RESEARCH ARTICLE

F.U. Med.J.Health.Sci.
2026; 40 (2): 143 - 149
http://www.fusabil.org

Non-Specific Neck Pain and Related Factors in Intern Physiotherapists

Nurseda BAŞGÜN [1, a]
Songül BAĞLAN YENTÜR [1, b]

[1] Fırat University,
Faculty of Health Sciences,
Department of
Physiotherapy and
Rehabilitation,
Elazığ, TÜRKİYE

[a] ORCİD: 0009-0007-6133-5292
[b] ORCİD: 0000-0001-9394-4817

Objective: The aim of this study was to evaluate the status of trainee physiotherapists with nonspecific neck pain (NSPN) and the relationship of neck pain with posture, neck disability level and upper extremity functions.

Materials and Methods: One hundred and five students were included in this study. The Bournemouth Neck Pain Questionnaire (BNPQ) was used to assess neck pain, the Neck Disability Questionnaire to assess disability related to pain, and the Upper Extremity Functional Index (UEFI) to assess upper extremity functionality. The severity of neck pain was assessed using the Visual Analog Scale (VAS). The New York Posture Analysis Scale (NYPAS) was used for posture analysis.

Results: The study was completed with 89 volunteer participants. 65.2% of the students experienced neck pain. The VAS score of the students with neck pain was 3.5±1.5. The mean score of the Bournemouth neck questionnaire was 22.6±11.3 in the group with neck pain and 8.1±1.6 in the group without neck pain (p=0.001). Likewise, the neck disability index of the students with neck pain was significantly higher than the students without neck pain. The mean score of the upper extremity functional index was 81.6±12.6 in students with neck pain and 95.9±8.2 in students without neck pain (p=0.001). The Newyork Posture Analysis score of students with neck pain was 62.0±2.5 and 63.4±2.0 (p=0.014).

Conclussion: It was determined that the neck pain levels of trainee physiotherapists were moderate and mild. This situation may be due to the inability to adjust the length of the stretchers used in the internship places.

Key Words: *Neck pain, physiotherapist, posture*

Stajyer Fizyoterapistlerde Non-Spesifik Boyun Ağrısı ve İlişkili Faktörler

Amaç: Çalışmamızda stajyer fizyoterapistlerin non spesifik boyun ağrısı (NSBA) olma durumu ve boyun ağrısının postür, boyun engellilik seviyesi ve üst ekstremite fonksiyonlarıyla ilişkisini değerlendirmek amaçlanmıştır.

Gereç ve Yöntem: Bu çalışma için 105 öğrenci dahil edilmiştir. Boyun ağrısını değerlendirmek için Bournemouth Boyun Ağrısı Anketi (BBAA), ağrıya bağlı özürlülüğü değerlendirmek için Boyun Özürlülük Anketi ve üst ekstremite fonksiyonelliğini değerlendirmek için Üst Ekstremite Fonksiyonel İndeksi (ÜEFİ) kullanıldı. Boyun ağrısının şiddeti Visuel Analog Skalası (VAS) ile değerlendirilmiştir. Postür analizi için New York Postür Analiz Ölçeği (NYPAS) kullanılmıştır.

Bulgular: Çalışma 89 gönüllü katılımcı ile tamamlanmıştır. Öğrencilerin %65.2'si boyun ağrısı yaşamıştır. Boyun ağrısı olan öğrencilerin VAS skoru 3.5±1.5 idi. Bournemouth boyun anketinin ortalama skoru, boyun ağrısı olan grupta 22.6±11.3, boyun ağrısı olmayan grupta ise 8.1±1.6 idi (p<0.05). Benzer şekilde, boyun ağrısı olan öğrencilerin boyun sakatlık indeksi, boyun ağrısı olmayan öğrencilere göre anlamlı olarak daha yüksekti. Üst ekstremite fonksiyon indeksinin ortalama puanı, boyun ağrısı olan öğrencilerde 81.6±12.6, boyun ağrısı olmayan öğrencilerde ise 95.9±8.2 idi (p<0.05). Boyun ağrısı olan öğrencilerin New York Duruş Analizi skoru 62.0±2.5 ve 63.4±2.0 idi (p<0.05).

Sonuç: Stajyer fizyoterapistlerin boyun ağrı düzeylerinin orta ve hafif düzeyde olduğu belirlenmiştir. Bu durum staj yerlerinde kullanılan sedyelerin boylarının ayarlanamaması ve tedavi sırasında uygun olmayan pozisyonların kullanılmasından kaynaklanıyor olabilir.

Anahtar Kelimeler: *Boyun ağrısı, fizyoterapist, postür*

Received : 04.09.2024
Accepted : 24.02.2026

Correspondence

Nurseda BAŞGÜN
Fırat University,
Faculty of Health Sciences,
Department of
Physiotherapy and
Rehabilitation,
Elazığ, TÜRKİYE

nursedabasgun@gmail.com

Introduction

Non-specific neck pain (NSNP) is defined as pain in the lateral and posterior region of the neck between the upper neckline and the 1st thoracic vertebra, without specific and neurologic pathologies (cervical spondylosis, fracture, inflammation, infection, etc.) (1). Neck pain is one of the most common musculoskeletal disorders worldwide, with a 12-month prevalence ranging from 42% to 67% in young adults (2, 3). It is well recognized that NSNP is not only a risk factor for the development of severe spinal pathologies and functional disability, but is also associated with reduced quality of life and productivity of workers (4, 5). Risk factors for NSNP include stress, low sleep

duration, prolonged or incorrect posture, physical inactivity, use of non-ergonomic desks and chairs, body mass index (BMI), female gender and incorrect posture (6).

Posture is defined as the combination of the positions taken by the joints in each movement. It is the placement of each part of the body in the optimal position relative to the adjacent segment and the whole body. The body achieves a proper posture as a result of the harmonious work of many muscles to provide stability with the support of ligaments during muscle activity or to provide the basis for a movement. Postural disorders are seen in individuals with NSNP (head anterior tilt, kyphosis, rounded shoulder, etc.). The underlying mechanisms are not clear, but this may be related to postural changes, cervical joint position and a disorder in proprioception of the neck muscles, which play a decisive role in motor control of the body (7, 8).

It has been reported that 80% of individuals with NSNP have difficulties in activities of daily living involving upper extremity function (3). NSNP is frequently associated with upper extremity dysfunction. Upper extremity dysfunction is defined as the presence of limitations during physical activities in which the upper extremities are used such as carrying, lifting and overhead activities. Two possible mechanisms explaining the relationship between NSNP and upper extremity dysfunction have been defined (4). The first mechanism is that mechanical loading of the upper extremity or repetitive overhead movement may trigger neck pain by increasing the mechanical load on the neck joint and ligament structure or may cause protective neck muscle spasm. Another possible mechanism is that NSNP restricts the functional use of the upper extremity by causing fear of pain, pain avoidance behavior and poor pain self-efficacy. As a result, it is thought that a loss of conditioning may occur in the neck and upper extremity muscles leading to loss of strength, endurance and energy according to the mechanisms (5, 6). There are studies suggesting that some occupational groups may have disadvantages in terms of neck pain in the literature. Patient caregivers were founded that there is an occupational group prone to musculoskeletal system injuries and it was emphasized that ways of coping with low back and/or neck pain should be developed (6). Although some materials are ergonomically appropriate, ergonomic incompatibility between materials, lack of ergonomic awareness of healthcare personnel, not paying attention to their posture during work and accordingly, problems occur in static posture according to Alp et al. (7). It is predicted that trainee physiotherapists who have not yet started their professional life may frequently have low back and neck pain because they do not apply correct body use techniques. In the literature, low back pain in trainee physiotherapists was examined and it was concluded that low back pain had a high prevalence of 11-84% (8). However, to the knowledge of the authors, no study examining neck pain in trainee physiotherapists was found. Therefore, the aim of this study was to compare postural evaluation, disability and upper extremity function results of trainee physiotherapists with and without NSNP. In line with this aim, our study tested the following hypotheses: Trainee physiotherapists with NSNP would show significant postural alterations compared to those without pain. The other hypothesis is the presence of NSNP would be associated with increased disability scores and decreased upper extremity functional status.

Materials and Methods

Research and Publication Ethics: The ethics committee approval of the study was obtained with the decision of the Ethics Committee of the Firat University Institute of Health Sciences Non-Interventional Clinical Research Ethics Committee at its meeting dated 13/02/2024 (Ethics Committee No: 2024/03-07). After the participants were informed in detail about the evaluations to be made, the Informed Voluntary Consent Form was signed and the study was started. There were a total of 105 intern physiotherapists in the last year of the Department of Physiotherapy and Rehabilitation, Faculty of Health Sciences, Firat University. Post-hoc power analysis of our study was performed in G*Power 3.1.9.7 package program. According to the post-hoc result, the confidence interval was 95%, type 1 margin of error (α) was accepted as 0.05 with a margin of error (α) of 0.05, and it was decided to take a total of 89 participants with 84% power of the study with a mid-level correlation of 0.307.

Participants and Study Design: The study, which was planned as a cross-sectional clinical research, included senior year students of the Department of Physiotherapy and Rehabilitation at Firat University who volunteered. A questionnaire was applied to 89 intern physiotherapists from the selected population (n=105). The study was completed between February 2024 and May 2024. Trainee physiotherapists between the ages of 18-30 years who had been interning for at least 3 months participated in the study. Among the participants who met the inclusion and exclusion criteria, those with acute and subacute pain (1 week-3 months) were included in the Pain Group, while students who did not complain of neck pain were included in the No Pain Group. Participants with known chronic diseases, participants with neck pain lasting more than 3 months without interruption and with a history of previous surgery, trauma, participants with chronic diseases, participants receiving treatment for neck pain, and students who did not want to participate in the study were excluded from the study. Demographic characteristics of the participants [age, gender, height, body weight, BMI] were recorded on a form prepared by the researchers. Survey evaluations were conducted using a survey prepared by the physical therapist via Google Forms. The New York Posture Scale was administered by physiotherapist.

Then, the severity of low back pain at rest and during activity, neck and shoulder pain were assessed with Visual Analog Scale (VAS), neck disability was assessed with Bournemouth Neck Pain Questionnaire (BNPQ) and Neck Disability Index (NDI), upper extremity

functionality was assessed with Upper Extremity Functional Scale and posture analysis was assessed with New York Posture Assessment Method (NYPA).

Data Collection Tools

Visual Analog Scale (VAS): No pain is written on one end and very severe pain is written on the other end and the patient marks his/her current state on this line. The length of the distance from the place where there is no pain to the place marked by the patient indicates the patient's pain (9).

Bournemouth Neck Pain Questionnaire (BNPQ): Neck disability was assessed with the BNPQ. It consists of 7 questions in total. Each question is scored between 0 and 10, with a maximum score of 70. A high score indicates the severity of the level of disability. The questionnaire consists of parameters such as pain intensity, impact of pain on activities of daily living and social life, anxiety-depression level, kinesiophobia and ability to cope with pain. The BNPQ is a short, practical, multidimensional questionnaire (1).

Neck Disability Index (NDI): The questionnaire consists of 10 items: pain intensity, personal care, lifting, reading, headache, attention, work, driving, sleep and recreation. Participants are asked to score each question between 0 (no disability) and 5 (full disability). The total score ranges from 0 (no disability) to 50 (full disability). A score of 0-4 is interpreted as no disability, 5-14 as mild disability, 15-24 as moderate disability, 25-34 as severe disability and >35 as total disability (3).

Upper Extremity Functional Index (UEFI): It is a test to assess the functional status of the upper extremity. The participant is asked to consider his/her complaints in the last week and give the most appropriate answer. Fifteen activities involving the upper extremity are questioned. In scoring, the scale items are given a score according to a five-point Likert scale between 0-4. A total score between zero and one hundred points is obtained (1).

New York Posture Assessment Method (NYPDY): It is a test consisting of 13 separate sections, including sections examining the anterior posture of the head, neck, spine, hips, and feet; and lateral posture of the feet, neck, chest, shoulders, upper back, trunk, abdomen, and lower back. Accordingly, five points are given if the person's posture is anatomically appropriate, three points if there is moderate impairment, and one point if there is severe impairment. The total score obtained as a result of the test is minimum 13 and maximum 65. The standard variable ranges of the test are defined as very good posture if the total score is more than 45, good posture if 40 to 44, moderately good posture if 30 to 39, poor posture if 20 to 29 and poor posture if less than 19 (3).

Statistical Analyses: Data were analyzed using the statistical package program IBM SPSS v25.0 (IBM Corp., Armonk, New York, USA). After data entry, error control was performed. Outlier data were excluded from the analysis. Descriptive statistics were given as frequency, percentage, mean±standard deviation values. The conformity of the numerical variables to normal distribution was evaluated with Skewness-Kurtosis values. Parametric test was used because the data fit the normal distribution. Independent samples t test was used to evaluate the mean between two groups with continuous variables. Comparison between groups was performed by chi-square analysis. Pearson correlation analysis was used to examine the relationship between means.

Results

The distribution of the students according to some characteristics is summarized in Table 1. The mean age of the students was 22.3±1.0 years. 74.2% of the students were female and 25.8% were male. 22.5% of the students were smokers. 47.2% of the students were of normal weight. 65.2% of the students experienced neck pain. The VAS score of the students with neck pain was 3.5±1.5.

Table 2 summarized the status of neck pain according to some characteristics of the students. 71.2% of female students and 47.8% of male students experienced neck pain (p<0.05). There was no significant difference between the smoking status and body mass index of the students and their neck pain.

The distribution of the scores obtained by the students from the Bournemouth neck questionnaire, neck disability index, upper extremity functional index and New York Posture analysis is summarized in Table 3. The mean score of the Bournemouth neck questionnaire was 17.6±12.6, the mean score of the neck disability index was 9.2±5.7, the mean score of the upper extremity functional index was 86.6±13.2, and the mean score of the Newyork Posture analysis was 62.5±2.4.

Table 1. Distribution of students according to some characteristics (n=89)

Demographics	n	(%)
Gender		
Female	66	(74.2)
Male	23	(25.8)
Smoking status		
Yes	20	(22.5)
No	69	(77.5)
BMI		
Weak	12	(13.5)
Normal	42	(47.2)
Overweight	35	(39.3)
Having neck pain		
Yes	58	(65.2)
No	31	(34.8)

BMI: Body mass index

Table 2. Neck pain experiences of the students Neck pain experience according to some characteristics of the students (n=89)*

Demographics	Participants with Neck Pain n (%)	Participants Without Neck Pain n (%)	Test and *p* Value
Gender			
Female	47 (71.2)	19 (28.8)	x^2=4.109
Male	11 (47.8)	12 (52.2)	***p*=0.040**
Smoking status			
Yes	46 (66.7)	23 (33.3)	x^2=0.304
No	12 (60.0)	8 (40.0)	*p*=0.582
BMI			
Weak	6 (50.0)	6 (50.0)	x^2=2.024
Normal	30 (71.4)	12 (28.6)	*p*=0.364
Overweight	22 (62.9)	13 (37.1)	

BMI: Body mass index * Percentage of rows is given

Table 3. Scores of Bournemouth neck questionnaire, neck disability index, upper extremity functional index and New York Posture analysis in all students

Parameters	Mean ±S D	Min-max	Cronbach Alfa
BNPQ	17.6±12.6	0-50	0.790
NDI	9.2±5.7	0-29	0.722
UEFI	86.6±13.2	52-100	0.753
NYPAS	62.5±2.4	56-65	0.719

VAS: Visuel Analogue Scale, BNPQ: Bournemouth Neck Pain Questionnaire, UEFI: Upper Extremity Functional Index, NDI:Neck Disability Index, NYPAS: New York Posture Analysis Scale, SD: Standard Deviation

Comparison of some characteristics of the students according to their pain status is summarized in Table 4. The mean score of the Bournemouth Neck Questionnaire was 22.6±11.3 in the group with neck pain and 8.1±1.6 in the group without neck pain (p<0.05). Likewise, the neck disability index of the students with neck pain was significantly higher than the students without neck pain. The mean score of the upper extremity functional index was 81.6±12.6 in students with neck pain and 95.9±8.2 in students without neck pain (p<0.05). The Newyork Posture Analysis score of students with neck pain was 62.0±2.5 and 63.4±2.0 (p<0.05).

The distribution of students according to neck disability groups is given in Table 5. 21.3% of the students had no disability. The rate of students with severe disability was 3.4%.

The correlations of students with neck pain according to Bournemouth Neck Questionnaire, Neck Disability Index, Upper Extremity Functional Index, New York Posture Analysis VAS scores are summarized in Table 6. There was a moderate positive correlation between the Bournemouth Neck Questionnaire and the Neck Disability Index and VAS score, while a weak negative correlation was found with the Upper Extremity Functional Index. There was no relationship between Bournemouth neck questionnaire and New York Posture analysis. There was a significant weak negative correlation between neck disability index and upper extremity functional index, while there was a significant weak positive correlation with VAS score.

Table 4. Comparison of some characteristics of students according to their neck pain status

Parameters	Group with Neck Pain (n=58) (mean±SD)	Group Without Neck Pain (n=31) (mean±SD)	Test and p Value
Age/year	22.1±0.9	22.7±1.1	t=2.540 p=0.013
BNPQ	22.6±11.3	8.1±1.6	t=-6.131 p=0.001
NDI	11.3±5.2	5.5±4.7	t=-5.110 p=0.001
UEFI	81.6±12.6	95.9±8.2	t=5.676 p=0.001
NYPAS	62.0±2.5	63.4±2.0	t=2.510 p=0.014

Abbreviations: BNPQ: Bournemouth Neck Pain Questionnaire, UEFI: Upper Extremity Functional Index, NYPAS: New York Posture Analysis Scale, SD: Standard Deviation

Table 5. Distribution of students according to neck disability scores (n=89)

Neck Disability Classification	n	(%)
No disability	19	(21.3)
Mild disability	54	(60.7)
Moderate disability	13	(14.6)
Serious disability	3	(3.4)

Table 6. Correlations among Bournemouth neck questionnaire, Neck disability index, Upper extremity functional index, New York Posture analysis VAS scores of students with neck pain (n=58)

Parameters	BNPQ	NDI	UEFI	NYPAS	VAS
BNPQ		0.605**	-0.304*	-0.197	0.525**
NDI			-0.382**	-0.190	0.383**
UEFI				0.063	-0.144
NYPAS					-0.136
VAS					

BNPQ: Bournemouth Neck Pain Questionnaire, UEFI: Upper Extremity Functional Index, NYPAS: New York Posture Analysis Scale **p<0.01, *p<0.05

Discussion

NSPN is one of the leading causes of disability and is considered one of the most common conditions in clinical practice. Physiotherapists are one of the professions frequently exposed to back and neck pain. This study was designed to examine the neck pain experienced by trainee physiotherapists who have not yet started their professional life and the factors that may cause pain. It was seen that the majority of the trainee physiotherapists included in our study had mild pain. It was also concluded that the level of pain was significantly associated with the level of neck disability. In addition, there was a significant difference in the neck disability level, disability, upper extremity function and posture evaluation of the participants with pain compared to the group without pain. This result suggested that physiotherapists may be exposed to neck problems due to their profession, even if they have not yet started their profession. In this context, the importance of applying ergonomic approaches during the professional life of physiotherapists is seen.

Physiotherapists are health professionals trained in the fields of treatment, prevention and rehabilitation. Treatment or preventive physiotherapy and rehabilitation aims to improve the physical, emotional and psychological health status of the individuals to whom they apply and to improve their quality of life. Due to their profession, physiotherapists have to use repetitive body movements. One of the causes of neck pain is incorrect posture and repetitive body movements. Therefore, physiotherapists are a professional group open to musculoskeletal injuries. It was observed that the physiotherapists who had not yet started their profession had neck pain to a great extent in this study. However, it was determined that the neck pain levels of intern physiotherapists were moderate and mild. This may be due to the inability to adjust the length of the stretchers used in the internship sites, the use of inappropriate positions during treatment, prolonged treatment in the wrong posture, psychosomatic factors, prolonged use of the telephone or prolonged time at the desk due to heavy course load. Similarly, it was reported that neck pain is frequently seen in studies conducted in other occupational groups. Daltaban et al. was determined that musculoskeletal system problems were quite common among dental students and the most commonly affected areas were neck, back and waist (10). This study was investigated neck problems in trainee physiotherapists and found that the rate of those who experienced neck pain was 65.2%. In a study conducted in caregivers, it was demonstrated that neck pain was frequently seen in this occupational group and this condition negatively affected function (6). Neck pain was shown to be a common symptom in a study conducted in child caregivers (11).

It was observed that neck pain was higher in female subjects with a rate of 72.1% compared to 47.8% in male subjects according to the results of this study. Possible reasons for this include hormonal differences, gender-based differences in pain perception, and psychosocial factors being more pronounced in women. The lower prevalence of NSNP in male trainee physiotherapists may be attributed to greater muscle mass and neck strength, which provide better structural support and stability to the cervical spine against mechanical loading. Previous studies have concluded that neck pain is more common in women (12). Chronic neck pain is more common in female academicians according to Yılmaz et al. At the same time, it was concluded that the neck disability level of female academicians was higher than male academicians (9). In this context, this study is consistent with the literature (13, 14). It is known that psychosomatic findings are more common in women (15). There are publications showing that psychosomatic findings are associated with neck pain. According to Verwoerd et al.; while physiotherapists describe their individual clinical cases, they generally think that psychosocial factors affect their patients' experiences of recovery, failure to recover or pain during the treatment process. The physiotherapists who participated in the study indicated that stress, often from work or personal situations (e.g. children or a hectic social life), contributed to the development and non-recovery of NSNP. When describing the treatment process, the psychological factors 'fear of movement' and 'anxiety' were most frequently mentioned as negative factors contributing to recovery (16). The reason for the higher rate of neck pain in female participants in this study may be psychosomatic conditions or anxiety disorders. It is recommended that future studies should include these parameters.

The results of this study demonstrated that the level of neck disability, disability, posture and upper extremity function were significantly different in the painful group compared to the non-painful group. This

result was not surprising. There is a decrease in neck functional status and an increase in disability level with increasing pain. In addition, impairment of upper extremity function and posture is expected in patients with neck pain (1).

When the relationship between neck pain and the parameters evaluated in this study was examined, it was concluded that neck pain was moderately significantly associated with neck disability level and disability in trainee physiotherapists. However, neck pain was not significantly associated with posture and upper extremity function. It was seen that the posture scores of the intern physiotherapists who participated in the study were high and therefore they had good posture. The relatively high posture scores in both groups could be linked to the 'postural awareness' of trainee physiotherapists. Their education in biomechanics and ergonomics might lead them to consciously or subconsciously adopt more neutral alignments during formal assessments, even if they experience pain. Therefore, it was thought that the factor causing pain may be due to incorrect posture during treatment and evaluation rather than posture disorder. In addition, the moderate and mild pain levels of the participants may not be at a level that would negatively affect upper extremity functions. Different results may be obtained in studies with participants with higher pain levels. Moreover, postural adaptations to pain are often subtle and task-specific. High static posture scores may not fully capture dynamic postural instability or compensatory muscle activation patterns during clinical practice. Similar to this study, Kendal et al. found that there was no relationship between upper extremity dysfunction and posture disorders (17).

The limitations of our study are as follows: this study was conducted in only one university, representing a single city. It can be repeated using a larger sample including different universities. The fact that we did not evaluate psychosomatic factors can also be seen as a limitation. The participants included in the study were selected from interns who continued their internship for at least 3 months. The results may change with the inclusion of participants with longer internships. The inability to obtain findings regarding students' working conditions is a limitation. The fact that students are on internship rotations and change locations at certain intervals has prevented this assessment from being carried out.

In conclusion, it was found that the majority of trainee physiotherapists had mild to moderate neck pain in our study investigating neck pain and related parameters in trainee physiotherapists. This study also concluded that neck pain was more common in women and neck pain was associated with neck disability level and disability. From a clinical and practical perspective, these findings emphasize that musculoskeletal health should be prioritized as early as the undergraduate education stage. It is recommended that physiotherapy curricula incorporate mandatory ergonomic training and self-care strategies specifically designed for clinical practice settings. Early intervention programs focusing on neck stabilization and upper extremity conditioning may prevent the progression of subacute pain into chronic disability. Further longitudinal studies are needed to evaluate the long-term effects of clinical internship workloads on the musculoskeletal health of future healthcare professionals.

References

1. Ateş R, Özbek H, Yıldız Z, Başkurt Z. Non-spesifik boyun ağrısı olan genç bireylerde uyku pozisyonunun boyun yeti yitimi, üst ekstremite fonksiyonu ve uyku kalitesi üzerine etkileri. Journal of Turkish Sleep Medicine 2023; 10(3):192-198.
2. Karakuş S, Kılıç F. Postür ve sportif performans. Kastamonu Education Journal 2006; 14(1): 309-322.
3. Derdiyok FB, Atalay ES. Dikiş diken, jinekolog ve postüral nitelikli cerrahi. Hacettepe Üniversitesi Sağlık Bilimleri Fakültesi Dergisi 2022; 9(3): 573-590.
4. Smedley J, Inskip H, Trevelyan F, et al. Risk factors for incident neck and shoulder pain in hospital nurses. Int J Occup Environ Med 2003; 60:864-869.
5. Akbaba YA, Birinci T. Hasta bakıcılarda bel-boyun ağrısının değerlendirilmesi ve ağrının depresyon üzerine etkisinin incelenmesi. Acıbadem Üniversitesi Sağlık Bilimleri Dergisi 2019: 2: 236-240.
6. Andersen JH, Gaardboe O. Musculoskeletal disorders of the neck and upper limb among sewing machine operators: A clinical investigation. American Journal of İndustrial Medicine 1993; 24(6): 689-700.
7. Alp E, Bozkurt M, Başçiftçi İ. Hastane malzemelerinin sağlık çalışanlarının postürüne etkileri. Sakarya Üniversitesi Fen Bilimleri Dergisi 2012; 16(3): 221-226.
8. Acar HT, Yaşar P, Ateş R, et al. Stajyer fizyoterapistlerde nonspesifik bel ağrısının postür, kor endurans ve lumbopelvik stabilite ile ilişkisi. Türk Fizyoterapi ve Rehabilitasyon Dergisi 2023; 34(2): 208-218.
9. Yılmaz AS. Kronik boyun ağrili akademisyenlerde ağri şiddeti, servikal lordoz, boyun farkindaliği ve boyun özür düzeyinin incelenmesi (kronik boyun ağrisi olan akademisyenlerde ağri şiddeti, servikal lordoz, boyun farkindaliği ve boyun engellilik düzeyinin analizi). YOBÜ Sağlık Bilimleri Fakültesi Dergisi 2023; 4(1): 44-53.
10. Daltaban Ö, Durmuş H, Mete O, et al. Diş Hekimliği Fakültesi öğrencilerinde kas iskelet sistemi problemlerinin değerlendirilmesi. Akdeniz Diş Hekimliği Dergisi 2022; 1(2): 48-54.
11. Vural AN. Engelli Çocuğa Sahip Annelerin Postür Analizi ve Ağrı Değerlendirmesi. Master's Thesis, İstanbul Medipol Üniversitesi Sağlık Bilimleri Enstitüsü, 2018.
12. Safdar M, Sarfraz N, Ishaq I, et al. Effectiveness of cervical mobilization and stretching exercise with or without upper thoracic mobilization on non-specific neck pain. Rawal Medical Journal 2020; 45(1): 80-80.
13. Paksaichol A, Lawsirirat C, Janwantanakul P. Biyopsikososyal risk faktörlerinin ofis çalışanlarında spesifik olmayan boyun ağrısına katkısı: Bir yol analizi modeli. J İş Sağlığı 2015;57(2):100-109.

14. Jun D, Johnston V, McPhail SM, O'Leary S. İki kültürdeki ofis çalışanlarında spesifik olmayan boyun ağrısının gelişimi için risk faktörleri ve etkileşimlerin uzunlamasına bir değerlendirmesi. Uğultu Faktörleri 2021;63(4):663-683.

15. Yaya B, Ergün D, Yılmaz B. Akademisyenlerde sosyodemografik değişkenlere göre mobbing, psikosomatik belirtiler ve ruminatif düşünce biçiminin incelenmesi. Kıbrıs Türk Psikiyatri ve Psikoloji Dergisi 2019;1(3):139-144.

16. Verwoerd MJ, Wittink H, Mejb G, Maissan F, RJjem S. physiotherapists' knowledge, attitude and practice behavior to prevent chronification in patients with non-specific, non-traumatic, acute-and subacute neck pain: A qualitative study. Musculoskeletal Science and Practice 2022;57:102493.

17. Kendal K, Çıtaker S. Müzisyenlerin ağrı, postür, üst ekstremite fonksiyonu ve anksiyete düzeylerinin incelenmesi. Gazi Sağlık Bilimleri Dergisi 2021;6(3):69-77.