifactorial. It is one of the most common symptoms experienced by patients, particularly following surgical interventions. When postoperative pain is inadequately managed, it can negatively affect both physiological recovery and psychological well-being. This may lead to delayed mobilization, prolonged hospital stays, and an increased risk of postoperative complications (1). Pain may reduce patients' willingness to mobilize, thereby increasing the risk of immobility-related complications (2). Moreover, inadequate pain control has been linked to several adverse outcomes, including increased sympathetic activity and major cardiac risks, venous thrombosis, atelectasis, wound infections, and the development of chronic pain syndrome (3). In addition, inadequately managed postoperative pain may increase overall health care costs due to extended hospitalization and higher readmission rates (4). Therefore, effective pain management requires the consideration of multiple interrelated variables.

Nurses play a critical role in the recovery process through pain assessment, the implementation of pain management interventions, and the evaluation of patient responses (5). Due to their continuous presence at the bedside, nurses play a pivotal role in pain assessment, implementation of pain management interventions, and evaluation of patient responses throughout the recovery process (6). Nurses are expected to take an active role in pain control by guiding patients in coping with pain, evaluating the effectiveness of pain management interventions, and demonstrating empathic communication skills (7). Because pain is a subjective experience expressed by the patient, it requires individualized management regardless of its underlying cause. Consequently, effective nursing interventions necessitate the ability to recognize emotions and manage reactions in interactions with patients and their families.

Emotional literacy refers to an individual's capacity to recognize, interpret, and appropriately regulate emotional responses in oneself and others, thereby supporting effective interpersonal communication and professional functioning (8). In essence, it encompasses the ability to accurately understand emotional states and respond to them with appropriate knowledge and competence. In nursing practice, emotional literacy is particularly important for establishing therapeutic relationships and delivering patient-centered care.

Numerous studies have examined the knowledge, attitudes, and practices of surgical nurses regarding pain management, including both pharmacological and nonpharmacological approaches (9-11). However, to the best of our knowledge, no study has specifically investigated the role of emotional literacy in the pain management practices of surgical nurses. Given that effective pain management requires communication with patients and their families, recognition of emotional cues, and management of emotional reactions—core components of emotional literacy—this gap warrants further investigation.

Aim

This study was conducted to examine the effect of emotional literacy levels of nurses working in surgical clinics on the pain management of surgical patients.

Research Questions

- What are the emotional literacy levels of nurses working in surgical clinics?
- What are the pain management self-efficacy levels of nurses working in surgical clinics?
- What is the relationship between emotional literacy levels and pain management self-efficacy among nurses working in surgical clinics?

Methods

Research Design

A descriptive and cross-sectional research design.

Setting and Participants

This study was conducted between March and May 2025 in general surgery, orthopedics and traumatology, neurosurgery, urology surgery, surgical service, ear-nose-throat (ENT) surgery, cardiovascular surgery, thoracic plastic surgery, general intensive care, anesthesia, reanimation and cardiovascular intensive care services of a training and research hospital. The average bed capacity of the surgical clinics in which the study was

conducted was twenty-five and a total of 511 nurses were employed. Nurses working in these surgical clinics serve patients within the scope of shift system. Using the known population sampling method, the required sample size was 164, with an acceptable error of $\pm 5\%$ at a 95% confidence level (12). The sample of the study included 330 nurses who met the inclusion criteria and gave consent to the study. The inclusion criteria were: (1) volunteering to participate in the study, (2) working as a surgical nurse, and (3) caring for postoperative patients.

Data collection

Data collection forms included Nurse Introductory Information Form, Emotional Literacy Skills Scale and Self-Efficacy Scale in Pain Management'. Data were collected between March and May 2025, by face-to-face interviews at the end of nurses' working hours. The nurses working in the surgical clinics where the research would be conducted were informed about the research and written and verbal consent was obtained for participation through a verbal and informed consent form. The data collection period lasted 10-15 minutes for each participant.

Nurse Introductory Information Form, which was created by the researcher, includes seven questions about the participants' age, gender, marital status, educational status, working period, working clinic and patient care.

Emotional Literacy Scale (ELS), developed by Akbağ et al. (2016) (13) consists of 34 questions and 5 sub dimensions (emotional awareness, social competence, understanding emotions, emotional self-efficacy, and regulating emotions). The scale is a 5-point Likert scale and the score that can be obtained from the scale is between 34 and 170. A high score on the scale indicates a high level of emotional literacy. Cronbach Alpha internal consistency coefficient of the scale was found to be .80; emotional awareness 0.75, social competence 0.73, understanding emotions 0.71, emotional self-efficacy 0.71 and regulation of emotions 0.72. For this study, Cronbach Alpha coefficient was found to be 0.78.

Pain Management Self-Efficacy Questionnaire (PMSEQ), originally developed by Macindo et al. (2018) (14) and adapted into Turkish by Aylin Aydın Sayılan et al. (2022) (15) consists of 21 items and three sub-dimensions (comprehensive, evaluative, and supplemental). The scale,

which assesses the perceived confidence of nurses and student nurses in providing pain management to a series of patients. The questionnaire employed a 6-point bipolar scale, ranging from 0 ('not confident at all') to 5 ('highly confident'). Subscale and overall scores were computed by summing the item scores within each domain. There is no reverse coding in the scale. Cronbach's alpha internal consistency coefficient was found to be 0.90 in the total scale. For this study, Cronbach's alpha coefficient was found to be 0.86.

Data Analysis

The data obtained were analyzed using Statistical Package for Social Science Version 27.0 (SPSS). The normality of the distribution of the data was evaluated with the Kolmogorov-Smirnov test was determined. Distributional assumptions were evaluated using skewness and kurtosis coefficients, which indicated acceptable normality; therefore, parametric statistical methods were applied where appropriate. Frequency tables were created for sociodemographic questions. In order to see the differences in group averages of variables, an independent sample t-test was applied for variables with two groups, and non-parametric Kruskal Wallis-H analysis was applied for variables with three or more groups. Pearson correlation analysis was applied to determine the direction and strength of the relationship between the scales. Linear regression analysis was applied to see the effect of the independent variable on the dependent variable. The statistical significance level was accepted as $p < .05$ in interpreting the analysis results.

Ethical Considerations

Ethical approval was obtained from the University Research Ethics Committee (18.03.2025-79176), and institutional permission was granted by the hospital where the study was conducted. Permission to use the study scales was obtained from the original authors via email. The study was conducted in accordance with the Declaration of Helsinki. Participants were informed about the purpose of the study, and informed consent was obtained through the online questionnaire. Participation was voluntary, and participants were free to withdraw from the study at any time.

Results

The mean age of nurses was 31.68 ± 6.57 years and 43% were aged 26-30. The nursing experience was 8.60 ± 7.09 years, with 44.2% having 0-5 years of experience. 75.1% of the nurses were female, 53% were married, and 50.3% had an undergraduate. 23% of the nurses worked in the anesthesia department.

The overall scale scores of the nurses' "ELS" were 125.70 ± 12.68 ; "emotional awareness" 32.44 ± 4.57 ; "social competence" 38.52 ± 4.70 ; "understanding emotions" 17.83 ± 2.51 ; "emotional self-efficacy" 19.01 ± 5.07 and "regulating emotions" 17.90 ± 2.55 . The general scale scores of the nurses' "PMSEQ" were 87.95 ± 11.43 ; "comprehensive" 59.01 ± 7.32 ; "evaluative" 16.72 ± 2.70 and "supplemental" 12.13 ± 2.30 (Table 1).

Table 1. Nurses' ELS and PMSEQ Scale Mean Scores

Scales	n	Minimum	Maximum	Mean	Sd
ELS	330	83	152	125.70	12.686
Emotional awareness	330	14	40	32.44	4.573
Social competence	330	20	48	38.52	4.702
Understanding emotions	330	9	25	17.83	2.510
Emotional self-efficacy	330	6	30	19.01	5.074
Regulating emotions	330	9	24	17.90	2.550
PMSEQ	330	49	114	87.95	11.431
Comprehensive	330	35	70	59.01	7.320
Evaluative	330	7	20	16.72	2.700
Supplemental	330	5	15	12.13	2.302

Sociodemographic variables were compared with the ELS and its sub-dimensions (Table 2). There was a statistically significant difference between the ELS and its sub-dimensions and the variables of age, nursing experience, gender, education, and the working clinic ($p < .05$).

The mean emotional awareness sub-dimension score of male nurses, nurses aged 20-25 years and nurses aged 36-40 years was statistically significant and higher. The mean social competence score of nurses who graduated from high school is statistically significant and higher. The mean emotional awareness sub-dimension score

of nurses aged 26-30 and 31-35, nurses experience 0-10 years, nurses working in general intensive care, anesthesia, reanimation, and cardiovascular intensive care services are statistically significant and higher. The mean emotional self-efficacy sub-dimension score of nurses aged 40 years and over, nurses experience for 20 years and over, and nurses with associate degrees are statistically significant and higher. The mean emotion regulation sub-dimension score of males and high school graduates was statistically significant and higher ($p < .05$). There was no statistically significant difference between marital status and the mean score of ELS and its sub-dimensions ($p > .05$).

Table 2. Comparison of Socio-demographic Information, the ELS and Sub-dimensions (n = 330)

Characteristics	ELS					
	General	Emotional awareness	Social competence	Understanding emotions	Emotional self-efficacy	Regulating emotions
	$\bar{x} \pm sd$	$\bar{x} \pm sd$	$\bar{x} \pm sd$	$\bar{x} \pm sd$	$\bar{x} \pm sd$	$\bar{x} \pm sd$
Age (year)						
20-25 ^a (n=42)	127.83 ± 10.40	33.62 ± 4.07	39.31 ± 4.00	17.86 ± 1.84	18.83 ± 5.01	18.21 ± 2.38
26-30 ^b (n=142)	124.17 ± 13.58	31.77 ± 4.88	38.08 ± 5.05	18.08 ± 2.50	18.35 ± 5.02	17.89 ± 2.63
31-35 ^c (n=65)	126.66 ± 12.07	32.60 ± 3.77	38.78 ± 4.09	18.17 ± 2.47	19.17 ± 5.29	17.94 ± 2.59
36-40 ^d (n=46)	126.41 ± 11.72	33.70 ± 4.77	38.89 ± 4.76	17.22 ± 2.63	19.33 ± 5.15	17.28 ± 2.47
≥41 ^e (n=35)	126.65 ± 13.83	31.88 ± 4.53	38.38 ± 5.09	19.88 ± 2.93	21.26 ± 4.44	18.24 ± 2.42
Test value	H=0.988	H=2.521	H=0.727	H=2.582	H=2.394	H=0.982
P value	.414	.041	.574	.037	.050	.418
Difference between groups		a,d>b		b>d,e; c>d,e	e>a,b	
Nursing experience (year)						
0-5 ^a (n=146)	124.69 ± 12.20	32.35 ± 4.66	38.40 ± 4.57	17.84 ± 2.27	18.19 ± 5.25	17.91 ± 2.54
6-10 ^b (n=95)	125.98 ± 13.04	32.21 ± 4.43	38.56 ± 4.84	18.35 ± 2.47	18.91 ± 4.99	17.96 ± 2.46
11-15 ^c (n=33)	125.82 ± 13.07	33.27 ± 3.86	38.42 ± 4.86	17.12 ± 2.50	19.42 ± 4.44	17.58 ± 2.77
15-19 ^d (n=19)	120.11 ± 14.83	30.05 ± 5.86	36.42 ± 5.36	16.58 ± 2.47	19.84 ± 3.64	17.21 ± 2.07
≥20 ^e (n=37)	131.00 ± 12.70	33.27 ± 4.12	40.12 ± 4.32	17.81 ± 3.53	21.42 ± 5.31	18.38 ± 2.48
Test value	H=8.805	H=5.263	H=7.784	H=9.988	H=10.788	H=3.208
P value	.066	.261	.100	0.41	0.029	.524
Difference between groups				a>d; b>c,d	e>a,b	
Gender						
Female (n=248)	125.03 ± 13.22	32.14±4.85	38.37±4.87	17.90±2.52	18.91±4.97	17.72±2.63
Male (n=82)	127.63 ± 10.85	33.31 ± 3.49	38.94 ± 4.12	17.61 ± 2.38	19.29 ± 5.44	18.48 ± 2.21
Test değeri	t=-1.757	t=-2.352	t=-0.943	t=0.894	t=-0.581	t=-2.538
P değeri	.081	.020*	.346	.372	.562	.012*
Marital status						
Married (n=175)	125.00 ± 13.22	32.21 ± 4.45	38.28 ± 4.91	17.71 ± 2.61	19.00 ± 4.99	17.80 ± 2.44
Single (n=155)	126.11 ± 12.19	32.51 ± 4.76	38.73 ± 4.54	18.02 ± 2.42	18.89 ± 5.28	17.95 ± 2.73
Test değeri	t=-0.771	t=-0.583	t=-0.843	t=-1.093	t=0.182	t=-0.518
P değeri	.441	.560	.400	.275	.855	.605
Education						
High school ^a (n=26)	128.92 ± 8.75	33.77 ± 3.36	40.31 ± 3.46	17.58 ± 1.50	18.19 ± 5.77	19.08 ± 2.22
Pre-undergraduate ^b (n=17)	130.76 ± 17.09	33.41 ± 6.61	40.06 ± 6.96	16.41 ± 3.04	22.18 ± 5.59	18.71 ± 2.05
Undergraduate ^c (n=166)	125.64 ± 12.31	32.63 ± 4.35	38.52 ± 4.49	18.01 ± 2.49	18.88 ± 4.77	17.61 ± 2.68
Postgraduate ^d (n=110)	124.20 ± 13.18	31.84 ± 4.81	37.88 ± 4.79	17.80 ± 2.55	18.55 ± 5.27	18.13 ± 2.40
PhD Postgraduate ^e (n=19)	126.71 ± 12.56	31.43 ± 4.03	38.79 ± 4.37	18.29 ± 3.02	21.14 ± 3.32	17.07 ± 1.90
Test value	H=13.368	H=9.196	H=13.327	H=5.473	H=11.119	H=13.368
P value	.010*	.056	.010*	.242	.025*	.010*
Difference between groups	a>c,e		a>d		b>d	a>c,e
Working clinic						
General Surgery ^a (n=34)	127.09 ± 14.33	32.94 ± 5.92	38.24 ± 5.04	16.97 ± 2.20	20.56 ± 3.50	18.38 ± 1.97
Orthopedics and Traumatology ^b (n=24)	124.88 ± 6.90	32.88 ± 3.34	38.17 ± 2.92	16.92 ± 2.46	17.92 ± 6.43	19.00 ± 2.14
Neurosurgery ^c (n=6)	125.17 ± 14.62	32.00 ± 6.06	37.33 ± 4.71	17.67 ± 1.86	20.00 ± 4.29	18.17 ± 2.31
Urology Surgery ^d (n=11)	121.09 ± 13.38	33.45 ± 3.61	36.18 ± 4.51	16.82 ± 1.66	17.82 ± 5.05	16.82 ± 2.92
Surgical Service ^e (n=18)	115.50 ± 4.95	31.50 ± 0.70	34.00 ± 0.00	16.00 ± 0.00	17.00 ± 0.00	17.00 ± 4.24
ENT Surgery ^f (n=12)	122.50 ± 18.15	32.58 ± 6.72	37.33 ± 6.82	15.58 ± 3.23	18.58 ± 5.50	18.42 ± 3.45
Cardiovascular Surgery ^g (n=13)	123.46 ± 15.52	31.92 ± 4.94	37.54 ± 6.33	17.08 ± 1.75	19.69 ± 5.05	17.23 ± 3.24
Thoracic Plastic Surgery ^h (n=5)	139.60 ± 9.94	35.20 ± 2.49	43.20 ± 5.02	20.40 ± 4.33	21.20 ± 1.92	19.60 ± 0.89
General Intensive Care ⁱ	126.37 ± 11.09	32.70 ± 3.88	39.01 ± 3.93	18.03 ± 2.27	19.34 ± 5.36	17.29 ± 2.57
Anesthesia ^j (n=76)	126.71 ± 12.26	32.10 ± 4.13	39.11 ± 4.51	18.59 ± 2.41	19.07 ± 4.35	17.84 ± 2.18
Reanimation ^k (n=29)	123.66 ± 15.12	30.62 ± 6.03	37.90 ± 5.70	18.03 ± 2.66	19.41 ± 5.19	17.69 ± 3.14
Cardiovascular Intensive Care ^m (n=15)	131.40 ± 10.46	33.53 ± 4.29	40.67 ± 4.03	18.93 ± 2.37	19.47 ± 5.85	18.80 ± 2.39
Test value	H=15.097	H=10.610	H=16.723	H=32.785	H=9.188	H=18.844
P value	.178	.477	.116	.001*	.605	.064
Difference between groups				j,l,m>e; k>a,e		

Note: H= Kruskal Wallis-H test, t=Independent samples t-test, *p < .05.

Sociodemographic variables were compared with the PMSEQ and its sub-dimensions (Table 3). There was a statistically significant difference between education and PMSEQ and its sub-dimensions ($p < .05$). A statistically significant difference was found in the sub-dimension score of comprehensive sub-dimensions according to the education variable groups ($p < .05$). The mean score of

comprehensive sub-dimension of nurses with associate degree is significantly different and higher than the mean score of nurses with postgraduate and Phd. There was no statistically significant difference between the variables of age, nursing experiences, gender and working clinic and PMSEQ and its sub-dimensions ($p > .05$).

Table 3. Comparison of Socio-demographic Information, the PMSEQ and Sub-dimensions ($n=330$)

Characteristics	PMSEQ			
	General $\bar{x} \pm sd$	Comprehensive $\bar{x} \pm sd$	Evaluative $\bar{x} \pm sd$	Supplemental $\bar{x} \pm sd$
Age (year)				
20-25 ^a	86.55 ± 10.61	53.38 ± 6.99	16.21 ± 2.49	11.95 ± 2.24
26-30 ^b	87.47 ± 11.16	58.85 ± 7.17	16.54 ± 2.74	12.09 ± 2.20
31-35 ^c	89.43 ± 11.65	60.22 ± 7.66	17.06 ± 2.44	12.31 ± 2.05
36-40 ^d	89.91 ± 12.05	59.24 ± 7.21	17.39 ± 3.05	12.48 ± 2.62
≥41 ^e	85.68 ± 11.89	57.56 ± 7.68	16.50 ± 2.60	11.62 ± 2.71
Test value	$H=1.173$	$H=0.882$	$H=1.555$	$H=0.852$
P value	.322	.475	.186	.493
Difference between groups				
Nursing experience (year)				
0-5 ^a	88.66 ± 11.48	58.31 ± 7.29	16.47 ± 2.78	11.95 ± 2.30
6-10 ^b	88.87 ± 11.09	59.87 ± 7.38	16.78 ± 2.49	12.22 ± 2.05
11-15 ^c	88.48 ± 11.81	59.12 ± 7.39	16.94 ± 3.37	12.42 ± 2.64
15-19 ^d	84.53 ± 11.70	55.95 ± 7.50	16.79 ± 2.12	11.79 ± 2.61
≥20 ^e	89.62 ± 12.11	59.23 ± 6.93	16.95 ± 2.75	12.00 ± 2.69
Test value	$H=5.272$	$H=6.497$	$H=2.720$	$H=2.468$
P value	.260	.165	.606	.650
Difference between groups				
Gender				
Female	87.56 ± 87.56	58.90 ± 7.45	16.64 ± 2.77	12.05 ± 2.39
Male	88.88 ± 88.88	59.18 ± 6.92	16.91 ± 2.45	12.33 ± 1.99
Test değeri	$H=-0.897$	$H=-0.288$	$H=-0.775$	$H=-1.009$
P değeri	.37	.773	.439	.315
Marital status				
Married	87.89 ± 11.42	59.02 ± 7.41	16.71 ± 2.82	12.16 ± 2.30
Single	87.71 ± 11.42	58.81 ± 7.17	16.70 ± 2.54	12.01 ± 2.32
Test değeri	$t=0.135$	$t=0.251$	$t=0.027$	$t=0.585$
P değeri	.893	.802	.978	.559
Education				
High school ^a	87.42 ± 11.94	58.81 ± 6.82	16.35 ± 3.21	12.27 ± 2.63
Pre-undergraduate ^b	92.47 ± 7.54	62.35 ± 6.14	17.24 ± 2.13	12.88 ± 1.53
Undergraduate ^c	88.53 ± 11.45	59.56 ± 7.25	16.86 ± 2.59	12.17 ± 2.39
Postgraduate ^d	86.84 ± 11.72	57.99 ± 7.44	16.47 ± 2.90	12.04 ± 2.11
PhD Postgraduate ^e	85.21 ± 12.25	56.93 ± 8.82	16.79 ± 1.84	11.50 ± 2.84
Test value	$H=5.484$	$H=9.631$	$H=1.603$	$H=3.060$
P value	.241	.047*	.808	.548
Difference between groups				
Working clinic				
General Surgery ^a	89.15 ± 11.84	59.32 ± 7.76	17.38 ± 2.61	12.44 ± 2.33
Orthopedics and Traumatology ^b	87.33 ± 7.81	58.04 ± 5.06	16.92 ± 2.37	12.38 ± 1.40
Neurosurgery ^c	90.83 ± 15.71	60.00 ± 10.99	17.50 ± 2.81	13.33 ± 2.25
Urology Surgery ^d	83.09 ± 15.13	56.09 ± 10.51	16.09 ± 2.77	10.91 ± 3.14
Surgical Service ^e	83.50 ± 19.09	56.00 ± 12.72	16.00 ± 2.82	11.50 ± 3.53
ENT Surgery ^f	88.58 ± 8.68	59.75 ± 6.25	16.58 ± 2.61	12.25 ± 2.13
Cardiovascular Surgery ^g	87.00 ± 8.61	59.85 ± 4.25	15.92 ± 3.54	11.23 ± 3.44
Thoracic Plastic Surgery ^h	90.20 ± 6.72	60.60 ± 4.66	16.80 ± 1.64	12.80 ± 1.09
General Intensive Care ⁱ	89.11 ± 10.40	60.21 ± 6.59	16.86 ± 2.49	12.04 ± 2.20
Anesthesia ^a	85.78 ± 12.45	57.67 ± 7.91	16.19 ± 2.93	12.03 ± 2.36
Reanimation ^l	89.62 ± 10.83	59.76 ± 7.34	17.38 ± 2.22	12.48 ± 1.93
Cardiovascular Intensive Care ^m	96.53 ± 10.58	62.80 ± 7.46	18.18 ± 1.71	13.07 ± 2.01
Test value	$H=16.716$	$H=13.563$	$H=14.509$	$H=8.890$
P value	.117	.258	.206	.632
Difference between groups				

Note: $H=$ Kruskal Wallis-H test, $t=$ Independent samples t-test, * $p < .05$.

There is a positive and weakly significant relationship between the ELS and PMSEQ; emotional awareness and social competence sub-dimensions. There is a positive and very weak significant relationship between the PMSEQ and the sub-dimensions of understanding emotions and regulating emotions (Table 4).

There is a positive and weakly significant relationship between the comprehensive sub-dimensions and ELS; emotional awareness; social competence and emotional self-efficacy sub-dimensions. There is a positive and very weak significant relationship between comprehensive and the sub-dimensions of understanding emotions

and regulating emotions. There is a positive and weakly significant relationship between the evaluative sub-dimensions and ELS; emotional awareness; social competence and emotional self-efficacy sub-dimensions ($r=.213$; $p=.000$). There is a positive and very weak significant relationship between the evaluative and sub-dimensions of understanding emotions and regulating emotions. There is a positive and weakly significant relationship between the supplemental sub-dimensions and ELS; emotional awareness; social competence and regulation of emotions sub-dimensions. There is a positive and very weak significant relationship between the supplemental and sub-dimensions of understanding emotions and emotional self-efficacy (Table 4).

Table 4. Results of Pearson Correlations of the ELS, and PMSEQ

Scales	1	2	3	4	5	6	7	8	9	10
Comprehensive	1									
Evaluative	.701**	1								
	.000									
Supplemental	.739**	.658**	1							
	.000	.000								
PMSEQ	.949**	.818**	.832**	1						
	.000	.000	.000							
Emotional awareness	.338**	.283**	.364**	.343**	1					
	.000	.000	.000	.000						
Social competence	.220**	.268**	.313**	.275**	.707**	1				
	.000	.000	.000	.000	.000					
Understanding emotions	.116*	.160**	.109*	.151**	.216**	.426**	1			
	.035	.004	.049	.006	.000	.000				
Emotional self-efficacy	.202**	.213**	.127*	.207**	.082	.173**	-.015	1		
	.000	.000	.021	.000	.135	.002	.781			
Regulation of emotions	.174**	.138*	.263**	.193**	.436**	.412**	.069	.052	1	
	.001	.012	.000	.000	.000	.000	.212	.346		
ELS	.342**	.346**	.372**	.377**	.786**	.862**	.441**	.501**	.545**	1
	.000	.000	.000	.000	.000	.000	.000	.000	.000	

** $p < .01$; * $p < .05$

Independent variables explain 18.3% of the PMSEQ. The emotional awareness sub-dimensions significantly and positively predicts the PMSEQ ($\beta = 0.791$; $p < 0.05$). The emotional understanding of sub-dimensions significantly

and positively predicts the PMSEQ ($\beta = 0.690$; $p < 0.05$). Emotional self-efficacy sub-dimensions significantly and positively predicted the PMSEQ ($\beta = 0.522$; $p < 0.05$) (Table 5).

Table 5. Results of Linear Regression Analysis

Dependent variables	Independent variables	Std. Oim.		Std.	t	p	F	R
		B	S.H.	B			(p)	AdjR ²
PMSEQ	(Canstant)	-72.928	245.378		-.297	.767	4.176 (0.000*)	0.491 (0.183)
	Emotional awareness	.791	.194	.321	4.072	.000*		
	Social competence	-.302	.209	-.124	-1.445	.149		
	Understanding emotions	.690	.278	.153	2.477	.014*		
	Emotional self-efficacy	.522	.126	.227	4.141	.000*		
	Regulation of emotions	.264	.274	.058	.963	.336		
	High school	1.033	2.393	.024	.431	.666		
	Pre-undergraduate	-3.911	2.796	-.078	-1.399	.163		
	Postgraduate	.969	1.413	.040	.686	.493		
	PhD Postgraduate	3.768	2.967	.069	1.270	.205		
	General Surgery	4.848	10.744	.133	.451	.652		
	Orthopedics and Traumatology	5.308	10.703	.125	.496	.620		
	Neurosurgery	3.575	11.498	.043	.311	.756		
	Urology Surgery	9.668	10.980	.157	.881	.379		
	Surgical Service	8.012	12.825	.056	.625	.533		
	ENT Surgery	4.760	11.034	.081	.431	.667		
	Cardiovascular Surgery	5.845	10.930	.103	.535	.593		
	Thoracic Plastic Surgery	5.710	11.498	.063	.497	.620		
	General Intensive Care	4.355	10.706	.163	.407	.684		
	Anesthesia	7.577	10.667	.298	.710	.478		
Reanimation	2.335	10.765	.060	.217	.828			
Cardiovascular Intensive Care	-2.220	10.943	-.042	-.203	.839			

*p < .05

Discussion

This study examined the relationship between the emotional literacy levels of nurses working in surgical clinics and pain management in surgical patients. The findings revealed that nurses demonstrated generally good levels of emotional literacy and pain management self-efficacy. Emotional literacy levels differed significantly according to age, gender, marital status, educational background, years of nursing experience, working clinic, and knowledge related to patient care, whereas pain management self-efficacy did not show significant variation across most sociodemographic variables. Importantly, a positive and statistically significant relationship was identified between nurses' emotional literacy levels and their pain management of surgical patients, highlighting emotional literacy as a relevant factor in effective postoperative pain care.

Emotional literacy is conceptually related to emotional intelligence; however, while emotional intelligence reflects an individual's potential, emotional literacy encompasses both personal and social dimensions of emotional experiences and their practical application in interpersonal contexts (16). Accordingly, individuals with higher emotional intelligence are more likely to demonstrate emotional literacy (17). Due to the limited number of studies focusing specifically on emotional literacy, the findings of this study were discussed in relation to the broader emotional intelligence literature. In the present study, nurses' overall emotional literacy and its sub-dimensions, including emotional awareness, social competence, understanding emotions, emotional self-efficacy, and emotion regulation—were found to be at good levels. Consistent with these findings, previous studies conducted in different clinical contexts have reported moderate to high emotional intelligence levels among nurses (18). However, variability across settings has also been reported. For example, Mehralian

et al. (2024) (19) found moderate emotional intelligence levels among nurses in Iran, with higher scores in self-awareness and lower scores in self-management. Evidence suggests that nurses with higher emotional intelligence demonstrate greater resilience, professional satisfaction, collaborative decision-making, and quality of care, thereby contributing to patient safety and positive care outcomes (20). Given the human-centered nature of nursing care, which involves addressing both physical and emotional suffering, high levels of emotional competence are essential (21).

Age influenced emotional literacy, with nurses aged 20–25 showing higher emotional awareness, those aged 26–30 demonstrating greater ability to understand emotions, and nurses aged 41 and older exhibiting higher emotional self-efficacy. These findings suggest that emotional competencies may develop through both professional experience and life maturity. Nursing experience was similarly associated with better understanding of emotions and higher self-efficacy, highlighting the role of clinical exposure in enhancing emotional competence. Although direct comparisons between emotional literacy and age are scarce, findings from emotional intelligence research suggest that emotional competencies may increase with age and life experience (22). Conversely, some studies have reported no significant association between age and emotional intelligence (23), indicating that contextual and cultural factors may influence these relationships. Regarding professional experience, nurses with longer working years demonstrated higher scores in understanding emotions and emotional self-efficacy. This finding aligns with previous studies indicating that emotional intelligence and related competencies tend to improve with increased clinical experience (22). However, other studies have reported no association between working years and emotional intelligence (23), suggesting that experiential learning alone may not be sufficient and that ongoing professional development may play a mediating role.

Gender differences were observed in emotional awareness and emotion regulation, with male nurses scoring higher. This finding may be partially explained by evidence suggesting that men may exhibit stronger decision-making abilities in critical situations (24). Nevertheless, the literature presents inconsistent findings, as several studies have reported no significant relationship between gender and emotional intelligence (22). No significant differences were found based on marital status, aligning with previous literature, although some studies suggest

married nurses may exhibit higher emotional intelligence. Similarly, no significant differences were found based on marital status, consistent with previous research (23), although some studies suggest higher emotional intelligence among married nurses (25).

Educational level affected several sub-dimensions of emotional literacy and pain management self-efficacy. Nurses with lower formal education (high school or associate degree) scored higher in social competence, emotion regulation, emotional self-efficacy, and comprehensive pain management. Previous studies have emphasized that both academic background and professional experience contribute positively to emotional competencies (26). This may be explained by greater clinical exposure and longer working hours. In contrast, higher academic degrees did not always correlate with higher emotional literacy, emphasizing the importance of experiential learning alongside formal education.

Clinical unit was another significant factor. Nurses working in high-acuity environments, such as intensive care, anesthesia, reanimation, and cardiovascular units, demonstrated higher emotional understanding. This finding is consistent with previous research suggesting that nurses working in high-acuity environments may develop enhanced emotional competencies due to frequent exposure to complex clinical situations and emotionally demanding patient care (27). Frequent exposure to complex and emotionally demanding cases likely enhances these competencies, which are critical for managing patients' pain and emotional needs effectively.

Pain management self-efficacy was generally good across comprehensive, evaluative, and supportive dimensions. Educational level was the only sociodemographic variable associated with differences in comprehensive pain management, with associate degree nurses showing higher scores, potentially reflecting individualized training or practical experience. While some studies have reported adequate pain management knowledge and practices among nurses (28), others have identified gaps in knowledge and practice (29). In this study, pain management self-efficacy did not differ significantly across most sociodemographic variables; however, educational level was associated with differences in comprehensive pain management. Higher self-efficacy among associate degree nurses may reflect individual training initiatives or experiential learning, warranting further investigation.

Importantly, a positive and significant relationship was observed between emotional literacy and pain management self-efficacy. Nurses with higher emotional awareness, understanding, self-efficacy, and regulation were more confident and effective in managing postoperative pain. Clinical decision-making in nursing is neither purely intuitive nor entirely analytical but rather relies on a dynamic integration of emotional and cognitive processes (29). The observed association between emotional literacy and pain management self-efficacy is consistent with previous findings linking empathy, emotional intelligence, pain-related knowledge, attitudes, and clinical decision-making (18). Emotional competencies facilitate recognition of patients' emotional cues, empathic communication, stress management, and calm responses in critical situations, all of which contribute to improved patient recovery, quality of care, and clinical outcomes.

Nurses with higher emotional awareness are better able to recognize their own emotional states, manage stress, and prevent emotional responses from negatively influencing patient care. Emotional regulation enables nurses to respond calmly and effectively to patients experiencing pain, while social competence facilitates recognition of patients' emotional cues, empathic communication, and provision of reassurance. These competencies are particularly critical in surgical settings, where patients commonly experience fear, pain, and uncertainty. Consistent with previous studies, nurses with higher emotional competence contribute positively to patient recovery, quality of care, and clinical outcomes (20,24)

Limitations

This study is strengthened by being the first to examine the relationship between emotional literacy and pain management among surgical nurses. However, the findings are limited by the use of self-reported data, the single-center design, limited generalizability of the sample, and the administration of questionnaires at the end of nurses' working shifts, which may have influenced their responses.

Conclusion

Nurses working in surgical clinics demonstrated good levels of emotional literacy and pain management self-efficacy. Emotional literacy varied by age, gender, education, experience, and working unit, with younger

nurses showing higher emotional awareness, nurses aged 26–30 better understanding of emotions, and those 41 and older higher emotional self-efficacy. Male nurses, high school graduates, and nurses in high-acuity units (intensive care, anesthesia, reanimation, cardiovascular care) scored higher in specific emotional literacy sub-dimensions. Pain management self-efficacy was generally high, with associate degree nurses showing higher scores in comprehensive pain management. A positive relationship between emotional literacy and pain management self-efficacy was observed, highlighting the importance of emotional competencies in effective postoperative care and suggesting the value of integrating emotional literacy training into nursing education and professional development.

Declarations

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Conflict of interest

The authors declare no competing interests.

Ethical approval

Ethical approval was obtained from the Research Ethics Committee of Doğuş University in Turkey (Approval No: 18.03.2025-79176). The guiding words of the questionnaire filled in by the participants were as follows: filling in the questionnaire was regarded as informed consent. Therefore, the authors consider that written informed consent was obtained from the participants.

Data availability statement

Data available on request from the authors.

Author Contributions

Study conception and design: GT, ÖKÇ. Data collection: GT, ÖKÇ. Data analysis and interpretation: GT, ÖKÇ. Drafting of the article: GT, ÖKÇ. Critical revision of the article: GT, ÖKÇ.

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