# Attitude of nurses and nursing students towards preventing pressure injury: A relational cross-sectional study

## *Hemşirelerin ve hemşirelik öğrencilerinin basınç yaralanmalarını önlemeye yönelik tutumları: İlişkisel kesitsel bir çalışma*

**Gulsen Ulas Karaahmetoglu[1], Mahinur Durmus Iskender[1]**

[1] Department of Nursing, Health Sciences Faculty, Kastamonu University

**Abstract**

**Aim:** This study aims to measure the attitude of senior nursing students and practicing nurses toward preventing pressure injury and to provide recommendations for improving the necessary education based on their feedback.

**Methods:** A descriptive-cross-sectional relationship-seeking design was used. 229 nurses and 93 senior nursing students were included in the study. The study data were collected using the "descriptive characteristics questionnaire form" and "attitude towards pressure injury prevention scale".

**Results:** The attitude scores of nurses for the prevention of pressure injury were 26.98 ± 3.33 and 25.52 ± 3.64 of the nursing students. The scores of the sub-dimensions of the attitude towards pressure injury prevention scale of nurses and nursing students were examined and showed that the nurses obtained the highest score from the "priority" dimension, and the lowest score from the "effectiveness of prevention" dimension.

**Conclusions:** It is necessary to raise awareness first to develop a positive attitude towards pressure injury prevention. The curriculum for nurses and nursing students should be reviewed and the identified knowledge gaps should be filled with effective teaching methods. More topics should be covered in hospitals, classrooms, and labs through simulation or clinical practice.

**Keywords:** Attitude; education; nurses; nursing students; pressure injury

**Öz**

**Amaç:** Bu çalışma hemşirelik son sınıf öğrencilerinin ve hemşirelerin basınç yaralanmasını önlemeye yönelik tutumlarını ölçmek ve geri bildirimlerine dayanarak gerekli eğitimin geliştirilmesi için önerilerde bulunmak amacıyla yapılmıştır.

**Yöntemler:** Tanımlayıcı-kesitsel bir ilişki arama deseni kullanılmıştır. Çalışmaya 229 hemşire ve 93 hemşirelik son sınıf öğrencisi dâhil edilmiştir. Araştırmanın verileri "tanımlayıcı özellikler anket formu" ve "basınç yaralanmasından korunmaya yönelik tutum ölçeği" kullanılarak toplanmıştır.

**Bulgular:** Hemşirelerin basınç yaralanmasını önlemeye yönelik tutum puanları 26.98 ± 3.33 ve hemşirelik öğrencilerinin puanları 25.52 ± 3.64 bulunmuştur. Hemşirelerin ve hemşirelik öğrencilerinin basınç yaralanmasını önlemeye yönelik tutum ölçeği alt boyut puanları incelendiğinde hemşirelerin en yüksek puanı "öncelik" boyutundan, en düşük puanı ise "önlemenin etkinliği" boyutundan aldıklarını göstermiştir.

**Sonuç:** Basınç yaralanmasını önlemeye yönelik olumlu bir tutum geliştirmek için öncelikle farkındalık oluşturmak gerekir. Hemşireler ve hemşirelik öğrencileri için müfredat gözden geçirilmeli ve belirlenen bilgi boşlukları etkili öğretim yöntemleri ile doldurulmalıdır. Simülasyon veya klinik uygulama yoluyla hastanelerde, sınıflarda ve laboratuvarlarda daha fazla konu ele alınmalıdır.

**Anahtar Sözcükler:** Bası yarası; eğitim; hemşireler; hemşirelik öğrencileri; tutumlar

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**Corresponding author/*Yazışma yazarı***

**Gülşen Ulaş Karaahmetoğlu**
Kastamonu Üniversitesi, Sağlık Bilimleri Fakültesi, Hemşirelik Bölümü, Kastamonu, Türkiye.
E-mail: gulsenulas37@hotmail.com

**ORCID**
G. Ulaş Karaahmetoğlu: 0000-0002-3792-4579
M. Durmus Iskender: 0000-0002-0050-6680

## INTRODUCTION

A pressure injury is often a preventable problem in health care services and is crucial for patients, nurses, and institutions to monitor. It causes prolonging of the healing process, and complications such as infection. It also increases the workload of nurses and the treatment costs. Pressure injuries, which increase the risk of morbidity and mortality, are accepted as an indicator that determines the standards of care in nursing (1-5).

A research study determined that the prevalence of pressure injuries varies between 9-18% in European countries (6). The meta-analysis study conducted by Chaboyer et al. found the prevalence of a pressure sore to be 16.9-23.8%, and Kayser et al. found the prevalence to be 9.2% in their study (7). In studies conducted in Turkey, the prevalence of Pressure injury was reported to be between 8.1% and 10.3% (8-10). Demarre et al. stated that the cost of preventing a pressure injury varies between 2.65 and 87.57 Euros, and the cost of treating a pressure injury varies between 1.71 and 470.49 Euros (11). A study conducted in Canada estimated that the monthly cost for each spinal cord injury patient receiving pressure injury treatment in Ontario was Canadian dollars 4,750 (12).

A pressure injury, a common problem in patients worldwide, should be prevented before it occurs as its care/treatment is difficult and costly. Although the fight against pressure injury requires multidisciplinary teamwork, nursing care plays a key role in the prevention and treatment of pressure injuries. It is possible to prevent pressure injury by nurses evaluating patients at risk of developing a pressure injury, and by planning and implementing preventive interventions. Therefore, the occurrence of pressure injury has been presented as an important indicator of inadequate quality of care since the 1980s (13).

Nurses must have sufficient knowledge, skills, and critical thinking and problem-solving skills to provide quality and effective pressure injury care. However, studies emphasize that nurses lack knowledge on this issue (5,14). In addition, the attitudes of nurses towards pressure injury are as important as their knowledge level and clinical skills. A study revealed that although the average knowledge score of nurses about pressure injury was 71.5%, their attitude scores were not at a satisfactory level (15). Nurses have a very important role in evaluating patients for pressure injuries, determining the factors that may cause them, taking precautions to reduce risks, and treating them. However, one of the reasons for the development of pressure injuries is seen as the lack of knowledge of nurses. Therefore, this study aims to contribute to the literature and to guide the education curricula and in-service training programs using the obtained results. For these reasons, it is crucial to determine the attitude of working nurses and nursing students who will step into the nursing profession towards pressure injury. In this study, it was aimed to investigate the attitude of nurses and nursing students toward preventing pressure injury. Research questions followed:

1. What is the level of nurses' attitude towards preventing pressure injury?
2. What is the level of nursing students' attitude towards preventing pressure injury?
3. Are there differences between the attitudes of nurses and nursing students toward preventing pressure injury?
4. Do nurses' socio-demographic characteristics affect their attitudes towards preventing pressure injury?
5. Do nursing students' socio-demographic characteristics affect their attitudes towards preventing pressure injury?

## MATERIAL AND METHODS

### *Design, participants, and setting*

The study's descriptive, cross-sectional, and relationship-seeking design was intended to determine the attitude of nurses and nursing students toward preventing pressure injuries. The sample of the research consisted of 482 nurses in the training and research hospital and 105 final-year nursing students in the nursing department of the Faculty of Health Sciences. The sample of the study was determined according to the frequency formula in cases where the sample is known (nurses=229 and students=93). 229 nurses and 93 students who voluntarily participated were included in the research.

**Table 1.** Distribution of nurses' introductory characteristics (n=229)

| Variable | | n | % |
|---|---|---|---|
| **Age** | 18-25 | 77 | 33.6 |
| | 26-30 | 61 | 26.6 |
| | 31-40 | 61 | 26.6 |
| | 41 + | 30 | 13.1 |
| **Gender** | Female | 196 | 85.6 |
| | Male | 33 | 14.4 |
| **Working year** | 0-5 | 78 | 34.1 |
| | 6-10 | 52 | 22.7 |
| | 11-15 | 55 | 24.0 |
| | 16-20 | 17 | 7.4 |
| | 21 + | 27 | 11.8 |
| **Number of pressure wound care** | Never | 33 | 14.4 |
| | Less than 10 | 78 | 34.1 |
| | 11-20 | 46 | 20.1 |
| | 21 + | 72 | 31.4 |
| **Out-of-school education regarding pressure sores** | Yes | 59 | 25.8 |
| | No | 170 | 74.2 |
| **Competence in caring for pressure injuries** | Sufficient | 104 | 45.4 |
| | Partly sufficient | 101 | 44.1 |
| | Insufficient | 24 | 10.5 |
| **The most commonly used method in pressure wound care** | Position Change | 144 | 62.9 |
| | Air Bad | 70 | 30.6 |
| | Massage | 15 | 6.6 |
| **Who should do pressure wound care?** | Nursing | 206 | 90.0 |
| | Doctor | 11 | 4.8 |
| | Staff member | 12 | 5.2 |

n: number, %: percentage

**Table 2.** Distribution of nursing students' introductory characteristics (n=93)

| Variable | | n | % |
|---|---|---|---|
| **Gender** | Female | 73 | 78.5 |
| | Male | 20 | 21.5 |
| **Pressure wound care status** | Yes | 84 | 90.3 |
| | No | 9 | 9.7 |
| **Out-of-school education regarding pressure sores** | Yes | 14 | 15.1 |
| | No | 79 | 84.9 |
| **Competence in caring for pressure injuries** | Sufficient | 22 | 23.7 |
| | Partly sufficient | 57 | 61.3 |
| | Insufficient | 14 | 15.1 |
| **The most commonly used method in pressure wound care** | Position change | 68 | 73.1 |
| | Air bad | 22 | 23.7 |
| | Massage | 3 | 3.2 |
| **Who should do pressure wound care?** | Nursing | 89 | 95.7 |
| | Doctor | 4 | 4.3 |

n: number, %: percentage

**Table 3.** Distribution of *ATPIPS* sub-dimension scores according to the promotional characteristics of nurses (n=229)

| Variables | Competency | Priority | Impact | Responsibility | Effectiveness of prevention | Total |
|---|---|---|---|---|---|---|
| | **Mean ± SD** | **Mean ± SD** | **Mean ± SD** | **Mean ± SD** | **Mean ± SD** | **Mean ± SD** |
| **Age** | | | | | | |
| 18-25a | 6.77 ± 1.34 | 8.14 ± 0.82 | 5.31 ± 1.45 | 4.04 ± 0.85 | 3.44 ± 0.91 | 27.70 ± 2.79 |
| 26-30[b] | 6.89 ± 1.87 | 8.26 ± 0.95 | 4.67 ± 1.46 | 3.82 ± 1.27 | 3.10 ± 1.08 | 26.74 ± 3.88 |
| 31-40[c] | 6.41 ± 1.36 | 8.48 ± 0.89 | 4.43 ± 1.65 | 3.70 ± 1.09 | 3.15 ± 1.18 | 26.16 ± 3.18 |
| 41 +[d] | 6.53 ± 1.96 | 8.23 ± 0.77 | 5.20 ± 1.71 | 4.00 ± 1.29 | 3.33 ± 1.21 | 27.30 ± 3.44 |
| F: ANOVA, | 1.09/356 | 1.70/0.167 | 4.56/0.**004/0.06** | 1.24/0.297 | 1.47/0.224 | 2.68/0.**048/0.04** |
| | | | a>b, a>c | | | a>c |
| **Variable of working** | | | | | | |
| 0-5[a] | 6.55 ± 1.22 | 8.26 ± 0.83 | 5.14 ± 1.44 | 3.77 ± 0.77 | 3.40 ± 0.92 | 27.12 ± 2.89 |
| 6-10[b] | 7.42 ± 1.68 | 8.15 ± 0.92 | 5.00 ± 1.51 | 4.25 ± 1.24 | 3.31 ± 1.02 | 28.13 ± 3.38 |
| 11-15[c] | 6.42 ± 1.69 | 8.36 ± 0.95 | 4.62 ± 1.62 | 3.78 ± 1.24 | 3.00 ± 1.05 | 26.18 ± 3.38 |
| 16-20[d] | 6.41 ± 1.12 | 8.59 ± 0.71 | 4.24 ± 1.72 | 3.41 ± 0.80 | 3.29 ± 1.72 | 25.94 ± 3.19 |
| 21 +[e] | 6.26 ± 1.99 | 8.19 ± 0.83 | 4.93 ± 1.84 | 4.04 ± 1.32 | 3.26 ± 1.13 | 26.67 ± 3.91 |
| F / p / η2 | 4.15/0.**003/0.07** | 1.02/0.398 | 1.72/0.147 | 2.78/0.**028/0.05** | 1.15/.0.332 | 2.96/0.**021/0.05** |
| | b>a, b>c, b>d, b>e | | | b>d | | b>c |
| **The number of patients with pressure ulcers the nurses took care** | | | | | | |
| None[a] | 7.12 ± 1.92 | 8.39 ± 0.79 | 4.70 ± 1.76 | 3.88 ± 0.99 | 3.52 ± 1.40 | 27.61 ± 3.61 |
| 10 ve altı | 7.08 ± 1.46 | 8.22 ± 0.78 | 4.99 ± 1.38 | 3.97 ± 1.14 | 3.41 ± 0.96 | 27.67 ± 2.86 |
| 11-50[c] | 6.57 ± 1.33 | 8.24 ± 1.08 | 5.17 ± 1.78 | 3.91 ± 1.11 | 3.17 ± 1.08 | 27.07 ± 3.47 |
| 51 +[d] | 6.10 ± 1.56 | 8.31 ± 0.87 | 4.69 ± 1.55 | 3.78 ± 1.10 | 3.03 ± 0.99 | 25.90 ± 3.37 |
| F: ANOVA η2: Eta squared | 6.16/0.**000/0.08** | 0.37/0.776 | 1.13/0.338 | 0.41/0.748 | 2.39/0.070 | 4.18/0.**007/0.05** |
| | a>d, b>d | | | | | b>d |
| **Nurses' education on pressure ulcers** | | | | | | |
| Yes | 6.47 ± 2.04 | 8.25 ± 1.09 | 4.58 ± 1.65 | 3.71 ± 1.23 | 2.98 ± 1.09 | 26.00 ± 3.89 |
| No | 6.74 ± 1.40 | 8.28 ± 0.79 | 5.00 ± 1.54 | 3.95 ± 1.05 | 3.35 ± 1.06 | 27.32 ± 3.06 |
| t: t-test | -1.11/0.268 | -0.21/0.832 | -1.79/0.076 | -1.42/0.157 | -2.30/0.**023/0.34** | -2.66/0.**008/0.37** |
| **Finding the applications related to pressure wounds sufficient** | | | | | | |
| Sufficient[a] | 6.25 ± 1.43 | 8.23 ± 0.93 | 4.93 ± 1.52 | 3.80 ± 1.12 | 3.26 ± 1.03 | 26.47 ± 3.37 |
| Partially sufficient[b] | 6.90 ± 1.60 | 8.31 ± 0.83 | 4.79 ± 1.67 | 3.91 ± 1.11 | 3.15 ± 1.06 | 27.06 ± 3.19 |
| Insufficient[c] | 7.54 ± 1.72 | 8.33 ± 0.82 | 5.13 ± 1.45 | 4.17 ± 0.96 | 3.71 ± 1.23 | 28.88 ± 3.15 |
| F / p / η2 | 8.87/0.**000/0.07** | 0.25/0.777 | 0.50/0.610 | 1.14/0.320 | 2.67/0.072 | 5.32/0.**006/0.05** |
| | b>a, c>a, c>b | | | | | c>b, c>a |

n: number, %: percentage, SD: Standard deviation

### *Instruments*

The data of the study were collected using the "descriptive characteristics questionnaire form" and the "attitude towards pressure injury prevention scale".

*Descriptive characteristics questionnaire form:* The questionnaire prepared by the researchers contained eight questions that included information about the introductory characteristics of the nurses (age, gender, work experience, knowledge of pressure injury care, having had any field training about pressure injury, whether they found any sufficient pressure injury applications, their most frequently used method in caring for pressure injury, and their thoughts on who should perform pressure injury care). Six questions included information about the introductory characteristics of the students (gender, knowledge of car-

**Table 4.** Distribution of *ATPIPS* the sub-dimension scores according to the promotional characteristics of the nursing students (n=93)

| Özellik | Competency | Priority | Impact | Responsibility | Effectiveness of prevention | Total |
|---|---|---|---|---|---|---|
| | **Mean ± SD** | **Mean ± SD** | **Mean ± SD** | **Mean ± SD** | **Mean ± SD** | **Mean ± SD** |
| **Gender** | | | | | | |
| Female | 6.73 ± 1.76 | 8.74 ± 0.78 | 3.75 ± 1.50 | 3.32 ± 1.10 | 2.68 ± 0.97 | 25.22 ± 3.53 |
| Male | 6.30 ± 1.59 | 8.45 ± 0.83 | 4.95 ± 1.88 | 3.60 ± 1.14 | 3.35 ± 1.66 | 26.65 ± 3.94 |
| t / p / Cohen's d | 0.98/0.330 | 1.45/0.150 | -2.99/0.**004/0.71** | -1.02 / 0.313 | -2.29/0.**024/0.49** | -1.57/0.121 |
| **Nurses' education on pressure ulcers** | | | | | | |
| Yes | 5.64 ± 1.91 | 8.43 ± 1.02 | 4.43 ± 2.07 | 3.36 ± 1.39 | 3.29 ± 1.68 | 25.14 ± 5.04 |
| No | 6.81 ± 1.64 | 8.72 ± 0.75 | 3.94 ± 1.57 | 3.38 ± 1.07 | 2.75 ± 1.06 | 25.59 ± 3.38 |
| t / p / Cohen's d | -2.39/0.**019/0.66** | -1.27/0.206 | 1.03/0.307 | -0.07/0.945 | 1.59/0.115 | 0.43/0.671 |
| **Finding the applications related to pressure wounds sufficient** | | | | | | |
| Sufficient [a] | 5.41 ± 1.87 | 8.77 ± 0.75 | 3.59 ± 1.65 | 3.23 ± 1.19 | 2.64 ± 1.00 | 23.64 ± 4.46 |
| Partially sufficient [b] | 6.74 ± 1.25 | 8.77 ± 0.73 | 4.09 ± 1.63 | 3.30 ± 1.05 | 2.70 ± 0.91 | 25.60 ± 2.95 |
| Insufficient [c] | 8.14 ± 1.92 | 8.14 ± 0.95 | 4.36 ± 1.74 | 3.93 ± 1.14 | 3.64 ± 1.95 | 28.21 ± 3.29 |
| F / p / η2 | 14.16/0.**000/0.24** | 3.95/0.**023/0.08** | 1.08/0.343 | 2.11/0.127 | 4.26/0.**017/0.09** | 7.77/0.**001/0.15** |
| | b>a, c>a, c>b | a>c, b>c | | | c>a, c>b | c>a, c>b |

n: Sayı, %: Yüzde, SD: Standard deviation

**Table 5.** Distribution of nurses and nursing students' *ATPIPS* sub-dimension scores

| | **Nurses (n:229)** | | **Nursing students (n:93)** | | **t** | ***p*** |
|---|---|---|---|---|---|---|
| | **Mean** | **SD** | **Mean** | **SD** | | |
| Competency | 6.67 | 1.59 | 6.63 | 1.72 | 0.190 | 0.849 |
| Priority | 8.28 | 0.87 | 8.68 | 0.80 | -3.843 | **0.000** |
| Impact | 4.89 | 1.58 | 4.01 | 1.65 | 4.473 | **0.000** |
| Responsibility | 3.89 | 1.10 | 3.38 | 1.11 | 3.763 | **0.000** |
| Effectiveness of prevention | 3.26 | 1.10 | 2.83 | 1.18 | 3.161 | **0.002** |
| Total | 26.98 | 3.33 | 25.53 | 3.65 | 3.457 | **0.001** |

n: Sayı, %: Yüzde, SD: Standard deviation

ing for pressure injury, having had any out-of-school training about pressure injury, whether they found any sufficient pressure injury applications, their most frequently used method in caring for pressure injury, and their thoughts on who should care for pressure injury).

*Attitude Towards Pressure Injury Prevention Scale (ATPIPS):* The Cronbach Alpha value of the ATPIPS scale developed by Beeckman et al. used to determine the attitude of nurses towards pressure injury prevention was 0.79 (16). The Cronbach Alpha value of its Turkish version which was adapted by Üstün, was found to be 0.71 in this study (17). The ATPIPS contains 13 items in five sub-dimensions. The sub-dimensions of the scale are as follows: attitude towards individual competence in pressure injury prevention (3 items), attitude towards the priority of pressure injury prevention (3 items), attitude towards the impact of pressure injury (3 items), attitude towards personal responsibility in preventing pressure injury (2 items), and attitude towards the effectiveness of pressure injury prevention (2 items). While the minimum score that can be obtained from the scale is 13, the maximum score is 52. It is expected that the attitude will be more positive as the total average score of the ATPIPS increases.

## *Data collection*

Data were collected by face-to-face interview technique between 01.12.2021 and 01.02.2022. Before the data were collected, the nurses and nursing students were informed about the study by the researchers. The

purpose of the research was explained and it was emphasized that the research would be kept confidential and voluntarily. After the content of the consent form was read, the forms were distributed to those who agreed to participate in the study. Participants voluntarily consented and were told that they could withdraw from the study at any time without prejudice. After the tools were completed, they were collected by the researchers. Data collection took approximately 15-20 minutes.

### *Statistical analyses*

The data obtained in the research were analyzed using the Statistical Package for the Social Sciences package program version 23.0 (SPSS Inc., Chicago, IL, USA). The number, percentage, mean and standard deviation were used as descriptive statistical methods in the evaluation of the data. The Kolmogorov-Smirnov test was applied to determine whether the data was normally distributed. The t-test was used to compare the quantitative continuous data between two independent groups, and the one-way Analysis of Variance (ANOVA) test was used to compare the quantitative continuous data among more than two independent groups. Cronbach's α coefficients were calculated for validity and reliability. Eta squared and Cohen's d coefficients were used to calculate the effect size. The findings were evaluated at the 95% confidence interval at a 5% significance level.

## RESULTS

The sociodemographic and nurses' introductory characteristics are given in Table 1. 33.6% of the nurses that participated in the study were between the ages of 18-25 years, 85.6% were female, 34.1% had 0-5 years work experience, 34.1% cared for pressure injury less than 10 times, 74.2% did not receive any training on pressure injury outside of school, 45.4% found pressure injury applications sufficient, 62.9% used the repositioning method the most for pressure injury care, and 90.0% stated that nurses should care for pressure injury (Table 1).

The distribution of the introductory characteristics of nursing students is given in Table 2. 78.5% of the students that participated in the study were female, 90.3% cared for pressure injury, 84.9% did not receive training on pressure injury outside of school, 61.3% found pressure injury applications partially sufficient, 73.1% used the repositioning method the most often for pressure injury care, and 95.7% stated that nurses should care for pressure injury (Table 2).

Table 3 shows the distribution of nurses' *ATPIPS* sub-dimension scores. The nurses' sub-dimension scores were as follows: competence (6.67±1.59), priority (8.28±0.87), impact (4.89±1.58), responsibility (3.89±1.10), the effectiveness of prevention (3.26±1.10), and *ATPIPS* total score (26.98±3.33). The scales that were used in this study were found to be highly reliable according to the research results. There was no significant difference between the nurses' age variable and the mean scores of *ATPIPS* competency, priority, responsibility, and effectiveness of prevention ($p>0.05$). A statistically significant difference was found between the age variable and the impact sub-dimension mean scores at a moderate level ($p<0.05$; eta-square: 0.06), and the scale total mean score at a low level ($p<0.05$; eta-square:0.04). The impact scores of the nurses in the age range of 18-25 years were higher than those in the age ranges of 26-30 and 31-40 years, and the total scale scores were higher than those in the 31-40 age range. No significant difference was found between the variable of working years and the nurses' mean scores of *ATPIPS* priority, impact, and effectiveness of prevention sub-dimensions ($p>0.05$). A statistically significant difference was found between the variable of working years and the competence sub-dimension mean score at a moderate level ($p<0.05$; eta-square:0.07), the responsibility sub-dimension mean score ($p<0.05$; eta-square:0.05) at a low level, and the total scale mean score at a low level ($p<0.05$; eta-square: 0.05). The competence scores of the nurses for 6-10 years were found to be higher than the others, their responsibility scores were higher than those working for 16-20 years, and their total scale scores were higher than those working for 11-15 years (Table 3).

No significant difference was found between the number of patients with pressure injury in the nurses' care and their mean scores of *ATPIPS* priority, impact, responsibility, and effectiveness of prevention sub-dimensions ($p>0.05$). A statistically significant differ-

ence was found between the number of patients with pressure injury in the nurses' care and the mean scores of the competence sub-dimension at a moderate level (p<0.05; eta-square: 0.08), and the scale mean score at a low level (p<0.05; eta-square: 0.05). The competence scores of the nurses who cared for 51 or more patients with pressure injury were found to be lower than the scores of those who did not care for patients such as these and the scores of those who cared for less than 10 patients, and their total scale scores were lower than the scores of those who cared for less than 10 patients. There was no significant difference between the nurses' education on pressure injury and their mean scores of *ATPIPS* competence, priority, impact, and responsibility sub-dimensions (p>0.05). A statistically significant difference was found between the nurses' education on pressure injury and the effectiveness of prevention sub-dimension mean score (p<0.05; Cohen's d: 0.03) at a moderate level, and the total scale mean score at a moderate level (p<0.05; Cohen's d: 0.04). The scores of those who did not receive education were found to be higher than the rest. There was no significant difference between the variable of finding pressure-injury-related practices sufficient and the nurses' mean scores of *ATPIPS* priority, impact, responsibility, and effectiveness of prevention sub-dimensions (p>0.05). A statistically significant difference was found between the variable of finding pressure-injury-related practices sufficient and the mean scores of the competence sub-dimension at a moderate level (p<0.05; eta-square:0.07), and the total scale mean score at a low level (p<0.05; eta-square:0.05). The competence scores of the nurses who found the practices related to pressure injury sufficient were lower than the rest, and the scores of those who found them to be partially sufficient were lower than the scores of those who found them to be insufficient. The total scale scores of the nurses who found the practices related to pressure injury inadequate were found to be higher than the scores of the rest. (Table 3)

Table 4 shows the distribution of nursing students' *ATPIPS* sub-dimension scores. There was no significant difference between the student's gender and their *ATPIPS* competence, priority, responsibility, and total scale mean scores (p>0.05). A statistically significant difference was found between gender and the impact sub-dimension mean scores at a high level (p<0.05; Cohen's d: 0.71) and the effectiveness of prevention mean scores at a moderate level (p<0.05; Cohen's d: 0.04). The scores of the male students were higher than the scores of the female students. There was no significant difference between the students' education on pressure injury and their *ATPIPS* priority, impact, responsibility, effectiveness of prevention, and total scale mean scores (p>0.05). A statistically significant difference was found between the students' education on pressure injury and their competence sub-dimension mean scores at a moderate level (p<0.05; Cohen's d: 0.66). The scores of those students who did not receive education were found to be higher than those who had. There was no significant difference between the variable of finding the practices related to pressure injury sufficient and the students' *ATPIPS* impact and responsibility mean scores (p >0.05). A statistically significant difference was found between the variable of finding the practices related to pressure injury sufficient and the competence sub-dimension mean scores at a low level (p<0.05; eta-square:0.24), the priority sub-dimension mean scores at a moderate level (p<0.05; eta-squared:0.08), the effectiveness of prevention at a moderate level (p<0.05; eta-square:0.09), and the total scale mean scores at a high level (p<0.05; eta-square:0.15). The competence scores of the students who found the applications related to pressure injury sufficient were lower than the rest, and the scores of those who found them to be partially sufficient were lower than the scores of those who found them to be insufficient. The priority scores of those who found the applications to be inadequate were lower than the scores of the rest, and their effectiveness of prevention and total scale mean scores were found to be higher than the scores of the rest (Table 4).

In Table 5, the *ATPIPS* sub-dimension scores of nurses and nursing students are given. A t-test was conducted to determine whether the *ATPIPS* sub-dimension mean scores of the nurses and nursing students who participated in the study showed a significant difference. The difference between priority, impact, responsibility, effectiveness of prevention, and total mean scores were statistically significant (p<0.05). The nurses' impact, responsibility, effectiveness of prevention, and total scores were higher than the students' scores, and their priority scores were lower. The differ-

ence between the nurses' and the students' competence mean scores were not found to be statistically significant (p>0.05) (Table 5).

## DISCUSSION AND CONCLUSION

Nurses need to update their knowledge of pressure injuries to help prevent pressure injuries and to improve the quality of patient care. Nursing education aims to provide knowledge and skills related to pressure injury, and nurses play a key role in pressure injury prevention. The attitudes of nursing students and nurses towards pressure injury prevention were determined in this study.

*Attitude of nurses and nursing students toward preventing pressure injury*

This study showed that nursing students and nurses had low scores on attitude towards pressure injury prevention. The studies by Khojastehfar et al. (2020) with 328 nurses and by Balan et al. (2021) with 164 nurses determined that the attitude of nurses towards pressure injury prevention was not at the desired level. The studies conducted by Özyürek and Kuzucuk (2023) assessed nurses' knowledge and attitudes regarding the prevention of pressure injuries. The observations indicated that nurses exhibited notably low levels of positive attitudes toward the effectiveness of preventing pressure injuries (18-19). Contrary to this study, the studies by Sucu and Kılıç (2022) conducted with 259 nursing students, by Ghazanfari et al. (2022) with 183 intensive care nurses, by Kısacık and Sönmez with 753 nursing students, by Ekim and Sabuncu with 131 nurses and by Usher et al. (2018) with 2949 nursing students determined that they exhibited positive attitude towards pressure injury prevention (20-24). There are different results in the literature regarding attitudes toward pressure injury prevention. This result could be due to the low prevalence of patients with pressure injuries in the hospital where the study was conducted.

It is key to have positive role models to develop students' attitudes towards pressure injury prevention. This study showed that although the nurses' attitudes towards pressure injury prevention are more positive than the attitudes of nursing students, they are not at the desired level. Students interact with nurses during their clinical experience. The higher the nurses' attitude scores, the higher the students' awareness. Similar to this study, Cukljek et al. (2022) conducted a study with nursing students and nurses, and nurses' attitude scores toward pressure injury prevention were found to be higher than those of nursing students (25). The fact that nurses have more clinical experience, care for patients with pressure injuries, and attend training and courses that are useful in updating their knowledge about pressure injuries leads them to obtain higher scores than the students (25). This result supports the results in the literature.

The scores of the sub-dimensions of the *ATPIPS* of the nurses and nursing students were examined, which showed that the nurses obtained the highest score for the "Priority of Pressure Injury Prevention" dimension, and the lowest score from the "Effectiveness of Pressure Injury Prevention" dimension. Similar to this study, the studies by Aydoğan et al. (2019) with 340 intensive care nurses, and by Şen (2019) with 110 intensive care nurses showed that nurses scored lower in the "effectiveness of prevention" sub-dimension (26-27). The studies conducted by Aslan and Van Giersbergen (2016) with 660 nurses working in surgical clinics and intensive care units, by Usher et al. (2018), and by Aydoğan et al. (2019) found that the highest score was obtained from the "priority of prevention" sub-dimension (24,26,28). Nurses and nursing students think that it is important to prevent pressure injuries, but they also think that pressure injuries cannot be prevented in high-risk patients. This study result may be due to the inability to prevent pressure injury because of the lack of information, time, number of nurses, and materials.

*The difference between the attitude of nurses and nursing students toward preventing pressure injury*

The scores of the nurses in the sub-dimensions of attitude towards the impact of pressure injury, attitude towards personal responsibility in preventing pressure injury, and attitude towards the effectiveness of pressure injury prevention were found to be significantly higher than those of nursing students, and their scores of priority of pressure injury prevention were found to be significantly lower. This study result suggests that while nursing students work in the clinic with a focus on care, their priorities may change because nurses have responsibilities in the clinic other than care.

The attitude of health professionals contributes greatly to pressure injury prevention. Attitude are developed and acquired during nursing education. All the lessons during training contribute to the development of a positive attitude toward pressure injury prevention. Although knowledge raises awareness, attitude, and experience are important elements in preventing pressure injury (29). The high level of knowledge of nurses and nursing students, their positive attitude towards pressure injury, and the elimination of the obstacles they encounter in prevention will greatly contribute to the prevention of pressure injury and will decrease its incidence (30). This study revealed that some revisions are needed to improve the attitude of nurses and nursing students toward pressure injury prevention and care.

However, a relationship was found between age, work experience, the number of patients with pressure injuries cared for, and *ATPIPS* total scores. Contrary to this study, it found that nurses' age, education level, and year of clinical work experience did not have a significant effect on nurses' attitudes (31,32,33).

A pressure injury is an important clinical problem that affects the quality of life, health care costs, and treatment results in patients, therefore it is important for nurses to develop a positive attitude towards pressure injury prevention. The results of this study revealed that the attitude of nurses and nursing students towards pressure injury prevention was negative, and nurses showed a more positive attitude than students, although not at the desired level. It is necessary to raise awareness first to develop a positive attitude towards pressure injury prevention. The curriculum for nurses and nursing students should be reviewed and the identified knowledge gaps should be filled with effective teaching methods. It is recommended to include more topics in hospitals, classrooms, and laboratories through simulation or clinical practice.

## Clinical Relevance

This study emphasizes the importance of nurses and nursing senior students' attitudes toward preventing pressure injury. Although the fight against pressure injury requires multidisciplinary teamwork, nursing care plays a key role in the prevention and treatment of pressure injuries. It is possible to prevent pressure injury by evaluating patients at risk of pressure injury by nurses and planning and implementing prevention interventions. Nurses must have sufficient knowledge, skills, critical thinking, and problem-solving skills to provide quality and effective pressure injury care. Senior nursing students who will graduate are also required to be competent in the basic areas of nursing care and to give priority to all the care necessary for the comfort and recovery of their patients. The results of this study revealed that the attitudes of nurses and nursing students towards preventing pressure injury are negative and that nurses exhibit more positive attitudes than students, although not at the desired level. To develop a positive attitude towards the prevention of pressure injuries, it is necessary to raise awareness first. Curriculum for nurses and nursing students should be revised and identified knowledge gaps should be filled with effective teaching methods. More issues need to be addressed in hospitals, classrooms, and laboratories through simulation or clinical practice.

## Study Limitation

The limitation of this study is that the knowledge and practices of nurses and nursing students regarding pressure injuries were not evaluated.

## Ethical approval

Written permission was obtained from the ethics committee of Kastamonu University Clinical Research (date: 12.16.2021, decision no: 2020-KAEK-143-137) where the research was conducted, and from the Faculty of Health Sciences and the Provincial Health Directorate for the implementation of the research. Permission was obtained from the researcher who carried out the validity and reliability study of the scale via e-mail. In addition, it was clearly stated to the participants that their data would be confidential, that they could withdraw from the study at any time, and that it was voluntary. Consent was obtained from the nurses and students who agreed to participate. All expenses of the research were covered by the researchers. The research was conducted according to the principles stated in the Declaration of Helsinki.

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## Conflict-of-interest and financial disclosure

The authors declare that they have no conflict of interest to disclose. The authors also declare that they did not receive any financial support for the study.

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