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Araştırma Makalesi / Research Article

**Covid-19: Pandemi Döneminde Yaşlı Bireylerde Yaşanan Yalnızlık Durumu ve Etkileyen Faktörler: Kesitsel Çalışma**Hülya KANKAYA¹ | Beyza YILDIRAK²Emine KARAMAN^{3*}**Loneliness of Elderly and Affecting Factors During the Covid-19 Pandemic: A Cross-Sectional Study****ÖZET**

Covid-19 pandemisinin yaşamımıza getirdiği azalmış sosyal temas özellikle yüksek risk grubunda yer alan yaşlı bireyler için yalnızlık duygusuna neden olmuştur. Araştırma, Covid-19 pandemik salgın döneminde yaşlı bireylerin yalnızlık durumu ve etkileyen faktörleri incelemek amacıyla yapılmıştır. Tanımlayıcı ve kesitsel tipte olan araştırma 104 yaşlı birey ile yürütülmüştür. Veriler “Kişisel Bilgi Formu” ve “Yaşlılar için Yalnızlık Ölçeği” kullanılarak toplanmıştır. Çalışmaya katılan yaşlıların yalnızlık ölçeği toplam puan ortalaması; 9.47 ± 6.04 , “duygusal yalnızlık” alt boyut ortalaması; 5.96 ± 3.82 , “sosyal yalnızlık” alt boyut ortalaması; 3.49 ± 2.78 olarak belirlenmiştir. Yaşlıların kendini yalnız hissetme ifadelerinin ölçek puan ortalamasını ($p=0.000$), sosyal etkinliklere katılma düzeylerinin sosyal yalnızlık alt boyutu puan ortalamalarını ($p=0.038$) istatistiksel olarak anlamlı düzeyde etkilediği saptanmıştır. Çalışmada, yaşlı bireylerin bu dönemde kendilerini daha yalnız hissettiklerini ifade ettikleri, ancak ölçek puan ortalamalarının orta düzeye yakın olduğu görülmüştür. Bu durumun toplumsal yapı olarak aile ilişkilerinin kuvvetli olmasından kaynaklandığı, bu durumun yaşlıların yalnızlık duygusunu azaltmada etkili olabileceği düşünülebilir.

Anahtar kelimeler: Covid-19, Yaşlı, Yalnızlık**ABSTRACT**

The reduced social contact that the Covid-19 pandemic has brought to our lives has caused a feeling of loneliness, especially for elderly individuals in the high-risk group. The study was conducted to examine the loneliness of elderly and affecting factors during the Covid-19 pandemic. This cross-sectional and descriptive study was conducted 104 elderly in Türkiye. “Elderly Information Form” and “Loneliness Scale” were used as data collection tools. The total mean loneliness scale score of the elderly was 9.47 ± 6.04 . “Emotional loneliness” sub-dimension score was 5.96 ± 3.82 , “Social loneliness” sub-dimension score was 3.49 ± 2.78 . It was determined that the expressions of feeling lonely of the elderly affected the scale mean score ($p=0.000$) and their participation in social activities had a statistically significant effect on the social loneliness sub-dimension mean score ($p=0.038$). It was concluded that the mean score of the scale was the middle level. It can be speculated that this situation arises from the strong family relations as a social structure, and this may be effective in reducing the loneliness of the elderly.

Keywords: Covid-19, Elderly, Loneliness

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INTRODUCTION

The novel coronavirus (Covid-19), originating in Wuhan city of China's Hubei province in December 2019, spread and had a swift impact on the entire world rapidly. The outbreak has been termed as a pandemic by the World Health Organisation (WHO) (Ciotti et al., 2020; Esen et al., 2024). Covid-19 virus causes mild or moderate respiratory illness in individuals and recovers with symptomatic treatment. However, elderly individuals and individuals with chronic diseases (such as chronic respiratory disease and cardiovascular disease) are more likely to develop serious diseases (WHO, 2020). This disease is risky for all individuals, and elderly individuals with high risk of complications and death are among the important groups affected by the pandemic. Mortality rates due to COVID-19 in elderly individuals aged 65 years and older are 79.2% in the USA and 72% in Turkey (CDC, 2021; T.R. Ministry of Health, 2020; Stolz et al., 2021). During the pandemic process, measures such as the use of masks, hand hygiene practices, contact tracing, social distancing, social isolation, closure of social areas and lockdown restrictions have been taken to reduce the spread of the virus and control the pandemic (Cihan & Gökgöz Durmaz, 2021). These measures have been even more restrictive in our country, especially in order to protect the elderly, who are a risk group. In addition, notification have been given to elderly people to reduce their contact with family members and relatives (Gencer, 2020). Fear of transmission of the virus reduced interactions between people with social and individual measures taken. All these factors suggest that the feeling of loneliness will increase in the elderly as in all individuals. Because loneliness can also be affected by situations such as reduced social contact and insufficient social activities (Dahlberg, 2021; Heidinger & Richter, 2020).

Loneliness is a natural feeling that everyone can experience. Nevertheless, it is a condition that causes pain to the individual and negatively affects well-being (Akgül & Yeşilyaprak, 2018). Loneliness poses a high risk in elderly individuals and this risk has been attributed to reasons such as widowhood, living alone,

and mobility limitations. Before the pandemic, studies in Europe and the USA estimated that the rate of loneliness in the elderly was estimated to be between 5% and 43%, and this rate was determined to be high (Stolz et al., 2021; Leigh-Hunt et al., 2017; Wickens et al., 2021).

In addition to its mental effects, loneliness in the elderly may increase the risk of depression, dementia, cardiovascular disease, mortality and other diseases (Guner et al., 2021; Krendl & Perry, 2021). Loneliness in the elderly is important because of the risks it brings with it and its widespread prevalence. In addition, nowadays, developing technology and medical innovations have contributed to the increase in life expectancy and the increase in the elderly population in many countries (Tüzün Özdemir & Usta Yeşilbalkan, 2024). The elderly population in our country constitutes an important population with a rate of 9.5% (Turkish Statistical Institute, 2020). Therefore, with the changes brought about by the new type of coronavirus and the pandemic in our lives, the need to evaluate the loneliness status for the elderly, where the risk of loneliness increases even more, comes to the forefront. The study was conducted to examine the loneliness of elderly and the factors affecting it during the Covid-19 pandemic outbreak period.

The research questions were as follows:

- What is the level of loneliness of elderly during the Covid-19 pandemic outbreak period?
- What are the factors affecting loneliness of elderly during the Covid-19 pandemic outbreak period?

MATERIALS AND METHODS

Design

The study was cross-sectional and descriptive.

Study Population/Sample

The sample of the study consisted of elderly aged 65 years and over who used e-mail and electronic

communication tools of the Google Form link between November 2021 and January 2022, whose physical and cognitive health levels were suitable for answering the planned forms and who agreed to participate in the study. Elderly who were illiterate, who did not want to participate in the study and who did not fill out all the forms were excluded from the study. The study was conducted with a total of 104 elderly individuals.

Snowball sampling technique was used in sample selection, and all elderly individuals who complied with the inclusion criteria and could be reached between the determined dates, were included in the study without sample calculation.

Data collection

The data was collected by e-mail and electronic communication tools using Google Form questionnaire form between the determined dates. Before starting the questionnaire, the participants were asked to give consent to participate in the study. It was initiated after answering 'yes or no' to the question "I participate in this study completely voluntarily". "Elderly Information Form" and "Loneliness Scale for the Elderly" were used to collect data.

Data Collection Tools

Elderly Information Form: This form consisted of 19 questions including the participants' descriptive characteristics such as gender, age, employment status, marital status, educational status, chronic diseases, medication use, Covid-19 status and cohabitation. The form was prepared by the researchers (Stolz et al., 2021; Wickens et al., 2021; Guner et al., 2021).

Loneliness Scale for the Elderly: The scale, whose Turkish validity and reliability study was conducted by Akgül and Yeşilyaprak (2015), consists of 11 items and two sub-dimensions (Akgül & Yeşilyaprak, 2015). The scale includes six negative items measuring emotional

loneliness (2, 3, 5, 6, 9, 10) and five positive items measuring social loneliness (1, 4, 7, 8, 11). General loneliness score consists of the sum of emotional loneliness results and social loneliness score. The degree to which each statement in the scale is experienced by the respondents is determined by a Likert type rating (0=yes, 1=may be, 2=no). Five of the items (2, 3, 5, 6, 9, 10) are scored in the reverse direction. The lowest score is 0 and the highest score is 22. As the score increases, the level of loneliness increases. In the validity and reliability study, Cronbach's alpha internal consistency coefficients of the sub-dimensions of the scale have been found as 0.79 for emotional loneliness, 0.81 for social loneliness and 0.85 in total (Akgül & Yeşilyaprak, 2015). The Cronbach's alpha value of the scale was 0.83 for this study.

Statistical analysis

A statistical Package program was used in the statistical analysis of the data and number, percentage, mean and standard deviation values have been calculated. Scale total score and sub-dimension score means and independent variables were compared and the conformity of the data to normal distribution was evaluated. The effects of variables on the mean scale scores in the data that did not fit the normal distribution have been analysed with Kruskal-Wallis and Mann-Whitney U tests. The results have been evaluated at 95% confidence interval and significance level has been taken as $p < 0.05$.

Ethical considerations

The study compiled ethically with the declaration of Helsinki. In order to conduct the research, and ethical approval from a University Medical Research Ethics Committee (IRB No: 21-11.1T/32) and T.R. Implementation permission was received from the Ministry of Health, General Directorate of Health Services. A written informed consent was obtained from all study participants. The details disclosed

included the study purpose, confidentiality, participants' autonomy, voluntary participation and freedom to withdraw from participating at any time.

RESULTS

The mean age of the elderly was 66.95 ± 7.69 years, 58.7% were female, 79.8% were married, 45.2% were

primary school graduates, 80.8% lived with their families. Among the elderly participants, 65.4% stated that they were retired, 85.6% stated that they did not smoke, 96.2% stated that they did not drink alcohol, and 53.8% stated that they were diagnosed with covid-19. Other descriptive characteristics of the elderly were given in Table 1 and 2.

Table-1. Sociodemographic characteristics of the Elderly -1

Sociodemographic characteristics	n	%
<u>Age (years)</u> = 66.95 ± 7.69 (min:65 – max: 79)		
<u>Gender</u>		
Female	61	58.7
Male	43	41.3
<u>Marital status</u>		
Married	83	79.8
Single	21	20.2
<u>Education</u>		
None	8	7.7
Primary school graduate-grade 1	47	45.2
Primary school graduate-grade 2	14	13.5
High school graduate	25	2.0
University graduate	10	9.6
<u>Employment status</u>		
Worker	8	7.7
Official	3	2.9
Unemployed	18	17.3
Retired	68	65.4
Self-employed	7	6.7
<u>Economic status</u>		
Little	25	24.0
Mild	53	51.0
More	26	25.0
<u>Smoking</u>		
Yes	15	14.4
No	89	85.6
<u>Alcohol consumption</u>		
Yes	4	3.8
No	100	96.2
<u>Co-morbidities</u>		
Yes	66	63.5
No	38	36.5
<u>Regular medication</u>		
Yes	61	58.7
No	43	41.3
<u>Diagnosed with COVID-19</u>		
Yes	56	53.8
No	48	46.2
<u>Relatives' Diagnosed with COVID-19</u>		
Yes	94	90.4
No	10	9.6
<u>With whom does the patient live</u>		
Spouse and children	80	80.8
Alone	20	19.2
Nursing home	-	-
Total	104	100.0

Table-2. Other characteristics of the Elderly -2

Characteristics	n	%
<u>Level of Participation in Social Activities Before the Pandemic</u>		
Meeting with friends three or more times a week and participating in a social activity	35	33.7
Meeting with friends usually once a week and participating in a social activity	29	27.8
Meeting with friends once or two times a month and participating in a social activity	11	10.6
Meeting with friends sometimes and participating in a social activity	21	20.2
Usually not meeting with anyone	8	7.7
<u>The level of change on physical activity status during the Covid-19 pandemic</u>		
Less active than before the epidemic	81	77.9
More active than before the epidemic	2	1.9
No change	21	20.2
<u>The level of change on social activity during the Covid-19 pandemic</u>		
Less active than before the epidemic	78	75.0
More active than before the epidemic	8	7.7
No change	18	17.3
<u>Feeling alone during the Covid-19 pandemic</u>		
Yes	45	43.3
No	34	32.7
Sometimes	25	24.0
Total	104	100.0

The mean total score of the Loneliness Scale of the elderly who participated in the study were determined as 9.47 ± 6.04 , the mean of "emotional loneliness" sub-

dimension as 5.96 ± 3.82 , and the mean of "social loneliness" sub-dimension as 3.49 ± 2.78 (Table 3).

Table-3. Loneliness Scale Score of Elderly

Scale Score	X $\pm$ SD*	Min - Max
Total Score	9.47 ± 6.04	0-20
<u>Sub-dimension Score</u>		
Emotional loneliness	5.96 ± 3.82	0-14
Social loneliness	3.49 ± 2.78	0-9

*Standard Deviation

When the variables affecting the mean scores of the participants' Loneliness Scale were evaluated, it was determined that the expressions of feeling lonely affected both sub-dimensions of the scale ($X^2=19.075$, $p=0.00$; $X^2=11.990$, $p=0.002$) and total mean scores ($X^2=16.568$, $p=0.000$), and the level of participation in social activities affected the mean scores of the social loneliness sub-dimension ($X^2=10.139$, $p=0.038$) at a statistically significant level (Table 4).

Table-4. Factors affecting the Loneliness of Elderly

Loneliness Scale Score	Factors affecting	X ± SD*	X ² /Z	p
	Female	8.70±5.92		
	Male	10.55±6.10	Z=-1.499	p=0.134
	Married	9.86±6.15		
	Single	7.85±5.41	Z=-1.308	p=0.191
	None	11.00±7.30		
	Primary school graduate-grade 1	10.57±5.31		
	Primary school graduate-grade 2	10.69±6.34	X ² =9.131	p=0.058
	High school graduate	6.60±6.42		
	University graduate	8.70±5.47		
	Worker	10.00±7.94		
	Official	10.00±6.00		
	Unemployed	9.97±6.56	X ² =0.446	p=0.979
	Retired	9.43±5.71		
	Self-employed	8.28±7.13		
	Other chronic disease-Yes	9.96±5.90	Z=-1.168	p=0.243
	Other chronic disease-No	8.59±6.26		
	Living with spouse and children	9.36±5.26	X ² =0.003	p=0.959
	Living with alone	9.50±6.23		
	Living in nursing home	-		
	Meeting with friends three or more times a week	10.65±5.67	X ² =8.849	p=0.065
	Meeting with friends usually once a week	8.58±6.35		
	Meeting with friends once or two times a month	6.18±6.11		
	Meeting with friends sometimes	9.10±6.01		
	Usually not meeting with anyone	13.00±4.56		
	More physical active than before the epidemic	9.87±6.23	X ² =2.660	p=0.265
	Less physical active than before the epidemic	13.50±6.36		
	No change about physical activity	7.57±4.95		
	More social active than before the epidemic	10.00±6.13	X ² =3.181	p=0.204
	Less social active than before the epidemic	9.87±6.85		
	No change about social activity	7.05±4.90		
	Feeling alone during the Covid-19 pandemic-Yes	12.11±5.44	X ² =16.568	**p=0.000
	Feeling alone during the Covid-19 pandemic-No	6.29±5.90		
	Feeling alone during the Covid-19 pandemic-Sometimes	8.23±5.52		

*Standard Deviation, Z = Mann-Whitney U, X²= Kruskal wallis test, **p< 0.05

DISCUSSION

Loneliness and social isolation is a problem and risk factor that can affect most of the elderly and cause low quality of life, physical and psychological problems and increase early mortality. In the United States, about one-quarter of older adults are socially isolated, and

43% reported feeling lonely (National Academics of Sciences, Engineering, and Medicine, 2020). With the Covid-19 pandemic, social distancing and isolation have negatively affected the elderly all over the world in order to prevent infection development, complications and reduce mortality (Wu, 2020).

Based on the results of this study, the mean loneliness scale score of the elderly was 9.47 ± 6.04 , which is close to the middle level. However, 43.3% of the elderly individuals stated that they felt lonely during the pandemic process. When the studies on the loneliness status of the elderly in the Covid-19 pandemic were examined; in the study of Dziedzic et al. (2021), it has been determined that 58.8% of the elderly experienced moderate and high levels of loneliness (Dziedzic et al., 2021). In the study of Kotwal et al. (2021), 54% of elderly individuals reported that they had a sense of loneliness (Kotwal et al., 2021). In the study of Donizzetti and Lagacé (2022), it was found that the loneliness score of the elderly was at a moderate level, which was similar to our study (Donizzetti & Lagacé, 2022). When we look at the studies conducted in our country, it was observed that the studies were mostly qualitative in nature and a significant proportion of the elderly stated that they experienced a sense of loneliness due to being isolated at home in this process (Stolz et al., 2021; İnce, 2020; Ercan & Arıcı, 2020; Kılınçel et al., 2020). In a quantitative study conducted in our country using the same scale, the total scale score average was found to be 9.57 ± 4.6 , similar to our study (Şahan et al., 2023).

With the pandemic, the inability of the elderly to leave the house, like other individuals, has led to inactivity, which has been a factor that increases the risk of developing diseases such as stroke and coronary heart disease (Kahraman et al., 2022; Hintistan & Cin, 2022; Sayın Kasar & Karaman, 2021). In our study, the majority of the elderly stated that they were less physically active than before the pandemic. Moreover, social isolation created a feeling of being pushed aside and increased the feeling of loneliness in the elderly. In order to get rid of this feeling, elderly individuals tried to interpret their experiences and make sense of the pandemic (Gencer, 2020). In our study, the majority of the elderly stated that they were less social compared to the pre-pandemic period.

In the study of Kapıkıran et al. (2022), it was observed that a significant proportion of elderly individuals with social support did not experience loneliness, while

other elderly individuals stated that they experienced loneliness (Kapıkıran et al., 2022). Similarly, in other studies, it was determined that the most important determinant of the feeling of loneliness was social support, and the elderly with social support stated that they experienced less loneliness (İnce, 2020; Kılınçel et al., 2020; Kapıkıran et al., 2022; Hsu & Chao, 2022). In İnce's (2020) study, the elderly stated that the decrease in their social support not only increased the feeling of loneliness but also made their living conditions more difficult (İnce, 2020). In Ercan and Arıcı's (2020) study, it was determined that the elderly who were residing close to their children experienced less loneliness (Ercan and Arıcı's, 2020). In Hsu and Chao's (2022) study, it was determined that family support was a protective factor against loneliness (Hsu and Chao's, 2022). In our study, although there was no statistically significant difference, the elderly living alone reported that they were lonely compared to those living with their families.

The perception of loneliness, together with social isolation, may cause other psychological problems in elderly individuals. The level of happiness and life satisfaction may decrease in the elderly who feel loneliness. The feeling of social isolation and loneliness, which increased with the Covid-19 pandemic, increases the risk of stress, anxiety, sleep problems and depression, especially in elderly individuals (Wu, 2020; Hintistan & Cin, 2022). Studies have shown that there are significant correlations between the feeling of loneliness and depressive feelings in the elderly during the Covid-19 pandemic period, and anxiety and depressive feelings increase as loneliness increases (Dziedzic et al., 2021; Donizzetti & Lagacé, 2022; İnce, 2020; Kılınçel et al., 2020; Müller et al., 2021). However, in a study conducted in Australia, it was determined that elderly individuals experienced more loneliness during the pandemic, but the psychological effects of this short-term period were not much (Stolz et al., 2021). Although the psychological effects of loneliness were not examined in our study, it was found that the mean of the "emotional loneliness" sub-scale, which is one of the sub-scales of the loneliness scale, was higher than the mean of the "social

loneliness" sub-scale, and that elderly individuals felt more emotionally lonely. A similar difference was found in the study of Şahan et al. (2023).

In our study, it can be said that most of the independent variables did not statistically affect the loneliness score, only the expressions of feeling lonely were significantly affected and this result increased the reliability of the scale results.

CONCLUSIONS

During the Covid-19 pandemic, reducing social contact in order to reduce the risk of transmission has led to various physical and psychological effects on individuals. Elderly individuals, who are in the high risk group in terms of infection and its complications, are also an important group exposed to these effects. It is considered that the feeling of loneliness may be experienced more intensely in this group where more restrictions are applied. In the results of our study, it has been determined that elderly individuals expressed that they felt more lonely during this period, but their scale mean scores were close to the middle level. This situation may be considered to be due to the fact that family relations are strong as a social structure, and this situation may be effective in reducing the feeling of loneliness of the elderly.

Limitation of the Research

Elderly were reached online to reduce the risk of transmission due to the pandemic process. The number of samples was remained limited due to the restrictive use of online communication tools by elderly individuals. Snowball sampling was used in sample selection due to pandemic conditions and the fact that the research was conducted digitally. This method introduces some limitations in terms of sample representation. The sample size was a small group to draw more general conclusion.

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Conflicts of Interest

There is no conflict of interest.

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Araştırma Makalesi / Research Article



Geleceğin Kahramanları: Yaşlı Bakım Tekniker Adaylarının Kariyer Tutumları

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The Heroes of the Future: Career Attitudes of Prospective Geriatric Care Technicians

ÖZET

Amaç: Bu araştırma, Yaşlı Bakımı Bölümü'nde öğrenim gören öğrencilerin kariyer geleceği ve geleceğe yönelik tutumlarının incelenmesi, bu konuda gerçekleştirilen çalıştayın etkinliğini değerlendirmek amacıyla yapılmıştır.

Gereç Yöntemler: Araştırmanın örneklemini 90 sağlık hizmetleri meslek yüksekokul yaşlı bakımı bölümü öğrencisi (yaş ortalaması; 20,28±1,89 yıl) oluşturmuştur. Öğrencilere yönelik kariyer ve mesleklerinin geleceği ile ilgili bir çalıştay düzenlenmiştir. Bu çalışmaya katılım gösteren öğrencilerin, kariyerleri ile ilgili tutumları 'Kariyer Geleceği Ölçeği' ile gelecek beklentileri ise 'Geleceğe Yönelik Tutum Ölçeği' ile çalıştay öncesi ve sonrası değerlendirilmiştir. İki grup arasındaki ölçüm değerlerinin karşılaştırılmasında bağımsız gruplarda t testi, ikiden fazla grupta ölçüm değerlerinin karşılaştırılmasında tek yönlü varyans analizi kullanılmıştır.

Bulgular: Öğrencilerin %71'i meslek tanımını bildiğini belirtmiştir. Öğrencilerin eğitim sonrası mesleğe yönelik bilgi düzeyi sonuçları genel olarak artmıştır. Kız öğrencilerde Geleceğe Yönelik Tutum Ölçeği puanları eğitim sonrasında anlamlı bir şekilde artmıştır (p:0,005). Sınıflara göre incelendiğinde hem 1. sınıf (p:0,043) hem de 2. Sınıf (p:0,017) öğrencilerinin eğitim sonrası Geleceğe Yönelik Tutum Ölçeği puanları anlamlı bir şekilde artış göstermiştir (öncesi/sonrası toplam puan 88,74/93,84). Bütün öğrencilerin Geleceğe Yönelik Tutum ve Kariyer Geleceği Ölçeği (öncesi/sonrası toplam puan 99,34/102,06) puanları incelendiğinde eğitim sonrasında anlamlı artış görülmüştür (p:0,002, p:0,022).

Sonuç: Bu çalışmanın sonuçları öğrencilerin meslek ve kariyerleri ile ilgili verilen bir eğitimin kariyer ve geleceğe yönelik düşünce ve tutum üzerinde olumlu bir etkisinin olduğunu göstermektedir. Öğrencilerde mesleki kaygıların giderilmesi, kariyerlerini daha iyi şekillendirebilmeleri ve geleceğe daha güvenli bakabilmeleri için öğrencilere yönelik bu konuda eğitimlerin düzenlenmesi, ders müfredatlarına 'Kariyer Planlaması' gibi temaların eklenmesi faydalı olabilir.

Anahtar kelimeler: Kariyer, Gelecek beklentisi, Yaşlı bakımı

ABSTRACT

Aim: This research aimed to examine the career future and attitudes towards the future among students in the Department of Elderly Care and to evaluate the effectiveness of a workshop organized on this topic.

Material and Methods: This cross-sectional study included 90 students from a health services vocational high school's elderly care department (mean age: 20.28±1.89 years). A workshop was organized for these students focusing on their careers and the future of their profession. The students' career attitudes were assessed using the "Career Future Scale," and their future expectations were evaluated with the "Future Attitude Scale" both before and after the workshop. A dependent samples t-test was used to compare measurement values between two groups, and one-way analysis of variance (ANOVA) was employed for comparisons involving more than two groups.

Results: Seventy-one percent (71%) of the students reported knowing the definition of their profession. Overall, students' knowledge about the profession showed a general increase after the training. Female students' Future Attitude Scale scores significantly increased after the training (p: 0.005). When analyzed by grade level, Future Attitude Scale scores of both 1st-grade (p: 0.043) and 2nd-grade (p: 0.017) students significantly improved after the training. A significant increase was observed in all students' Future Attitude Scale scores (before/after total score: 88.74/93.84) and Career Future Scale scores (before/after total score: 99.34/102.06) after the training (p: 0.002 and p: 0.022, respectively).

Conclusion: The results of this study indicate that providing education to students about their profession and career positively influences their career and future perceptions and attitudes. It may be beneficial to organize similar training sessions for students to alleviate professional concerns, facilitate better career planning, and enable them to approach the future with greater confidence. Additionally, integrating themes such as "Career Planning" into course curricula could be valuable.

Keywords: Career, Future attitude, Elderly care

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INTRODUCTION

The increasing global elderly population, as highlighted by the United Nations (2019) and IHME (2018), is also evident in Turkey, where the elderly population rose to 9.5% in 2020 and is projected to increase further (TUIK 2024). This demographic trend is driving a growing need for elderly care professionals, particularly elderly care technicians who are crucial for providing direct care (Benli and Acar 2017). The establishment of 'Healthy Aging Centers' by the Ministry of Health is expected to amplify this demand. Ensuring high-quality care necessitates a multidisciplinary approach (Meydan 2020), and elderly care technicians are vital in this context. Furthermore, their role in enhancing the quality and sustainability of home care services is increasingly recognized (İlce and Kuzay 2023).

Elderly care technicians find employment opportunities in both public and private healthcare institutions. Graduates of elderly care programs can also vertically transfer to undergraduate programs such as nursing, dietetics, physiotherapy, and rehabilitation through the Vertical Transfer Exam. However, the lack of clear professional definitions for elderly care technicians among other healthcare professionals leads to difficulties in their practice. Students may lack sufficient clarity regarding the positions they can hold after graduation, the specialization areas they can pursue, and how they can sustain their professional development. This situation can diminish students' motivation, negatively impact their engagement in the educational process, and lead to uncertainty in their post-graduation job search. Limited job descriptions, professional confusion within healthcare institutions, and insufficient information about completing undergraduate studies contribute to a negative attitude towards the profession. Some research conducted specifically in Turkey (Kaya and Yilmaz 2015) reveals that the job descriptions of elderly care technicians vary across different healthcare and social service organizations, and this situation creates difficulties in ensuring uniformity of practice. To ensure that graduates become confident and well-equipped professionals, the quality of theoretical and practical

education they receive at school and the opportunity to practice in the best environments are crucial. In this regard, it is necessary to identify the problems, concerns, and expectations that students encounter during their practical experiences (Kaysi and Aydemir 2018).

Career planning is defined as the process of self-assessment to identify one's strengths and areas for improvement, setting career expectations and goals aligned with one's knowledge, skills, and interests, and developing action plans to achieve these goals. Choosing a profession that aligns with one's own abilities and desires is the most crucial stage of career planning (Birinci 2021). Many countries struggle with healthcare workforce planning due to shortages or surpluses of health professionals, and the distribution of graduates' career choices often fails to meet the demands of healthcare services. To provide better career guidance and consequently achieve more effective workforce planning and more efficient management of healthcare resources, more information is needed about the factors influencing the career choices of students and graduates. While many students begin university with a specific career choice, the knowledge they acquire during their education – in whatever form – influences the evolution of this choice throughout their working lives. Biographical characteristics such as gender, personal experience in healthcare, and parents' medical history play a role in this (Cooper 2004; Kuhnigk et al., 2007). Individual characteristics, the perceived benefits of the profession, salary, and academic achievement are also associated with career choice, and clinical internship experiences play a role in students' career planning (Soethout et al., 2008). Recent shifts in culture, health, national policy, and privatization, alongside significant generational differences, have led to changes in the career choices of elderly care students. Today's youth are observed to choose careers based on increasing employment opportunities and better pay criteria (Jamieson et al., 2015; Chung and Fitzsimons 2013). Efforts are underway across all employment sectors to adapt education and work environments to accommodate generational differences. Understanding Generation Z's post-graduation plans,

their preferred workplaces, and the factors influencing their choices is crucial for determining the future of the workforce and educational programs (Chung and Fitzsimons 2013). However, the literature concerning the post-graduation work areas of elderly care students is quite limited. Although many educators suggest that students prefer less demanding fields and discuss generational differences, there are few studies on the characteristics of Generation Z and the impact of these characteristics on their work choices, with existing studies often focusing on reasons for leaving jobs (Shoqirat and Abu-Qamar 2015; Rudman et al., 2014). In Turkey, research in this area is limited. It is important to align the elderly care curriculum with the needs and preferences of Generation Z students, provide realistic career guidance in clinical settings, and thus develop strategies to reduce turnover rates and improve the quality of care (Chung and Fitzsimons 2013). Designing working conditions that meet the expectations of future elderly care technicians and retain them in their profession is essential. Hospitals, nursing homes, and other employers can utilize the findings of this research to attract and retain the new generation of elderly care students. Anticipating the preferences of this generation and the factors influencing them is of great importance for developing future roadmaps, not only at the national level but also internationally. Based on all of this, this study aims to determine the career expectations and future attitudes of prospective elderly care technicians, the factors influencing these, and the impact of a career planning workshop on students' career expectations and future attitudes.

MATERIAL AND METHODS

Study Design

This cross-sectional, descriptive study included 90 students from the Vocational School of Health Services at a university. The study was planned to evaluate the effectiveness of a workshop designed to examine the career futures and attitudes of students in the Department of Elderly Care.

Population and Sample

The study was conducted with students (N=130) enrolled in the Elderly Care Department of a Health Services Vocational School. A one-day workshop, held in four sessions, was organized for these students. It featured guest speakers, all of whom were elderly care graduates working in various fields (e.g., association presidents, hospital administrators, academics), who provided information to the students. Necessary information and announcements regarding the workshop were shared with the students.

The workshop itself was structured into four sessions, with three speakers presenting in each. The first session focused on global and national practices in elder care, along with the significance of elderly care technicians. The second session included presentations on the professional definitions of elderly care technicians, their appointment status, and professional association processes. In the third session, presentations covered employment opportunities for elderly care technicians in institutions affiliated with the Ministry of Health, the Ministry of Family and Social Policies, and municipalities. The final session featured professional experience and career insights shared by elderly care graduates working in academia, private care centers, and state hospitals under the Ministry of Health.

Before the workshop began, a data collection form was distributed to the students, and they were asked to complete it. At the conclusion of the workshop, the same data collection form was distributed again, and students were requested to complete it. A large majority of the students participated in the workshop (69.2%). Students who attended the workshop, agreed to participate in the study, and completed the research form in full were included. The sample for the study ultimately consisted of 90 students from the health services vocational high school's elderly care department.

Data Collection Tools

The data collection form consisted of three main parts: a Sociodemographic Information Form, the Career Future Scale, and the Future Attitude Scale. Necessary permissions for using the scales were obtained.

Sociodemographic Information Form

This form included information about the students (e.g., age, gender, reason for choosing the department), general sociodemographic details, and questions related to their profession's description and their career plans. The form was developed by the researcher through a literature review (Birinci 2021; Bodur 2020; Kara and Yilmaz 2015).

The Career Future Scale

Developed by Rottinghaus et al. (2017) and adapted into Turkish by Kalafat in 2012, this scale was used to assess individuals' positive career planning attitudes. The scale comprises 25 items across three sub-dimensions: career congruence, career prospect, and perceived knowledge of the job market. It is answered on a 5-point Likert scale. The Cronbach's alpha value for the scale is 0.716 (Kalafat 2012; Rottinghaus et al., 2017).

The Future Attitude Scale

Developed by Bodur and Harmancı Seren (2020) to assess individuals' future attitude, this is a 5-point Likert-type scale. The scale consists of 21 items, all positively worded. The scale score is calculated as the average of the item scores, with a total possible score ranging from 1 to 5. Low scores on the scale indicate a negative future attitude, while high scores indicate a positive future attitude. The Cronbach's alpha value for the scale is 0.91 (Bodur and Seren 2020).

Ethics statement

Ethical approval for the study was obtained on January 17, 2024, from the XXX University Clinical Research Ethics Committee, with decision number 2183. Our study was conducted in accordance with the Declaration of Helsinki.

Statistical Analysis

Data was analyzed using IBM SPSS 21 (SPSS Inc. Chicago, IL, USA). The demographic data and scale scores of the research group were determined as minimum and maximum values, mean, standard deviation, and percentage distributions, according to the data structure. The normality of the variables was determined by Kolmogorov test and visual inspection of histograms. The distribution was normal ($p < 0,05$). The existence of differences between groups was analyzed using independent samples t-test/Mann Whitney-U tests for normally distributed data and paired samples t-test/Wilcoxon tests for non-normally distributed data.

RESULTS

Ninety students studying at a Health Services Vocational School of a university participated in this cross-sectional descriptive study. The students' average age was 20.28 years, and 78% were female. While 9% of the students had graduated from another associate's degree program, 47% stated that job opportunities were the primary reason for choosing their current program (Table 1). When their income levels were evaluated, 53.3% of the students reported that their income exceeded their expenses. When asked why they chose the department, 46.7% stated they chose elderly care technician because of its job opportunities. Regarding their awareness of the professional definition, 78.9% indicated they were aware. The demographic data of the participants are given in Table I.

Table I. Sociodemographic Characteristics of the Participants

n:90	Total
Age (year) (X±SS)	20.28±1.89
Gender n (%)	
Female	70 (77.8)
Male	20 (22.2)
Grade level n (%)	
First year	42 (46.7)
Second year	48 (53.3)
Income Level n (%)	
Income equals expenses	35 (38.9)
Income exceeds expenses	7 (7.8)
Income is less than expenses	48 (53.3)
High School Graduation	
Health Vocational High School	38 (42.2)
Vocational High School	12 (13.3)
Anatolian Technical High School	34 (37.8)
Other	6 (6.7)
Graduated from Another Department n (%)	
Yes	8 (8.8)
Medical Documentation and Secretarial	2 (28.6)
Emergency Medical Technician	1 (14.3)
Other	5 (57.2)
No	82 (91.2)
Social Security n (%)	
Yes	54 (60)
No	36 (40)
Chronic Illness n (%)	
Yes	4 (4.4)
No	86 (95.6)
Reason for Choosing the Department n (%)	
Intrinsic interest in the department	5 (5.6)
Job opportunities	42 (46.7)
Exam score	39 (43.3)
Peer pressure	4 (4.4)
Awareness of Professional Definition n (%)	
Yes	71 (78.9)
No	19 (21.1)

X ± SD: mean ± standard deviation, n: number

Table II presents the results of students' knowledge levels about the profession before their education. Forty percent of the students thought they could only provide care for elderly patients, and 99% thought they could work in public institutions. Sixteen percent of the students disagreed with the statement: 'An elderly care technician can start their own business.' Ninety-four percent of the students thought that an elderly care technician graduates as a health

technician, 50% thought they were in the same profession as clinical support staff, and 56% did not know that their profession had an association. When asked if they knew the content of the professional definition, 71% of the students answered yes. Seventy percent of the students stated that they knew in which units they could work, while 38% stated that an elderly care technician cannot be a unit manager.

Table II. Students' Knowledge Levels About the Profession Before the Workshop

		N	%
Elderly care technician can only care for elderly patients.	Yes	36	40.0
	No	54	60.0
Elderly care technician can work in public institutions	Yes	88	97.8
	No	2	2.2
Elderly care technicians cannot work in private institutions and organizations.	Yes	2	2.2
	No	88	97.8
Elderly care technicians can start their own business.	Yes	76	84.4
	No	14	15.6
Elderly care technician graduates with the title of health technician.	Yes	85	94.4
	No	5	5.6
Elderly care technician and clinical support staff are the same professional group.	Yes	44	48.9
	No	46	51.1
Do you know that your professional group has an association?	Yes	40	44.4
	No	50	55.6
Are you knowledgeable about the content of your job description?	Yes	64	71.1
	No	26	28.9
Do you know in which units an elderly care technician can work in public institutions?	Yes	63	70
	No	27	30
Can an elderly care technician be a unit manager in private/public institutions?	Yes	56	62.2
	No	34	37.8

Table III presents the results of students' knowledge levels about the profession after their education. Seventy-one percent of the students stated that they do not only care for elderly patients. The rate of those who stated that an elderly care technician can work in private institutions is 94%, and 91% stated that an elderly care technician can start their own business. Twenty-four percent of the students thought that an elderly care technician graduates as a health technician, 88% thought they were in the same profession as clinical support staff, and 97% knew that their profession had an association. When asked if they knew the content of the professional definition, 96.7% of the students answered yes. Ninety-nine percent of the students stated that they knew in which units they could work, and 72% stated that an elderly care technician can work as a unit manager.

Upon examination of the Career Futures Scale scores, female students showed a pre-education score of 98.81 ± 12.83 and a post-education score of 102.20 ± 14.37 . While no significant change was observed in the subscales for female students, their total scale score increased significantly after the education ($p=0.018$).

For first-year students, the pre-education scale score was 88.82 ± 16.71 and the post-education score was 92.52 ± 11.36 ; for second-year students, the pre-education score was 88.67 ± 11.61 and the post-education score was 95.06 ± 18.14 . A significant increase was observed in the Career Knowledge subscale (before/after: $10.21 \pm 2.46 / 11.02 \pm 1.82$, $p=0.011$) and in the total score of the scale (before/after: $98.53 \pm 13.88 / 101.75 \pm 13.28$, $p=0.024$) (Table V).

Table III. Students' Knowledge Levels About the Profession After the Workshop

		N	%
Elderly care technician can only care for elderly patients.	Yes	26	58.9
	No	64	71.1
Elderly care technician can work in public institutions	Yes	87	96.7
	No	3	3.3
Elderly care technicians cannot work in private institutions and organizations.	Yes	5	5.6
	No	85	94.4
Elderly care technicians can start their own business.	Yes	82	91.1
	No	8	8.9
Elderly care technician graduates with the title of health technician.	Yes	22	24.4
	No	68	75.6
Elderly care technician and clinical support staff are the same professional group.	Yes	79	87.8
	No	11	12.2
Do you know that your professional group has an association?	Yes	87	96.7
	No	3	3.3
Are you knowledgeable about the content of your job description?	Yes	87	96.7
	No	3	3.3
Do you know in which units an elderly care technician can work in public institutions?	Yes	89	98.9
	No	1	1.1
Can an elderly care technician be a unit manager in private/public institutions?	Yes	65	72.2
	No	25	27.8

Table IV. Students' Future Attitude Scale Scores Before and After Workshop

Future Attitude Scale/Variables	Before Workshop (X±SD)	p between groups	After Workshop (X±SD)	p between groups	p within groups
Women	89.28±14.15	0.521*	94.74±16.16	0.341*	0.005**
Men	86.95±14.38		91.00±11.68		0.134**
First Class	88.82±16.71	0.960*	92.52±11.36	0.450*	0.043**
Second Class	88.67±11.61		95.06±18.14		0.017**

X ± SD: mean ± standard deviation, *:T-test in Independent Groups, **: T-test in Dependent Groups, p≤0.05

When the Career Future Scale scores were examined, there was no significant change in the subscales of the scale in female students, but the total score of the scale increased after education (p:0.018). In 1st-grade students, a significant increase was observed in the Career Information subscale (p:0.011) and the total score of the scale (p:0.024) (Table V).

When all students' Attitudes Towards the Future (before/after total score 88.74/93.84) and Career Future Scale scores (before/after 99.34/102.06) were examined, a significant increase was observed after the training (p:0.002, p:0.022) (Figure I).

Table V. Students' Career Future Scale Scores Before and After Workshop

Career Future Scale	Before Workshop (X±SD)	p between groups	After Workshop (X±SD)	p between groups	p within groups
Career compatibility					
Women	46.27±5.79	0.404	48.18±8.61	0.989	0.062
Men	47.50±5.61		48.15±5.23		0.559
Career optimism					
Women	41.84±6.81	0.830	42.78±7.09	0.706	0.155
Men	41.5±8.11		42.10±6.72		0.704
Career information					
Women	10.69±2.55	0.261	11.23±1.90	0.892	0.057
Men	11.45±2.87		11.30±1.75		0.789
Career Future Scale Total Score					
Women	98.81±12.83	0.640	102.20±14.37	0.862	0.018
Men	100.40±15.03		102.57±11.23		0.605
Career compatibility					
First Class	46.97±5.72	0.522	47.87±5.35	0.734	0.148
Second Class	46.18±5.80		48.47±9.89		0.141
Career optimism					
First Class	41.34±7.65	0.615	42.85±7.81	0.765	0.099
Second Class	42.10±6.62		42.39±6.15		0.766
Career information					
First Class	10.21±2.46	0.031	11.02±1.82	0.281	0.011
Second Class	11.41±2.66		11.46±1.89		0.903
Career Future Scale TotalScore					
First Class	98.53±13.88	0.681	101.75±13.28	0.843	0.024
Second Class	99.70±12.87		102.35±14.17		0.744

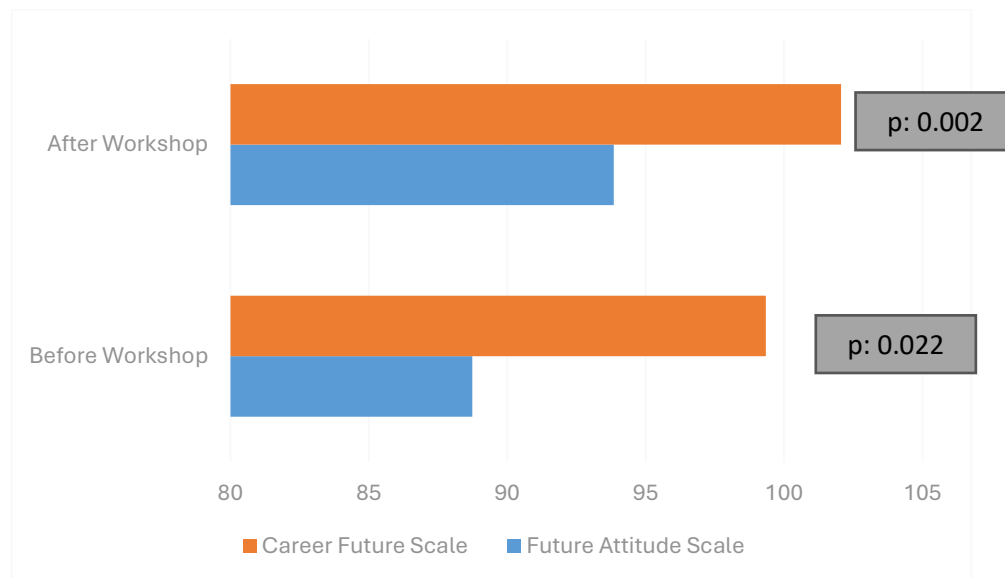


Figure I. Students' Attitudes Towards the Future and Career Future Scale Scores Before and After the Workshop

DISCUSSION

This study evaluated the effectiveness of a workshop designed to enhance students' professional awareness, mitigate identity confusion, and facilitate career goal setting in an elderly care program. By comparing students' career and future-oriented attitudes before and after the workshop, the study found that the intervention led to a significant increase in their knowledge of the profession and fostered a more positive outlook toward their future careers.

Students' motivations for selecting a specific major have profound implications for their career trajectories and future aspirations. Research by Birinci and associates revealed that peer influence was a determining factor in the major selection of 49% of students (Birinci 2020). In their study, Okur and Baykal determined that the primary factors influencing students' choice of major were the prospect of employment and a passion for the field (Okur and Baykal 2020). Subsequent research identified employment prospects as the leading factor influencing students' major selection (Baykal et al., 2010). A study investigating students' knowledge of elderly care programs during the university application process revealed that 74% of students selected the program voluntarily and 67% had prior knowledge of the program (Benli and Acar 2017). In this study, ease of finding employment ranked first (46.7%) among the reasons students chose the elderly care program. Similarly, in another study (Okur and Baykal 2016), the opportunity for employment was among the reasons for preference (41%). In our study, an analysis of students' responses to questions about elderly care technicians revealed the following: Prior to the workshop, 60% of students disagreed with the statement that "elderly care technicians only care for elderly patients," while this proportion increased to 71% post-workshop. Before the workshop, 84% of students believed that elderly care technicians could become self-employed, and this percentage rose to 91% following the training. While 44% of students were aware of a professional association representing their field prior to the workshop, this figure increased to 97% post-workshop. Furthermore, knowledge of the job

description increased from 71% to 97% after the workshop. Regarding the possibility of elderly care technicians working as managers in their work environments, 62% of students were aware of this before the workshop, and this rate increased to 72% afterward.

The finding in our study that students possessed incomplete or incorrect information regarding the role of elderly care technicians prior to the workshop aligns with the role ambiguity and associated anxiety reported by Güngördü, Koçan, and Üstün (2017). The subsequent correction of this information and the increased awareness among students regarding the scope of the profession, self-employment opportunities, and professional associations demonstrate the intervention's success in addressing these uncertainties. Our study demonstrated a significant shift in workshop participants' perceptions of their chosen profession and future prospects. The workshop successfully addressed many of their uncertainties, leading to a marked improvement in their knowledge base. Consequently, participants exhibited a more optimistic outlook on their careers. Enhancing the knowledge and positive attitudes of future health professionals regarding their chosen careers during their undergraduate studies is crucial for their professional success. Given the findings of this study, it is imperative to expand the implementation of such workshops.

Our findings revealed a significant increase in Future Attitude Scale scores among female participants following the workshop. This trend was consistent across both first- and second-year students. While Tuncer (2011) reported high future expectations among vocational school students, two separate studies of high school students found no gender differences in future expectations (Coşkun 2007; Tümkaya et al., 2011). In contrast, our study suggests that the workshop intervention was particularly effective in enhancing the future attitude of female participants. This finding suggests that the "caregiver" role attributed to women in society was influential.

A multitude of factors, including academic interests, personality traits, post-graduation employment

prospects, and salary expectations, influence students' career choices. Our study revealed that both first- and second-year students exhibited a strong positive attitude toward career planning, as measured by the Career Planning Scale. Although no gender differences were found in the sub-scale scores, second-year students demonstrated higher levels of career knowledge. Karadaş et al. (2017) found no significant differences in Career Planning Scale sub-scores based on grade level among nursing students. Their study also indicated that the nursing students exhibited high levels of career congruence and optimism, but their perceived knowledge of the job market was moderate. A previous study of senior nursing students revealed that while their overall career future scores were high, their perceived knowledge of the job market was lower compared to their career congruence and optimism scores (Birinci 2021). The high level of career knowledge among senior students in our study can be attributed to their impending graduation and the associated job search activities. This finding is consistent with expectations. The significant improvements in career knowledge, congruence, and optimism observed among all students following the workshop suggest that targeted training can equip students with the necessary skills and knowledge to make informed career decisions.

CONCLUSION

This study underscores the positive impact of career-related education on students' attitudes and aspirations. By identifying students' career-related concerns and providing appropriate training, educators can help students develop a clearer understanding of their chosen profession, enhance their confidence, and make more informed career choices.

Limitation of the study

The study was conducted on a limited sample of students within a specific elderly care program. This may restrict the generalizability of the findings to other

elderly care programs or students in different geographical regions.

Contribution to the Field

The study draws attention to the challenges students encounter in their career development processes, such as a lack of professional knowledge, role ambiguity, and future-oriented anxieties, which may encourage educators and program administrators to focus more on these issues. This heightened awareness can contribute to the improvement of student support mechanisms and curriculum design. Furthermore, the study emphasizes the importance of developing career planning skills and fostering positive attitudes towards the future. The contribution of the workshop to the increase in students' career planning scale and future attitude scale scores highlights the potential of such interventions on student success and professional commitment.

Conflict of Interest

There is no conflict of interest regarding any person and/or institution.

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Araştırma Makalesi / Research Article

**Aralıklı Kateterizasyon Uyum Ölçeği ve Aralıklı Kateterizasyon Zorluk Anketinin Türkçe Geçerlilik ve Güvenilirlik Çalışması**Senem DUMAN^{1*} | Tülay BAŞAK²**Reliability and Validity Studies of Turkish Versions of Intermittent Catheterization Adherence Scale and Intermittent Catheterization Difficulty Questionnaire****ÖZET**

Bu çalışmanın amacı "Aralıklı Kateterizasyon Uyum Ölçeği" ve "Aralıklı Kateterizasyon Zorluk Anketi"nin kültürlerarası Türkçe uyarlamasını yapmak, geçerlik ve güvenilirliklerini incelemektir. Bu çalışma 105 hasta ile yürütülen metodolojik bir çalışmadır. Veriler "Tanımlayıcı Özellikler Formu", "Aralıklı Kateterizasyon Uyum Ölçeği" ve "Aralıklı Kateterizasyon Zorluk Anketi" kullanılarak toplanmıştır. Omurilik yaralanması olan hastalar bu ölçekleri içeren bir anket formunu doldurmuşlardır. Her iki ölçeğin kapsam geçerlilik indeksi 0.80 ile 1 arasında değişmektedir. Aralıklı Kateterizasyon Uyum Ölçeği'nin Cronbach alfa değeri 0.73 (tekrar test, 0.93) ve Aralıklı Kateterizasyon Zorluk Anketi'nin Cronbach alfa değeri sıklık alt ölçeği için 0.82 (tekrar test, 0.92) ve yoğunluk alt ölçeği için 0.80 (tekrar test, 0.91) olarak bulunmuştur. Aralıklı Kateterizasyon Uyum Ölçeği'nin Türkçe versiyonunun orijinal yapısında olduğu gibi tek boyuttan oluştuğu belirlenmiştir. Aralıklı Kateterizasyon Uyum Ölçeği'nin DFA modelinde RMSEA değeri 0.08; SRMR değeri 0.09; χ^2/df değeri 1.60; CFI değeri 0.98; TLI değeri 0.96 olarak bulunmuştur. "Aralıklı Kateterizasyon Uyum Ölçeği" ve "Aralıklı Kateterizasyon Zorluk Anketi"nin kültürel olarak Türkçe'ye uyarlanmıştır ve daha sonraki çalışmalarda kullanılmak üzere geçerli ve güvenilir görünmektedir.

Anahtar kelimeler: Aralıklı Kateterizasyon, Geçerlilik, Güvenilirlik, Hasta Uyum

ABSTRACT

This study aimed to perform the transcultural adaptation of the "Intermittent Catheterization Adherence Scale" and the "Intermittent Catheterization Difficulty Questionnaire" to Turkish language and analyze their validity and reliability. This is a methodological study conducted with 105 patients. The data were collected using a "Descriptive Characteristics Form", the "Intermittent Catheterization Adherence Scale", and the "Intermittent Catheterization Difficulty Questionnaire". The patients with chronic spinal cord injury who completed a survey form that included these scales. The content validity index of both scales was between 0.80 and 1. The Cronbach's alpha of the Intermittent Catheterization Adherence Scale was 0.73 (re-test, 0.93), and the Cronbach's alpha of the Intermittent Catheterization Difficulty Questionnaire was 0.82 (re-test, 0.92) for the frequency subscale and 0.80 (re-test, 0.91) for the intensity subscale. It was determined that the Turkish version of the Intermittent Catheterization Adherence Scale consisted of one dimension, as in its original structure. In the CFA model of the Intermittent Catheterization Adherence Scale, RMSEA value was 0.08; SRMR value was 0.09; χ^2/df value was 1.60; CFI value was 0.98; TLI value was 0.96. The Turkish versions of the "Intermittent Catheterization Adherence Scale" and the "Intermittent Catheterization Difficulty Questionnaire" were successfully culturally adapted to the Turkish language and seemed valid and reliable to be used in further studies.

Keywords: Intermittent Urethral Catheterization, Patient Adherence, Reliability, Validity

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INTRODUCTION

Self-catheterization (SC) is emptying the bladder with a catheter inserted into the bladder through the urethra in patients who cannot empty their bladder. Patients with spinal cord injury generally use this method lifelong; 40-90% of patients with advanced multiple sclerosis, 15% of patients who have had a stroke, 37-72% of patients newly diagnosed with Parkinson's disease, and 61% of patients newly diagnosed with spina bifida use the method (Dorsher & McIntosh, 2012; Le Danseur et al., 2018). Although SC is the most reliable method for bladder emptying in patients with neurogenic bladder during rehabilitation, complications may develop in long-term use (Kelly et al., 2014, Ozcelik & Buyukgonenc, 2024).

Providing adequate patient training, ensuring patient adherence, and providing psychosocial support during rehabilitation reduce the risk of SC-related complications (Seth et al., 2014; Newman & Willson, 2011; Bardsley 2015; Cameron et al., 2010). Many studies reported that SC patient training is an important factor that provides comfort in daily life and facilitates adherence to SC (Bardsley 2015; Engberg et al., 2020; Girotti et al., 2011; Motavasseli et al., 2018). However, factors such as catheter complications, catheter type, and duration of catheter use in SC users negatively affect adherence to the procedure (Kelly et al., 2014; Bardsley 2015; Engberg et al., 2020; Girotti et al., 2011; Batista-Miranda et al., 2014). In the study conducted by Girotti et al. (2011), it was reported that the adherence rate of patients performing SC 6 months after the first treatment was 61.7%, but after 12 months decreased to 58%. According to Batista-Miranda et al. (2014) at 24 months 52,7% of the patients complied with the procedure. Cobussen Boekhorst et al. (2016) reported that 86% of the patients performing SC had adherence at the 12th month.

Using standard measurement tools allows the existing problems to be determined objectively. Notably, the objective evaluation of the problems encountered in the health and the presentation of problem-specific solutions directly affect the quality of health services provided to patients (Bull et al., 2019). There are a

limited number of standardized measurement tools for patients undergoing SC in the Turkish population. The Self-confidence Scale for Clean Urinary Intermittent Self-Catheterization and The Intermittent Self-Catheterization Questionnaire, scales were translated into Turkish (Çulha & Acaroğlu). The Intermittent Self-Catheterization Questionnaire an instrument used to evaluate the quality of life of individuals performing SC already translated to Turkish language Yeşil et al. (2020), was used as a criterion to analyze the criterion validity of The IC- Adherence Scale. Evaluation of the complications that develop in patients performing SC and adherence of patients to the procedure is very important for the success of the SC method. However, no scale to evaluate the difficulties and adherence in these patients is available for the Turkish language. The IC- Adherence Scale, developed by Amandine Guinet-Lacoste et al. (2018), evaluates patients' adherence to the procedure. This scale is based on patients' self-reports. It was also adapted into Italian by Giovanni et al. (2021). The "IC- Difficulty Questionnaire" developed by Amandine Guinet-Lacoste et al. (2016) measures the frequency and intensity of difficulties related to SC application. This scale is filled with patients' self-reports. Dutch and Arabic adaptations of the scale were made (Ghroubi et al., 2020; Hervé et al., 2019). In particular, it is important for patients performing SC to report their adaptation to the procedure and the difficulties they experience while performing the procedure, using standard measurement tools to create a common language. It is thought that the use of Turkish versions of the scales will contribute to determining the current difficulties experienced by patients performing SC and their adherence to the procedure. The present study aimed to translate, adapt, and investigate the validity and reliability of the IC- Adherence Scale' and 'IC- Difficulty Questionnaire' in the Turkish language.

METHODS

Study design

This methodological study was conducted to perform the translation of the IC-Adherence Scale and IC-

Difficulty Questionnaire to Turkish language and verify their validity and reliability. The study was conducted in a physical therapy and rehabilitation hospital in Ankara between December 2020 and May 2021.

Instruments

1. Descriptive Characteristics Form: The form contains 11 questions regarding age, education level, medical diagnosis, duration of IC, frequency of IC, type of catheter used, daily fluid intake, problems experienced during IC, whether they received training before IC, and hospital admission for IC checkups. These questions were developed by the researcher based on the literature (Seth et al., 2014; Newman & Willson, 2011; Bardsley 2015; Cameron et al., 2010; Guinet-Lacoste et al, 2016& 2018; Hervé et al., 2019; Ghroubi et al., 2020).

2. IC- Adherence Scale: The scale was developed by Amandine Guinet-Lacoste et al. in 2018 and consisted of 8 questions. The first seven questions are answered yes=1 and no=0 (fifth question with reverse scoring). The eighth question has a 5-point Likert-type range and is scored as 0=never, 0.25=sometimes, 0.50=often, 0.75=, and 1=always. The Cronbach's alpha of the scale is 0.73. The total score obtainable from the scale is 8. According to the score results, patient adherence is classified into three ranges: Strong adherence=0, average adherence=1-2, and low adherence=3-8. The scale was developed in French, and the language compatibility of the English version was provided by Guinet-Lacoste et al. 2018. The scale has been adapted to Italian (Galeoto et al., 2022).

3. IC-Difficulty Questionnaire: The scale was developed by Amandine Guinet-Lacoste et al. (2016) and consists of 13 questions that measure both the frequency and the intensity of difficulties related to SC application. The questionnaire measures the frequency and intensity of difficulties related to SC application. The Cronbach's alpha of the scale is 0.94. The questionnaire has a 4-point Likert-type scoring. The frequency subscale is scored as 0=never, 1=sometimes, 2=often, 3=always, and the intensity subscale is scored as 0=not at all, 1=a little, 2=moderate, 3=a lot. The scale was

developed in French by the author (Guinet-Lacoste et al., 2018). Dutch and Arabic adaptations of the scale were made (Ghroubi et al., 2020; Hervé et al., 2019).

4. Intermittent Self-Catheterization Questionnaire: The scale was developed by Pinder et al. in 2012, and the Turkish validity and reliability study of the scale was conducted by Yeşil et al. in 2020. The questionnaire measures the quality of life of patients performing SC and consists of 24 questions and 4 subscales: Ease of use (eight questions), convenience (four questions), discreteness (six questions), and psychological well-being (six questions). Each item is rated on a 5-point Likert-type scale between 0=strongly disagree, and 4=strongly agree. A high score on the scale indicates a higher quality of life. The Cronbach's alpha is 0.94 in the original study (Pinder et al., 2012). This scale was used in the criterion validity analysis with the adapted IC- Adherence Scale.

Ethical considerations

In order to adapt the scales to Turkish, permission was taken from the authors of the scales via e-mail. Ethics committee approval was obtained prior to the study. The study was conducted after obtaining the Gulhane Ethics Committee's approval (decision no: 30 th November 2020/19) in accordance with the Helsinki Declaration. Moreover, the patients who underwent SC were informed about the study's purpose, the research's benefits, and the time they would spend for the interview. The data were collected after their verbal and written consent was taken.

Procedures

The study was conducted in two steps:

- (a) translation and cross-cultural adaptation,
- (b) the validity and the test-retest reliability

a) Translation and Cross-Cultural Adaptation

The cross-cultural adaptation of both scales was carried out according to the steps in Figure 1, in line

with WHO recommendations (World Health Organization, 2017).

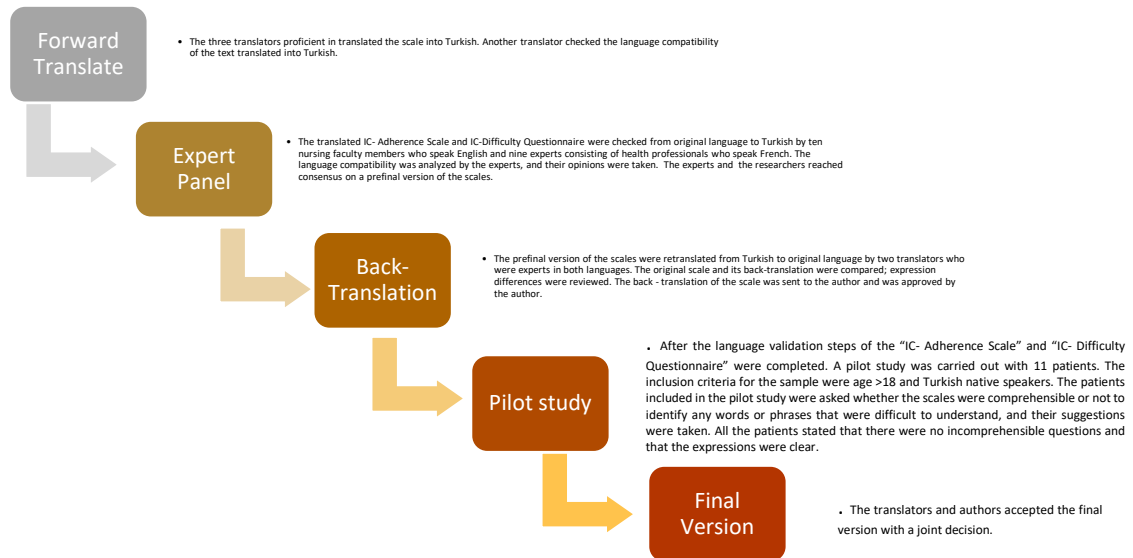


Figure 1. Translation and Cross-Cultural Adaptation

Data analysis: The scale items were evaluated regarding comprehensibility, ability to serve the purpose, discrimination, and cultural compatibility. The experts were asked to evaluate each item from "1" to "4" (1=absolutely inappropriate, 4=absolutely appropriate). According to the content validity coefficients calculated using the Davis (1992) content validity index (CVI) method were 0.8 and over (Davis, 1992).

b) The Validity and The Test-Retest Reliability

Sample

The research population consisted of all hospitalized patients who underwent SC in the spinal cord injury rehabilitation and subacute rehabilitation clinics of a rehabilitation center in Turkey between February 2021 and April 2021. The G*Power version 3.1 software package (Franz Faul, Christian-Albrechts-Universität Kiel, Kiel, Germany) was used for sample size calculation. A study by Guinet-Lacoste (2018) found the

correlation value between the original "IC- Adherence Scale" and "IC- Difficulty Questionnaire" to be 0.38. Therefore, the expected correlation value between the two scales in the calculation of the sample size in this present study was 0.4. The sample size was calculated as 105 with the expected correlation between the two scales ($r=0.4$) with statistical power =0.90, $\alpha=0.05$. Patients aged 18 and over, who volunteered to participate in the study, who had been performing SC for at least the last 6 months, and whose mother tongue was Turkish were included in the study, whereas patients with mental illness and those who could not communicate were not included.

Data collection

The data in the study were collected by face-to-face interview method. After informing about the purpose of the study, patients who met the inclusion criteria were invited. Written and verbal consent was taken from the patients who agreed to participate in the

study. Those who voluntarily agreed to participate were applied the “Descriptive Characteristics Form”, “IC- Adherence Scale”, “IC- Difficulty Questionnaire”, “Intermittent Self-Catheterization Questionnaire”. In the literature, it is recommended to apply the test-retest method between 2-4 weeks (Büyüköztürk et al, 2008). The test-retest method was applied to 45 patients in the sample group after 4 weeks.

Data analysis

The IBM SPSS (Statistical Package for Social Sciences) 22.0 program was used for the data analysis and the IBM AMOS (Analysis of Moment Structures) 23.0 statistical program was used for factor analysis.

Shapiro-Wilk and Kolmogrov-Smirnov tests were used to determine the fitness of the data to the normal distribution. The descriptive data of the study were presented as number, percentage, mean±standard deviation. Pearson’s correlation coefficient was used to analyze the relationship between “IC- Adherence Scale”, “IC- Difficulty Questionnaire”, and descriptive characteristics. To examine between the groups, one-way analysis of variance (ANOVA) was used for more than two groups. Significance test was used for the difference between two means in independent paired groups. A p-value of <0.05 was considered an indicator of significant difference. The validity and reliability analyses of IC- Adherence Scale and IC- Difficulty Questionnaire used in the study are given in Table 1.

Table 1. Validity and Reliability Analyses of IC-Adherence Scale and IC-Difficulty Questionnaire

Validity and Reliability Analyses of IC-Adherence Scale	
Analyses	Measurements
Validity Analyses Language Validity Content Validity (CVI) Criterion Validity	Davis Technique Pearson Product-Moment Correlation Coefficient Confirmatory Factor Analysis
Reliability Analyses Internal Consistency Reliability	Item Average Standard Deviation
Test-Retest Reliability	Item-Total Correlation Cronbach’s Alpha
Validity and Reliability Analyses of IC-Difficulty Questionnaire	
Analyses	Measurements
Validity Analyses Language Validity Content Validity (CVI) Criterion Validity	Davis Technique Pearson Product-Moment Correlation Coefficient
Reliability Analyses Internal Consistency Reliability	Item Average Standard Deviation
Test-Retest Reliability	Item-Total Correlation Cronbach’s Alpha

IC- Adherence Scale: By applying the IC- Adherence Scale and Intermittent Self-Catheterization Questionnaire scales to the study's participants, the Pearson product-moment correlation coefficient was calculated between the measurements, and evidence

for criterion validity was presented. In order to provide evidence for the construct validity of the IC- Adherence Scale, Confirmatory Factor Analysis (CFA) was performed, and the model-data fit of the model established with eight items was evaluated. Analyzes

were made in the Mplus-7 program. Since seven items in the scale are in a double-scored item structure, and the eighth item is in a 4-point Likert-type item structure, seven related items in the Mplus program are defined as categorical, and the eighth item is ordinal. Since the items in the scale are categorical, the Robust Weighted Least Squares (RWLS) method was preferred as the estimation method (Büyüköztürk, 2008). Confirmatory factor analysis for applied research. Guilford publications). All these regression coefficients were significant at a level of 0.05. It was stated that the standard regression coefficient (factor load) for each item in confirmatory factor analysis above 0.32 was acceptable in terms of model-data fit. (Tabachnick & Fidell, 2011). RMSEA, SRMR, χ^2 , χ^2/sd , and TLI values were interpreted in evaluating the model-data fit of the established factor model. In addition to the evidence presented for the construct validity of the measurements obtained from the IC-Adherence Scale, the total scores obtained from the scale were compared according to the participants' gender, age, and duration of SC use in the context of the construct validity study of the scale. For this purpose, while the Independent sample T-test was used for the gender variable with two categories, One Way ANOVA was used for the difference analyses of duration of SC use and age with more than two categories. Test-retest method, Cronbach's alpha (α), and item-total correlation coefficients were calculated to provide evidence for the reliability of the measurements obtained from the scales. In this study, Cronbach's alpha was accepted as 0.70 and above (Brown, 2015; Tavakol & Dennick, 2011). Standardized Cronbach's alpha (α), test-retest reliability, and item-total correlation values were calculated to provide evidence for the reliability of the scales (>0, 30 and above is considered consistent) (Anselmi et al., 2019).

IC- Difficulty Questionnaire: Correlation values between participants' IC -Adherence Scale scores were calculated to provide evidence for the criterion validity of the measurement results obtained from this scale. In order to evaluate the criterion validity of the IC - Difficulty Scale, the IC- Adherence Scale, whose

reliability and validity was ensured in the first stage of the study, was used. The Pearson product moment correlation coefficient was calculated between the IC-Adherence Scale total score and the IC- Difficulty Questionnaire frequency and intensity subscales. Adhering to the original development process of the IC Difficulty Scale, the total scores obtained from the construct validity scale were compared according to the participants' gender, age and duration of SC use. In order to evaluate the criterion validity of the IC- Difficulty Scale, the IC- Adherence Scale, whose reliability and validity was ensured in the first stage of the study, was used. The Pearson product moment correlation coefficient was calculated between the IC-Adherence Scale total score and the IC- Difficulty Questionnaire frequency and intensity subscales. Within the scope of construct validity, the IC-Adherence Scale scores of the patients were compared according to gender, age and duration of SC use, providing evidence for the validity of the measurements obtained from the IC- Difficulty Questionnaire. For this purpose, two-category Independent Sample t-test was used for the gender variable, while One-Way ANOVA was used in the difference analysis with more than two categories for age and duration of SC use. Test-retest method, Cronbach's alpha (α) and item-total correlation coefficients were calculated to provide evidence for the reliability of the measurements obtained from the IC- Difficulty Questionnaire (Brown, 2015; Tavakol & Dennick, 2011). In addition to these; In order to determine the consistency of the scores of the participants in the questionnaire, which consists of two parts, frequency and intensity, the intraclass correlation coefficient (>60 and above is considered consistent) was calculated (Taber, 2019). Analyzes were performed in SPSS 22 statistical software package. The validity and reliability analyzes of the IC-Adherence Scale and IC- Difficulty Questionnaire used in the study are given in Table 1.

RESULTS

The descriptive characteristics of patients are shown in Table 2.

Table 2. Descriptive characteristics (n=105)

Variables	Number (n)	Percentage (%)
Gender		
Female	23	21.9
Male	82	78.1
Education level		
Primary school	17	16.2
Secondary school	14	13.3
High school	25	23.8
Associate/Bachelor	45	42.9
Postgraduate	4	3.8
Diagnosis		
Spinal cord injury	97	92.3
Brain damage	4	3.8
Stroke	3	2.9
Spina bifida	1	1.0
Catheter type		
Hydrophilic	90	85.7
Gel	15	14.3
Receiving training on SC		
Yes	98	93.3
No	7	6.7
	Mean± SD	Min-Max
Age	35.45±12.56	18-68
Amount of Fluid Taken/ml	2166.35±551.26	1000-4500
Frequency of Performing SC/per day	5.2±0.09	4-7
Duration of SC Use/month	45.75±51.44	6-228

CVI values for the IC -Adherence Scale and IC -Difficulty Questionnaire were 0.8 and over. Within the scope of the research, Intermittent Self-Catheterization Questionnaire was used to evaluate the criterion validity of the IC- Adherence Scale. According to the Pearson product-moment correlation coefficient analysis of the relationship between the patients' IC Adherence Scale and Intermittent Self-Catheterization Questionnaire scores, there was a positive, moderate significant correlation between the IC- Adherence Scale score and the total Intermittent Self-Catheterization Questionnaire score ($r=0.33$; $p<0.05$), ease of use subscale score ($r=0.31$; $p<0.05$) and

convenience subscale ($r=0.33$; $p<0.05$) score. There was a negative, weak significant correlation between patients' IC Adherence Scale score and the IC -Difficulty Questionnaire frequency ($r=-0.21$; $p<0.05$) and intensity ($r=-0.22$; $p<0.05$) subscale scores. As seen in Figure 2, all of the standardized regression coefficients (factor loads) for the single factor measurement model established with 8 items of the IC- Adherence Scale were above 0.32. In the CFA model established with the measurements obtained from the IC- Adherence Scale, RMSEA value was 0.08; SRMR value was 0.09; χ^2/df value was 1.60; CFI value was 0.98; TLI value was 0.96 (Table 3).

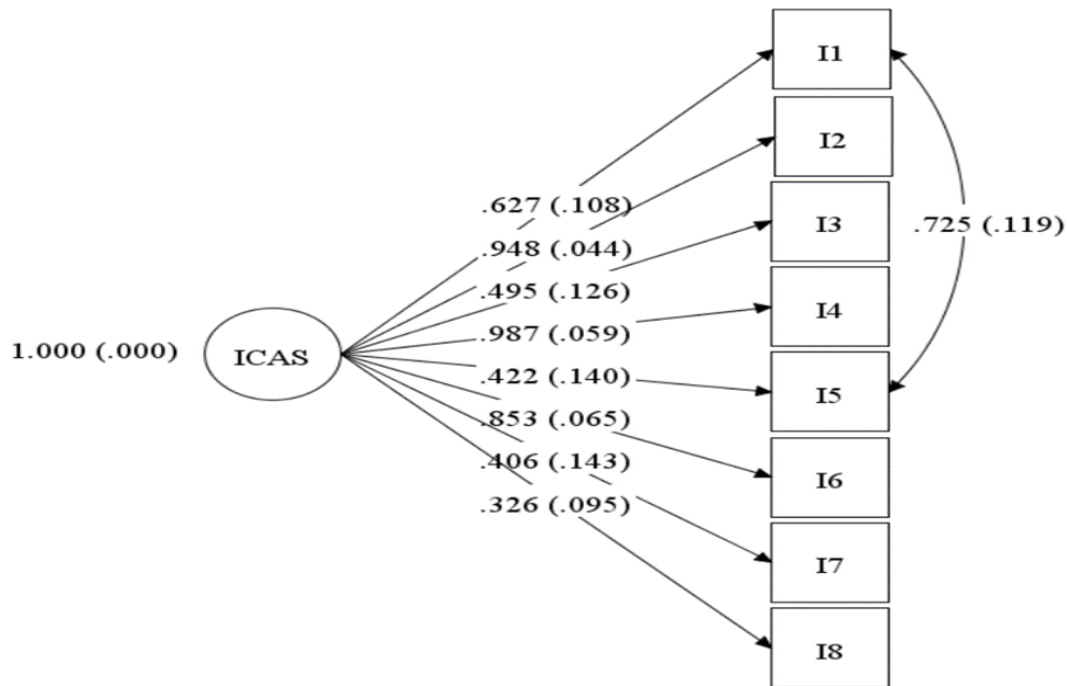


Figure 2. The path diagram of the Dfa model of IC-Adherence Scale consists of 8 items. Single-factor rectangles I1-I8 IC-Adherence Scale; One-way arrows show the correlation in path coefficients (factor loads) and two-way arrows in error variances. Values in parentheses indicate standard errors.

Table 3. Evaluation Criteria of the DFA Model

Index	Good fit	Acceptable fit	IC-Adherence Scale
χ^2 / df	$0 \leq \chi^2 / df \leq 2$	$2 < \chi^2 / df \leq 3$	1.60 (30.40/19)
RMSEA	$0 \leq RMSEA \leq 0.05$	$0.05 < RMSEA \leq 0.08$	0.08
SRMR	$0 \leq SRMR \leq 0.05$	$0.05 < SRMR \leq 0.10$	0.09
TLI (NNFI)	$0.97 \leq NNFI \leq 1.00$	$0.95 \leq NNFI < 0.97$	0.96
CFI	$0.97 \leq CFI \leq 1.00$	$0.95 \leq CFI < 0.97$	0.98

(χ^2 : Chi-square, df: Degree of freedom, RMSEA: Root-Mean-Square Error of Approximation, SRMR: Standardized Root Mean Residual Squares, CFI: Comparative Fit Index, NNFI: Non-Normed Fit Index)

The IC- Adherence Scale scores of the patients did not show a significant difference according to gender ($t=0.20$, $p=0.83$), and age ($F=0.96$, $p=0.43$), whereas a statistical difference was obtained according to the duration of SC use ($F=3.36$, $p=0.01$). A multiple comparison test was performed to determine the source of the difference. The IC- Difficulty

Questionnaire scores of the patients did not show a significant difference according to gender (Frequency; $t=0.08$, $p=0.94$ Intensity; $t=0.58$, $p=0.56$), age (frequency; $F=2.18$, $p=0.77$ intensity; $F=2.24$, $p=0.07$), and duration of SC use (frequency; $F=2.12$, $p=0.10$ intensity; $F=1.92$, $p=0.13$). The correlation value of each item of the IC- Adherence Scale with the overall

scale was 0.30 and over. The Cronbach's alpha (α), the internal consistency coefficient based on a single application of the scale items, was 0.73; the test-

retest reliability coefficient, which is based on two applications and considered reliability in terms of stability, was 0.93 (Table 4).

Tablo 4. IC- Adherence Scale item statistics and reliability values

Item No	N	Mean ($\bar{X}$)	Std. deviation (SD)	Item-Total Score Correlation (r)
I1	105	0.44	0.49	0.62
I2	105	0.42	0.49	0.63
I3	105	0.34	0.47	0.50
I4	105	0.20	0.40	0.70
I5	105	0.35	0.48	0.53
I6	105	0.29	0.45	0.65
I7	105	0.35	0.48	0.40
I8	105	0.19	0.20	0.32
Cronbach Alpha (α)			:0.73	
Test-retest reliability			:0.93	

It was concluded that the value of the correlation of each item of the IC- Difficulty Questionnaire with the overall scale ranged between 0.32 and 0.80. The Cronbach's alpha (α), the single application-based internal consistency coefficient of the scale items, was 0.82 for the frequency subscale and 0.80 for the intensity subscale. The test-retest reliability, a coefficient based on two applications and considered

as reliability in terms of stability, was determined as 0.92 for the frequency subscale and 0.91 for the intensity subscale. In addition to these findings, intraclass correlation values were calculated to determine the consistency of participants' answers about the frequency and intensity of the same items. These correlation values ranged between 0.82 and 0.97. (Table 5)

Table 5. IC- Difficulty Questionnaire item statistics and reliability values

Item No	In-Class Correlation ICC	Frequency			Intensity		
		Mean ($\bar{X}$)	Std. deviation (SD)	Item-Total Score Correlation (r)	Mean ($\bar{X}$)	Std. deviation (SD)	Item-Total Score Correlation. (r)
I1	0.87	0.69	0.75	0.44	0.82	0.89	0.32
I2	0.89	0.69	0.72	0.73	0.62	0.62	0.76
I3	0.92	0.60	0.65	0.76	0.60	0.64	0.76
I4	0.97	0.58	0.69	0.78	0.59	0.72	0.77
I5	0.96	0.53	0.70	0.80	0.60	0.83	0.76
I6	0.93	0.64	0.84	0.56	0.59	0.75	0.67
I7	0.89	0.79	0.95	0.57	0.72	0.84	0.57
I8	0.82	0.65	0.79	0.38	0.75	1.01	0.37
I9	0.96	0.51	0.80	0.54	0.51	0.83	0.46
I10	0.89	0.59	0.79	0.50	0.59	0.78	0.51
I11	0.98	0.32	0.64	0.47	0.32	0.64	0.46
I12	0.95	0.78	0.82	0.44	0.81	0.86	0.44
I13	0.96	0.31	0.52	0.36	0.34	0.61	0.38
Cronbach Alpha (α)		0.82			0.80		
Test-retest reliability		0.92			0.91		

DISCUSSION

In this study, the values obtained as a result of content validity analysis show that the content validity of both scales was high (Davis, 1992). Therefore, it was determined that each item in the scale represented the area to be measured. Patients' scores on the IC- Adherence Scale and IC- Difficulty Questionnaire did not show a statistically significant difference according to gender and age ($p>0.05$). Similarly, studies by Guinet-Lacoste et al. (2016, 2018) found no difference between the patients' scores on the original IC- Adherence Scale and IC- Difficulty Questionnaire according to age and gender. This finding corresponded with those reported by this current our study.

The Intermittent Self-Catheterization Questionnaire was used for the criterion validity of IC Adherence Scale. A positive and moderately statistically significant relationship was established between the total score obtained from the IC Adherence Scale, the total score

obtained from The Intermittent Self-Catheterization Questionnaire, and the scores obtained from the ease of use and convenience sub-dimensions. This shows that the instrument met the required validity criteria. The IC- Adherence Scale was used for the criterion validity of the IC- Difficulty Questionnaire. There was a low level of statistically significant negative correlation between the scores obtained from the IC- Adherence Scale and the scores obtained from both the frequency and intensity dimensions of the IC- Difficulty Questionnaire. When patients experienced SC-related difficulties, SC compliance decreased. In the literature, there are studies which report that factors that negatively affect the quality of life such as urinary tract infection and dependency status, which are among the complications of SC, reduce the patient's compliance with SC (Seth et al., 2014; Newman & Willson, 2011; Bardsley 2015; Cameron et al., 2010). All of the standardized regression coefficients (factor loadings) of the one-factor measurement model established

with the 8 items in the IC- Adherence Scale were above 0.32 and statistically significant. In addition, the CFA model established with the eight items in the IC- Adherence Scale showed that the data fit was at an acceptable level (Büyüköztürk, 2008).

The Cronbach's alpha (α) of the IC- Adherence Scale in this study was the same as that in the original study, 0.73. In the Italian translation, Cronbach's alpha (α) is reported to be 0.845 (Çulha & Acaroğlu, 2020). The Cronbach's alpha (α) of the IC- Difficulty Questionnaire was 0.82 for the frequency subscale and 0.80 for the intensity subscale. The original scale's Cronbach's alpha (α) was reported as 0.94. It was reported that the Cronbach's alpha (α) value is 0.96 in the Arabic version of the scale (Ghroubi et al., 2020). In the Dutch translation, Cronbach's alpha (α) is reported to be 0.88-0.86. As a result of these analyses, it was found that the IC- Adherence Scale and IC- Difficulty Questionnaire are reliable (Hervé et al., 2019).

The test-retest method aims to obtain similar results with the measurements made at different times of the scale (Büyüköztürk, 2008). In order to accept the stability of a measurement tool, the correlation coefficient obtained from two applications at different times should be at least 0.70 (Karakoç & Dönmez, 2014). The test-retest reliability coefficient of the IC- Adherence Scale was 0.93. The test-retest reliability coefficient value of the IC- Difficulty Questionnaire was 0.92 for the frequency subscale and 0.91 for the intensity subscale. According to the results from the re-tests four weeks after the first application, the IC- Adherence Scale and IC- Difficulty Questionnaire were valid and reliable for Turkish language.

The Turkish versions of the "IC Adherence Scale" and the "IC Difficulty Questionnaire" were successfully culturally adapted to the Turkish language, and they seem valid and reliable to be used in further studies. It is recommended to apply both scales in a larger sample with different medical characteristics and increase the generalizability of the results. In the literature, studies recommend the follow up of compliance levels and difficulties experienced by patients undergoing SC. However, there are limitations to the follow-up of Turkish-speaking patients

undergoing SC. Studies also report the use of these scales may contribute to the follow-up of patients undergoing SC. In addition, these scales can be used as a standardized measurement tool in studies to be conducted on this subject.

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Araştırma Makalesi / Research Article



Hemşirelik Öğrencilerinin 21. Yüzyıl Becerileri ile Bakım Davranışları Arasındaki İlişki

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The Relationship Between Nursing Students' 21st Century Skills and Caring Behaviors

ÖZET

Hemşirelik öğrencileri, çağdaş sağlık hizmetlerinin zorluklarının üstesinden gelmek için yalnızca klinik yeterliliği değil, aynı zamanda uyum sağlama, eleştirel düşünme ve güçlü bir profesyonel kimlik duygusunu da kapsayan karmaşık bir dizi beceriye ihtiyaç duymaktadır. Modern sağlık hizmetleri, hemşirelerden geleneksel klinik uzmanlığın ötesine geçerek uyum sağlama, eleştirel düşünme ve derin bir profesyonel kimlik duygusunu da kapsayan çok yönlü bir beceri seti talep etmektedir. Özellikle hemşirelik öğrencileri, sürekli gelişen sağlık hizmetleri ortamının karmaşıklıklarında etkin bir şekilde yol alabilmek için bu yetkinlikleri geliştirmelidir. Hemşirelik öğrencilerinin 21. yüzyıl becerilerini edinmeleri ile klinik uygulamalarda özenli davranışlar sergilemeleri arasındaki ilişkiyi araştırmak. Bu çalışma, hemşirelik öğrencileri arasında 21. yüzyıl becerileri ve bakım verme davranışları arasındaki karmaşık ilişkiyi araştıran kesitsel bir tasarımıdır. Hemşirelik Öğrencilerinin Bakım Verme Davranışları Envanteri ve 21. Yüzyıl Becerileri ölçekleri ve alt boyut puan ortalamaları Bakım Verme Davranışları 5.01±0.68, alt boyut puan ortalamaları; Güvence (A): 5.06±0.69, Bilgi-beceri (KS): 4.85±0.74, Saygılı (S): 5.10±0.74, Bağlılık (B): 4.98±0.81,21 olarak bulunmuştur. Yüzyıl Becerileri ölçeğinin ortalama puanı 100,17±14,50 olup İletişim (İ), Eleştirel Düşünme (ED), Yaratıcılık (Y) ve İşbirliği (İ) alt boyutlarının ortalama puanları sırasıyla 29,47±4,46, 39,05±6,53, 19,57±3,52 ve 12,13±1,95'tir. Hemşirelik öğrencilerinin özenli davranışları ile 21. yüzyıl becerileri arasında önemli bir korelasyon olduğu ortaya çıkmıştır. Sonuçlar, bakım davranışlarının ve 21. yüzyıl becerilerinin geliştirilmesinin hemşirelik eğitim programlarına dahil edilmesinin ne kadar önemli olduğunu vurgulamaktadır. Eğitici, vaka çalışmaları, simülasyonlar ve probleme dayalı öğrenmeyi kullanarak öğrencilere bu becerileri geliştirme fırsatları verebilir.

Anahtar kelimeler: Bakım davranışları, Klinik Beceriler, 21. Yüzyıl Becerileri, Hemşirelik Öğrencileri, Mesleki gelişim

ABSTRACT

Nursing students require a complex set of skills to navigate the challenges of contemporary healthcare, encompassing not only clinical proficiency but also adaptability, critical thinking, and a strong sense of professional identity. Modern healthcare demands a multifaceted skill set from nurses, extending beyond traditional clinical expertise to encompass adaptability, critical thinking, and a profound sense of professional identity. Nursing students, in particular, must cultivate these competencies to effectively navigate the complexities of an ever-evolving healthcare landscape. This cross-sectional study explores the relationship between nursing students' of 21st century skills and their demonstration of caring behaviors in clinical practice. The mean scores of Nursing Students' Carering Behaviors Inventory and 21st Century Skills scales and sub-dimension scores Caring Behaviors was 5.01±0.68, and the mean scores of sub-dimensions; Assurance (A): 5.06±0.69, Knowledge-skill (KS): 4.85±0.74, Respectful (R): 5.10±0.74, Connectedness (C): 4.98±0.81.21. The mean score of the Century Skills scale was 100.17±14.50 and the mean scores of Communication (C), Critical Thinking (CT), Creativity (C) and Collaboration (CC) sub-dimensions were 29.47±4.46, 39.05±6.53, 19.57±3.52 and 12.13±1.95, respectively. It was discovered that there was a substantial correlation between nursing students' caring behaviors and their 21st-century skills. The results emphasize how crucial it is to include the development of caring behaviors and 21st-century skills into nursing education programs. Educators can give students opportunities to improve these skills by using case studies, simulations, and problem-based learning.

Keywords: Caring, Clinical Skills, 21st Century Skills, Nursing Students, Professional development

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INTRODUCTION

The nursing profession stands as a cornerstone of healthcare, demanding a unique blend of technical expertise and compassionate care (Allari et al., 2022). Nurses navigate an increasingly complex healthcare landscape, requiring them to master not only clinical skills but also a suite of competencies known as 21st-century skills (Porter-O'Grady et al., 2010). These skills, encompassing critical thinking, communication, collaboration, and creativity, are crucial for adapting to evolving patient needs and technological advancements (Nabizadeh-Gharghozar et al., 2020). Simultaneously, caring behaviors, which encompass empathy, compassion, and a commitment to patient well-being, remain central to the ethical and practical foundations of nursing (Fry, 2002). Nursing education faces the challenge of preparing graduates to meet these multifaceted demands, integrating both 21st-century skills and the traditional emphasis on caring. The interplay between these two domains is vital: strong 21st-century skills can enhance a nurse's ability to deliver effective and patient-centered care, while genuine caring can provide the motivation and ethical grounding for utilizing those skills responsibly. The need for improving nursing education to ensure safe and patient-centered care has been identified in a number of studies. (Sela et al., 2021; Öztürk and Okçin, 2025). Thus, exploring the relationship between nursing students' acquisition of 21st-century skills and their demonstration of caring behaviors is essential for informing curriculum development and pedagogical approaches in nursing education.

The 21st-century presents multifaceted challenges within healthcare, including an aging population, rising healthcare costs, and shortages of nursing staff (Fawaz et al., 2018). Equipping nursing students with the capabilities to face the increasing complexities of life and work in the 21st century is critical (Gulledge, 2012). The integration of 21st-century skills, often referred to as the "4Cs" – creativity, critical thinking, communication, and collaboration has become a focal point in educational reforms (Alphrazy & Octavia, 2023). Nursing education must evolve beyond

traditional models to cultivate these skills, preparing nurses to be proactive problem-solvers and adapt to rapid changes in healthcare practices (Zeydani et al., 2021). The ability to apply knowledge in novel situations, analyze complex data, and generate innovative solutions is of paramount for nurses working in dynamic clinical settings (Afandi et al., 2019). Effective communication skills, both interpersonally and through digital platforms, are necessary for coordinating care among diverse healthcare teams and engaging patients in shared decision-making (Siokal et al., 2023). Moreover, collaboration skills enable nurses to work effectively with colleagues from various disciplines, fostering a holistic approach to patient care. In fact, students are expected to have these skills in accordance with their field competencies (Alphrazy & Octavia, 2023).

Caring constitutes a fundamental tenet of the nursing profession, influencing patient outcomes, satisfaction, and the overall quality of healthcare delivery. Caring encompasses empathy for and connection with people (Fahrenwald et al., 2005). The essence of caring in nursing extends beyond the performance of clinical tasks; it involves establishing a therapeutic relationship with patients, recognizing their unique needs, and advocating for their well-being. Nurse educators play a crucial role in instilling caring values in students. They can foster a caring environment through role modeling, mentorship, and creating opportunities for students to reflect on their experiences (McEnroe–Petitte, 2011). Furthermore, curricula should integrate theories of caring, such as those developed by Swanson and Watson, to provide a framework for understanding and practicing caring behaviors. Reflection on caring experiences allows students to develop a deeper understanding of their own values and beliefs, contributing to the formation of a strong professional identity (Jaastad et al., 2022). In addition to clinical nursing activities, nurses express caring through compassion, concern, kindness, and interpersonal relationships (Alikari et al., 2022).

The convergence of 21st-century skills and caring behaviors represents a powerful synergy in nursing

practice (Krel et al., 2022). Nurses provide patient care that is driven by ideals of compassion, kindness, and empathy (Cole et al., 2022). Effective communication skills are vital for establishing trust and rapport with patients, enabling nurses to gather information, provide education, and advocate for their needs (Siokal et al., 2023). Critical thinking skills are essential for making sound clinical judgments that prioritize patient safety and well-being. Collaboration skills enhance the capacity to work effectively with interdisciplinary teams, ensuring coordinated and patient-centered care. Nurses can improve their problem-solving and critical thinking skills through reflective analysis, which helps them understand caring and develop empathy, ultimately improving their interactions with patients (Tseng et al., 2025). Creativity fosters innovation in care delivery, allowing nurses to develop tailored interventions that address individual patient needs and preferences. By integrating these skills, nurses can deliver care that is not only technically proficient but also deeply compassionate and patient-centered (Ross et al., 2014).

METHODS

Design

This study is a cross-sectional design. It was reported by following the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) Statement: guidelines for reporting observational studies (von Elm et al., 2014)

Study Population and Sample

The population of the study consisted of second, third, and fourth year students in the nursing department of a state university in Turkey who had clinical practice experience in the 2024-2025 academic year. In this study, no sample selection was made from the population and all students were invited to participate. The data were obtained from a total of 130 students who voluntarily agreed to participate in the study, had

clinical practice experience, and completed the data form completely.

Data Collection

The 'Sociodemographic Data Form', 'Caring Behaviors Inventory-24' and '21st Century Skills Scale' were used to gather data online between April and June 2025.

Sociodemographic Data Form: The sociodemographic data form, designed based on a review of relevant literature (Dedemoğlu and Ceylan; 2025; Dedemoğlu et al., 2025; Erenoğlu et al., 2019; Dığın and Ozkan, 2021), comprised six questions about students' sociodemographic factors (age, gender, etc.) and their average academic performance.

The "Caring Behaviors Scale-24" (CBS-24) developed by Wu et al. (2006) is used to compare nurses' self-assessment and patient perceptions (Wu et al., 2006). The Turkish validity and reliability study of the scale was conducted by Kurşun and Kanan (2012) (3). The Caring Behaviors Scale includes Assurance (8 items=16,17,18,20,21,22,23,24), Knowledge-skill (5 items=9,10,11,12,15), Respectfulness (6 items=1,3,5,5,6,13,19) and Commitment (5 items=2,4,7,8, 14) and 24 items, and a 6-point Likert-type scale (1= never, 2= almost never, 3= sometimes, 4= usually, 5= most of the time, 6= always) is used for responses. When calculating the scale score, all items belonging to the scale and sub-dimensions are summed and divided by the number of items to obtain a scale score between 1 and 6. The higher the score obtained from the scale, the higher the perception of nursing care behavior (Kurşun & Kanan, 2012). For this study, the Cronbach's Alpha coefficient of "Caring Behaviors Scale-24" of nursing students was calculated as 0.957.

The “21st Century Skills” Scale was developed by Kelley et al. (2019) and the validity and reliability study of the scale in Turkish culture was conducted by Gür et al. (2023) (Kelley et al., 2019; Gür et al., 2023) The scale consists of 25 questions and 4 sub-factors. The questions are 5-point Likert-type, categorized from strongly disagree to strongly agree. The scale consists of critical thinking, communication, creativity and collaboration sub-dimensions. In the original version of the scale, Cronbach's alpha values in the sub-dimensions were stated as Collaboration, $\alpha=.826$; Communication, $\alpha=.749$; Creativity, $\alpha=.751$; and Critical Thinking, $\alpha=.876$ (Kelley et al., 2019). For this study, the Cronbach's Alpha coefficient of the scale was calculated as 0.964.

Ethical Considerations

Ethical approval for the study was obtained from the Ethics Committee of Burdur Mehmet Akif Ersoy University (GO 2025/1008). The goal of the study was explained to the participants, and their verbal agreement was obtained. The study was carried out in compliance with the Declaration of Helsinki's guiding principles.

Data analysis

Data analyses were conducted using IBM SPSS Statistics for Windows, Version 22.0 (IBM Corp., Armonk, NY, USA). Skewness and kurtosis coefficients, as well as Shapiro-Wilk and Kolmogorov-Smirnov tests were used to evaluate the conformity of the data to normal distribution. According to the findings, skewness and kurtosis values were not within the ± 2 limits recommended in the literature (Doğan, 2023; Schmidt, 2023; Akyüz & Gamgam, 2017). However, the significance level was found to be $p<0.05$ in both normality tests, indicating that the data were not normally distributed. Accordingly, the data analysis process was continued with nonparametric test methods.

Continuous variables were defined as arithmetic mean and standard deviation; categorical variables were defined as frequency and percentage values. The relationships between the scale scores were analyzed by Spearman correlation analysis. According to the descriptive characteristics of nursing students, the differences between the “Caring Behavior Scale” and “21st Century Skills Scale” scores were evaluated by Mann-Whitney U test for comparisons involving two groups and Kruskal-Wallis analysis of variance for comparisons involving more than two groups. In determining the suitability of the data set for regression analysis, correlations between variables were analyzed with VIF and tolerance values. A VIF value <10 and a tolerance value >0.1 were considered (Schreiber-Gregory, 2018; Senaviratna & Cooray, 2019). In all analyses, p values <0.05 were considered statistically significant.

RESULTS

The distribution of nursing students according to their descriptive characteristics is shown in Table 1. 75.4% of the students were female, 46.9% were in the first year, 42.3% were in the second year, and 76.9% of the sample consisted of students who expressed their academic achievement as moderate. 46.2% lived in the Mediterranean and 38.5% in the Aegean region. The mean age of the students was 20.09 ± 1.70 (years) and those with a GPA between 70-80 constituted 41.5% of the sample (Table 1).

The mean scores of Nursing Students' Caring Behaviors Inventory and 21st Century Skills scales and sub-dimension scores are shown in Table 2. Accordingly, the mean score of Caring Behaviors was 5.01 ± 0.68 , and the mean scores of sub-dimensions; Assurance (A): 5.06 ± 0.69 , Knowledge-skill (KS): 4.85 ± 0.74 , Respectful (R): 5.10 ± 0.74 , Connectedness (C): 4.98 ± 0.81 . 21. The mean score of the Century Skills scale was 100.17 ± 14.50 and the mean scores of Communication (C), Critical Thinking (CT), Creativity (C) and Collaboration (CC) sub-dimensions were

29.47±4.46, 39.05±6.53, 19.57±3.52 and 12.13±1.95, respectively (Table 2).

Table 1. Distribution of Nursing Students According to Descriptive Characteristics (n=130)

		Mean±SD	Min-Max
Age (year)		20.09±1.70	17-32
		n	%
Gender	Female	98	75.4
	Male	32	24.6
Class	2nd class	61	46.9
	3rd class	55	42.3
	4th class	14	10.8
Academic success	Low	12	9.2
	Medium	100	76.9
	High	18	13.8
Region of residence	Mediterranean -1	60	46.2
	Aegean -2	50	38.5
	Marmara-5	4	3.1
	Central Anatolia-6	3	2.3
	Eastern Anatolia-4	5	3.8
	Southeast Anatolia-3	8	6.2
GPA	50-60	11	8.5
	60-70	27	20.8
	70-80	54	41.5
	80-90	27	20.8
	90-100	11	8.5

GPA: Grade Point Average

Table 2. Nursing Students' Caring Behaviors and 21st Century Skills Scales and Subscale Mean Scores (n=130)

Scale	Sub-dimensions	X±SD	Min-Max
Caring Behaviors		5.01±0.68	1-6
	Assurance	5.06±0.69	1-6
	Knowledge and Skill	4.85±0.74	1-6
	Respectful	5.10±0.74	1-6
	Connectedness	4.98±0.81	1-6
21st Century Skills		100.17±14.50	26-125
	Communication	29.47±4.46	9-35
	Critical thinking	39.05±6.53	9-50
	Creativity	19.57±3.52	5-25
	Collaboration	12.13±1.95	3-15

CBI: Caring Behaviors Inventory

The correlations between the mean scores of nursing students' Caregiver Behaviors and 21st Century Skills scales and subscales are shown in Table 3. Accordingly, positive and statistically significant correlations were found between CBI and 21st

century skills (r: .527 p<0.001), communication (r: .556 p<0.001), critical thinking (r: .444 p<0.001), creativity (r: .441 p<0.001) and collaboration (r: .474, p<0.001). Positive and statistically significant correlations were found between assurance and 21st century skills (r: .520 p<0.001), communication (r: .543 p<0.001),

critical thinking (r: .442 p<0.001), creativity (r: .430 p<0.001) and collaboration (r: .474 p<0.001). There were positive and statistically significant correlations between knowledge-skills and 21st century skills (r: .518 p<0.001), communication (r: .532 p<0.001), critical thinking (r: .433 p<0.001), creativity (r: .444 p<0.001) and collaboration (r: .439 p<0.001). Positive and statistically significant correlations were found between respectfulness and 21st century skills (r: .417 p<0.001),

communication (r: .482 p<0.001), critical thinking (r: .374 p<0.001), creativity (r: .331 p<0.001) and collaboration (r: .368 p<0.001). Positive and statistically significant correlations were found between connectedness and 21st century skills (r: .416 p<0.001), communication (r: .452 p<0.001), critical thinking (r: .327 p<0.001), creativity (r: .353 p<0.001) and collaboration (r: .366 p<0.001) (Table 3).

Table 3. Correlations Between Nursing Students' Caring Behaviors and 21st Century Skills Scales and Subscales (n=130)

	CBI	Assurance	Knowledge and Skill	Respectful	Connectedness	21st Century Skills	Communication	Critical thinking	Creativity	Collaboration
CBI	-	.878***	.844***	.918***	.919***	.527***	.556***	.444***	.441**	.474***
Assurance		-	.667***	.735***	.704***	.520***	.543***	.442***	.430**	.474***
Knowledge and Skill			-	.685***	.730***	.518***	.532***	.433***	.444***	.439***
Respectful				-	.883***	.417***	.482***	.374**	.331*	.368**
Connectedness					-	.416***	.452***	.327**	.353**	.366**
21st Century Skills						-	.781***	.886***	.843***	.777***
Communication							-	.582***	.495***	.588***
Critical thinking								-	.756***	.607***
Creativity									-	.665***
Collaboration										-

CBI: Caring Behaviors Inventory, *p<0.05, **p<0.01, ***p<0.001.

The differences in the scores of the Caring Behaviors and 21st Century Skills scales in terms of the descriptive characteristics of nursing students are given in Table 4. Accordingly, it was found that there were significant differences between the scores of Critical thinking (p: .041) and Creativity (p: .019), which are sub-

dimensions of 21st Century Skills, in terms of gender. Critical thinking and Creativity scores of males were significantly higher than females (Table 4). No significant difference was found between the scores of both scales and sub-dimensions in

terms of the students' GPA and the region they lived in, and it is not indicated in the table.

It was determined that there were significant differences between 21st Century Skills (p: .009), Critical Thinking (p: .014) and Creativity (p: .001) scores in terms of students' grade levels. According to the results of the post-hoc analysis, it was seen that the difference stemmed from the mean scores of the 1st and 2nd grade students (1st Grade 21st Century Skills>3rd Grade 21st Century Skills, p: .002; 1st Grade ED>3rd Grade ED, p: .003; 1st Grade Y>3rd Grade Y; Dp: .003), (Table 4).

It was determined that there were significant differences between the scores of Collaboration (p: .005), one of the sub-dimensions of 21st Century Skills, in terms of students' academic achievement. According to the results of the post-hoc analysis, it was determined that the difference was between the groups indicating academic achievement as high and medium level (Academic achievement high level Collaboration>Academic achievement medium level Collaboration, P: .002), (Table 4).

Table 4. Differences in Scale Scores of Caring Behaviors and 21st Century Skills Scales in Terms of Descriptive Characteristics of Nursing Students (n=130)

		CBI X±SD	Assurance X±SD	Knowledge and Skill X±SD	Respectful X±SD	Connectedness X±SD	21st Century Skills X±SD	Communication X±SD	Critical thinking X±SD	Creativity X±SD	Collaboration X±SD
Gender	Female	4.98±.66	5.05±.69	4.81±.72	5.08±.72	4.94±.76	99.13±14.81	29.46±4.13	38.55±6.79	19.10±3.63	12.04±1.91
	Male	5.08±.77	5.10±.72	4.96±.81	5.16±.81	5.09±.85	103.31±13.20	29.50±5.41	40.59±5.51	20.81±3.09	12.40±2.06
Connectedness		U: 1361,00 p: .263	U: 1470,50 p: .597	U: 1382,50 p: .314	U: 1379,50 p: .307	U: 1322,50 p: .182	U: 1229,00 p: .078	U: 1448,00 p: .563	U: 1193,00 p: .041	U: 1140,00 p: .019	U: 1444,00 p: .486
Class	2nd class	5.04±.78	5.09±.77	4.90±.79	5.11±.85	5.02±.90	102.72±16.79 ^a	29.54±5.41	40.44±7.04 ^a	20.32±3.83 ^a	12.40±2.26
	3rd class	4.93±.58	4.97±.62	4.74±.68	5.05±.63	4.90±.70	97.11±11.46 ^b	29.44±3.39	37.49±5.66 ^b	18.54±3.20 ^b	11.70±1.55
	4th class	5.18±.62	5.27±.69	5.08±.72	5.21±.68	5.11±.81	100.85±12.75 ^c	29.28±3.70	39.14±6.53 ^c	19.85±3.00 ^c	12.57±1.60
Connectedness		KW: 3,635 p: .162	KW: 3,801 p: .150	KW: 4,298 p: .117	KW: 1,454 p: .483	KW: 2,543 p: .280	KW: 9,337 p: .009	KW: 1,575 p: .455	KW: 8,541 p: .014	KW: 9,258 p: .001	KW: 5,103 p: .078
							a>b p: .002		a>b p: .003	a>b p: .003	
Academic success	Low	5.05±.75	4.98±.83	4.83±.89	5.23±.77	5.10±.89	97.25±18.88	27.91±6.78	37.50±9.36	19.25±4.22	12.58±2.27 ^a
	Medium	4.98±.72	5.05±.73	4.81±.75	5.06±.77	4.95±.82	99.52±14.07	29.49±4.19	38.88±6.20	19.30±3.48	11.87±1.92 ^b
	High	5.15±.41	5.16±.38	5.10±.55	5.22±.55	5.10±.69	105.66±13.04	30.38±4.01	41.05±6.14	20.94±3.48	13.27±1.44 ^c
Connectedness		KW: .590	KW: .103 p: .950	KW: 1.655 p: .437	KW: 1.206 p: .547	KW: .894 p: .639	KW: 4,795 p: .091	KW: 1,669 p: .434	KW: 2,507 p: .285	KW: 3,306 p: .191	KW: 10,771 p: .005 c>b p: .002

CBI: Caring Behaviors Inventory, U: Man Whitney U, KW: Kruskal-wallis,

Results of Multiple Linear Regression Analysis on Caring Behaviors and 21st Century Skills in Nursing Students are presented in Table 5. Two models were found to be statistically significant. According to Model 1, it was found that the four independent variables consisting of Assurance, Knowledge-Skill, Respectfulness and Connectedness, which are the sub-dimensions of CBI, explained 17% of the

variance related to 21st century skills. According to Model 2; it was determined that four independent variables consisting of Communication, Collaboration, Creativity and Critical thinking, which are the sub-dimensions of the 21st Century skills scale, explained 18% of the variance related to care behaviors (Table 5).

Table 5. Results of Multiple Linear Regression Analysis on Caring Behaviors and 21st Century Skills in Nursing Students (n=130)

Dependent variable	Independent variables	β	SE	Beta	t	p	F/p	R ²	DW
Model-1 21st Century Skills	Güvence	3.426	3.197	.166	1.072	.286	6.433/ .000	.172	1.910
	Bilgi-beceri	6.167	2.756	.319	2.238	.027			
	Saygılı olma	-1.406	4.240	-.073	-.332	.741			
	Bağlılık	.270	3.834	.015	.070	.944			
Model-2 Caring Behaviors	İletişim	1.172	.406	.316	2.886	.005	6.567/.000	.180	1.805
	İşbirliği	.779	1.144	.092	.681	.497			
	Yaratıcılık	.023	.682	.005	.034	.973			
	Eleştirel düşünme	.123	.374	.049	.329	.743			

DISCUSSION

The goal of this study was to assess the correlation between caring behaviors and 21st-century skills among nursing students. The main finding was the detection of a substantial correlation between caring behaviors and 21st-century abilities. The findings indicated that students who had stronger 21st-century abilities also showed better caring behaviors. The study found a substantial correlation between caring behaviors and 21st-century skills, which emphasizes how crucial these skills are for nursing students (Hunter et al., 2013). Nurses must possess caring

behaviors, which include compassion, empathy, and respect for patients' dignity, as well as 21st-century skills like communication, critical thinking, collaboration, and creativity (Salimi et al., 2021). Nurses may deliver holistic and patient-centered care by combining these abilities (Kim & Sim, 2020; Zeydani et al., 2021). The findings highlight the necessity of incorporating the development of caring behaviors and 21st-century skills into nursing education programs. These abilities can be developed through simulations, case studies, and problem-based learning, which will enable students to apply their knowledge in practical settings (Hairida et al., 2021). Additionally, cultivating a supportive learning environment that values

reflection, collaboration, and lifelong learning can help students develop caring behaviors and 21st-century skills (Fikre et al., 2022).

The study's findings are consistent with earlier studies that have emphasized the significance of caring behaviors in nursing practice (Allari et al., 2022; Karimi et al., 2017; Wong, 2025; Erenoğlu et al., 2019; Dığın and Ozkan, 2021). However, this study contributes to the literature demonstrating the relationship between these behaviors and 21st-century skills. This shows that in order to give patients the best possible treatment, nurses must possess a combination of caring behaviors and 21st-century skills. Several studies emphasize the importance of communication skills in the nursing profession, indicating that efficient communication fosters holistic care (Eka et al., 2023; Janthon et al., 2015). Nurses depend on effective communication to establish rapport with patients, comprehend their requirements, and offer efficient emotional support. Furthermore, efficient communication is essential for interprofessional collaboration, which guarantees coordinated and comprehensive patient care (Fry, 2002).

Numerous studies have demonstrated the value of critical thinking in nursing practice, which is consistent with the results of the current study. Nurses must possess strong critical thinking abilities in order to evaluate complicated clinical situations, make defensible judgments, and provide patients with safe and efficient care (Jean-Baptiste & Asongwed, 2020; Profetto-McGrath et al., 2003; Shin et al., 2023; Zeydani et al., 2021). Nurses can improve patient outcomes and advance evidence-based practice by using critical thinking techniques. Furthermore, the results emphasized the significance of teamwork in nursing, which is in line with earlier studies that emphasized how crucial collaboration is to provide high-quality patient care (D'Souza et al., 2013). Nurses frequently work in interdisciplinary teams to provide comprehensive care. Effective communication, mutual respect, and shared decision-making are essential for fostering effective teamwork and optimizing patient outcomes (Isidori et al., 2022).

It is essential for nurses to be able to communicate effectively to meet patients' communication needs, and having strong communication skills is a vital component of patient care (O'Hagan et al., 2013). Nurses need strong communication skills so that they can lead effectively, motivate their teams, and stand up for their patients (McKillen, 2024). Nurses can build strong relationships with patients and their families by treating them with respect in a fast-paced environment, allaying their fears and concerns, and making sure they understand they understand the communication flow and content (Kourkouta & Papathanasiou, 2014). Open and honest communication helps all parties develop trust, which in turn improves the therapeutic relationship and makes patients more willing to actively participate in their own care (Ardakani et al., 2019). Communication is an essential part of nursing because nurses spend a large amount of time with patients and frequently try to establish a professional relationship (Mbambe & Maniam, 2018). Nurses can evaluate a patient's situation and problems by actively listening, which raises their self-esteem and incorporates the nursing diagnosis and care plan at all levels (Kourkouta & Papathanasiou, 2014). Therefore, communication, which encompasses both sending and receiving messages and interpreting their meaning, is the essence of human relationships and patient care in nursing (Campos & Graveto, 2009). Nurses must be able to communicate effectively with patients, families, and other healthcare professionals to deliver high-quality care and ensure patient safety (Hermann et al., 2019; Noviyanti et al., 2021).

LIMITATIONS

The sample size, although adequate, may not be fully representative of the broader population of nursing students, potentially limiting the generalizability of the findings.

CONCLUSION

It was discovered that there was a substantial correlation between nursing students' caring behaviors and their 21st-century skills. The results emphasize how crucial it is to include the development of caring behaviors and 21st-century skills into nursing education programs. Educators can give students opportunities to improve these skills by using case studies, simulations, and problem-based learning.

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Araştırma Makalesi / Research Article



Hastane Öncesi Acil Sağlık Çalışanlarının Afetlere Hazırlık Algıları ve Öz Yeterlilikleri Arasındaki İlişkinin İncelenmesi

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An Examination of the Relationship Between Disaster Preparedness Perceptions and Self-Efficacy Among Prehospital Emergency Healthcare Workers

ÖZET

Hastane öncesi acil sağlık hizmet birimlerinde çalışanların afetlere karşı hazır oluş algıları ile öz yeterlilikleri arasındaki ilişkiyi incelemektir. Kesitsel ve ilişki arayıcı tipteki bu tanımlayıcı araştırma, hastane öncesi acil sağlık hizmetlerinde görevli 116 sağlık çalışanı ile yapıldı. Araştırmada, 'Katılımcı Tanılama Formu', 'Hastane Öncesi Acil Sağlık Hizmetlerinde Çalışan Personelin Afetlere Hazırlık Algısı Ölçeği (HASPAHA)' ve 'Acil Durum Ekipleri Öz Yeterlilik Ölçeği' kullanıldı. Veriler, Google anket aracılığıyla çevrim içi toplandı ve IBM SPSS 24.0 programında analiz edildi. Katılımcıların yaş ortalaması 30,08±6,51 iken %41,4'ü ön lisans mezunuydu, %50'si 112 acil çağrı merkezinde görev yapıyordu ve %52,6'si 0-5 yıldır çalışıyordu. Ayrıca katılımcıların %54,3'ü daha önce afet yaşamış olup %67,2'si en az bir kez afet durumunda görev almış ve %71,8 oranında doğa kaynaklı afetlerde görev almıştı. Katılımcıların HASPAHA Ölçeğinden 115,43±16,66 ve Acil Durum Ekipleri Öz Yeterlilik Ölçeğinden 63,02±5,74 puan aldıkları tespit edildi. HASPAHA Ölçeği ve Acil Durum Ekipleri Öz Yeterlilik Ölçeği alt boyutları ile toplam puan ortalamaları arasında pozitif yönde zayıf-orta düzeylerde ilişki saptandı (p<0,05). Sağlık çalışanlarının çalıştığı birim, afet yaşama durumu, affette görev alma durumu ile görev aldığı afet türleri ile ölçek toplam puan ortalamaları arasında istatistiksel olarak anlamlı sonuçlar belirlendi (p<0,05). Hastane öncesi acil sağlık hizmeti veren sağlık çalışanlarının afetlere hazırlık algılarının ve öz yeterlilik düzeylerinin yüksek olduğu ve afetlere hazırlık algıları ile öz yeterlilik düzeyleri arasında orta düzeyde ilişki olduğu belirlendi. Çalışanların afetlere hazırlık algıları ve öz yeterlilik düzeylerini yüksek düzeyde olmasını devam ettirmek amacıyla eğitim programları ve tatbikatların sürekliliğini önermekteyiz.

Anahtar kelimeler: Acil, Afet Algısı, Hazır Oluşluk, Öz Yeterlilik, Sağlık Çalışanı

ABSTRACT

This study aims to examine the relationship between disaster preparedness perception and self-efficacy among personnel working in prehospital emergency medical services. This descriptive study employed a cross-sectional and correlational design and was conducted with 116 healthcare professionals working in prehospital emergency medical services. Data were collected using the "Participant Identification Form," the "Disaster Preparedness Perception Scale for Prehospital Emergency Healthcare Workers (DPPS-PEHW)," and the "Emergency Teams Self-Efficacy Scale." The data were gathered online via a Google survey and analyzed using IBM SPSS version 24.0. The mean age of the participants was 30.08±6.51 years. Among them, 41.4% held an associate degree, 50% worked in the 112 emergency call center, and 52.6% had 0–5 years of professional experience. Additionally, 54.3% had previously experienced a disaster, 67.2% had participated in at least one disaster response, and 71.8% had been involved in responding to natural disasters. Participants had a mean score of 115.43±16.66 on the DPPS-PEHW and 63.02±5.74 on the Emergency Teams Self-Efficacy Scale. A weak to moderate positive correlation was found between the subdimensions and total scores of the two scales (p<0.05). Statistically significant differences were identified between the participants' total scale scores and variables such as their workplace, disaster experience, participation in disaster response, and the type of disaster involved (p<0.05). The findings indicate that prehospital emergency healthcare workers have high levels of disaster preparedness perception and self-efficacy. Moreover, a moderate correlation exists between disaster preparedness perception and self-efficacy. We recommend the continuation of training programs and drills to sustain high levels of disaster preparedness perception and self-efficacy among employees.

Keywords: Emergency, Disaster Perception, Self-Efficacy, Healthcare Worker

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GİRİŞ

Birleşmiş Milletler insani yardım örgütü afeti “Toplumun veya toplumun bir parçasını fiziksel, ekonomik, sosyal, psikolojik sorunlara yol açan, insan faaliyetlerini durduran veya bir süre kesintiye uğratan, doğal, insan kaynaklı ve teknolojik sebeplerden dolayı ortaya çıkan tehlikeli durumlardır” şeklinde tanımlamıştır (Sevinç ve ark., 2018). Birleşmiş Milletler Afet Riskini Azaltma Ofisi, afetleri doğal (jeofizik, hidrolojik, klimatolojik, meteorolojik veya biyolojik) veya insan kaynaklı (silahlı çatışma, kıtlık, çevresel bozulma, kimyasal veya radyolojik olaylar) olmak üzere ikiye ayırmaktadır. Doğal veya insan kaynaklı afetler, hazırlanma ve yanıt verme kapasitesi yetersiz olan savunmasız bir topluluğu veya toplumu etkilediklerinde felakete dönüşmektedir (Esen ve ark., 2024; Fletcher ve ark., 2022). Bir felaketin insanların yaşamları ve sağlıkları, çevre, altyapı ve sağlık sistemi kaynakları üzerindeki etkisi açıktır. Gelişmekte olan ülkeler, dış yardıma ihtiyaç duyan, yüksek nüfus artışı olan, düşük yaşam standartları ve üretkenliğe sahip, gelişmiş bir sanayiden yoksun olan ve sürdürülebilir bir ekonomi için tarım ve ihracata bağımlı yapıları nedeniyle afetlere karşı daha savunmasızdır ve bu durumlarda daha yıkıcı sonuçlarla karşılaşmaktadır (Songwathana ve Timalina, 2021).

Son yirmi yılda afetlerin sıklığı, büyüklüğü ve ekonomik zararları önemli ölçüde artmıştır ve bu eğilimin devam etmesi beklenmektedir (Loke ve ark., 2021). 2015 yılında afetlerin yıllık meydana gelme oranı ortalama 376 kez olarak bildirilirken, afetlerden etkilenen kişi sayısı ve can kaybı ise sırasıyla 22.765 ve 110.3 milyon olarak rapor edilmiştir (Nejadshafie ve ark., 2020). Dünyada doğrudan ve dolaylı etkilere neden olabilen afetlerin sayısı ve çeşitliliği arttıkça, birçok ülke afet riskini azaltma ve dirençli bir afet topluluğu geliştirme konusunda giderek daha fazla endişe duymaktadır (Oktari ve ark., 2020). İnsan yaşamını ciddi düzeyde etkileyen afetlere karşı ulusal ve uluslararası düzeyde farkındalıklar oluşmakta, ülkeler hazırlıklı hale gelmek için afet yönetimi konusunda adımlar atmaktadır (Khairina ve ark., 2023; Shapira ve ark., 2016).

Afete hazırlık, afet yönetimi stratejilerinin önemli bir bileşenidir. Afet hazırlığı, baş etme becerisini artırarak riski azaltır ve istenmeyen olayları en aza indirmeye yardımcı olur. Afet öncesi hazırlıkların yapılması, afet durumunda hızlı müdahale yapma stratejileridir. Bu stratejiler, afetlerin etkilerini azaltmak, can kaybını ve maddi hasarı en aza indirmek ve toplumun normal yaşamına en kısa sürede dönmesini sağlamak amacıyla gerçekleştirilir (Erkin ve ark., 2023). Afet konusunda uzmanlaşmış insan kaynağının yanı sıra bu sürece en fazla katkı sağlayacak bir meslek grubu da sağlık çalışanlarıdır (Aras ve ark., 2021). Afetler genellikle aniden meydana geldiğinden, tüm sağlık profesyonelleri afet öncesi, sırası ve sonrasında yaralıları/hastaları tedavi etmek için gerekli bilgi, araç ve kaynaklarla hazır olmalıdır (Mohamed ve ark., 2023). Bir araştırmada, sağlık çalışanlarının afet ve acil durumlara hazırlıklı olma durumunu etkileyen değişkenlerin, meslekte ve hastanede çalışma yılları, afet deneyimine sahip olmak, afet eğitimi ve tatbikatına katılmak, afet planını hazırlamak ve güncelleme çalışmalarına katılım olarak belirlenmiştir (Dinçer & Kumru, 2021).

Sultan ve ark. nın çalışmasında, sağlık çalışanlarının afetlere hazır oluşlarının tehlikeli olaylar sırasında mağdurların bakımına katılma isteğini artırabileceği ve afetlere hazırlık eğitiminin sağlık personelinin afetlere ve acil durumlara verdiği tepkileri olumlu yönde etkilediği belirlenmiştir (Sultan ve ark., 2020). Bu sonuçlar, hastane öncesi acil sağlık ekiplerinin afetlere hazır oluşluk ve öz yeterlik düzeyleri arasında ilişki olabileceğini düşündürmüştür. Müdahale çalışmalarından önce hastane öncesi acil sağlık hizmetlerinde çalışanların afetlere hazır oluşluk durumları ve öz yeterlilik düzeylerinin tanımlanması ve aradaki ilişkinin saptanması önemlidir. Bu doğrultuda araştırmamızda, hastane öncesi acil sağlık hizmet birimlerinde çalışanların afetlere karşı hazır oluş algıları ile öz yeterlilikleri arasındaki ilişkiyi incelemek amaçlanmıştır.

GEREÇ VE YÖNTEM

Araştırmanın Tipi

Araştırma, kesitsel ve ilişki arayıcı tipte tanımlayıcı bir araştırmadır.

Evren-Örneklem

Araştırmanın evrenini, Türkiye'nin Batı Karadeniz Bölgesinde bulunan bir ilin 112 Acil Çağrı Merkezi Müdürlüğü ve Ulusal Medikal Kurtarma Ekibi (UMKE) çalışanları (N=253) oluşturmuştur. Araştırmanın örneklemini, Raosoft programında evren bilinen örneklem hesabına göre (%5 hata payı, %95 güven aralığı, %50 yanıt dağılımı) hesaplanmış olup araştırmanın 163 çalışan ile tamamlanması planlanmıştır. Araştırmaya, katılmayı kabul eden çalışanların 116'sı (%71,16) katılmıştır.

Veri Toplama Araçları

Veriler, 'Katılımcı Tanılama Formu', 'Hastane Öncesi Acil Sağlık Hizmetlerinde Çalışan Personelin Afetlere Hazırlık Algısı Ölçeği' ve 'Acil Durum Ekipleri Çalışan Öz Yeterlilik Ölçeği' ile toplanmıştır.

Katılımcı Tanılama Formu: Katılımcılara ait verilerin toplandığı formdur. Formda, çalışanların yaşı, cinsiyeti, medeni durumu, eğitim durumu, çalıştıkları birim, çalışma süresi, daha önce afet yaşama durumu, daha önce afet müdahalesinde görev alma durumu ve görev alınan afet türü soruları yer almaktadır.

Hastane Öncesi Acil Sağlık Hizmetlerinde Çalışan Personelin Afetlere Hazırlık Algısı Ölçeği (HASPAHA): Tercan ve Şahinöz tarafından 2021 yılında geliştirilen HASPAHA ölçeği, hastane öncesi acil sağlık hizmetlerinde çalışan personelin afetlere hazırlık algılarını belirlemek amacıyla geliştirilmiş öz bildirim ölçeğidir. Ölçeğin, istek, önem, öz-yeterlilik, müdahale becerisi ve yarar olmak üzere beş alt boyutu

bulunmaktadır. Ölçek 28 maddeden oluşmaktadır. Her madde 1 puan (1-Hiç Katılmıyorum), 2 puan (2-Katılmıyorum), 3 puan (3-Kararsızım), 4 puan (4-Katılıyorum) ve 5 puan (5-Kesinlikle Katılıyorum) şeklinde puanlandırılmaktadır. Ölçekte ters madde bulunmamaktadır. Ölçekten alınabilecek toplam puan 28-140 arasındadır. Ölçekten elde edilen puanlar artıka katılımcının afetlere hazırlık düzeyi artmaktadır. Ölçeğin Cronbach alfa değeri 0,925'tir (Tercan & Şahinöz, 2021). Çalışmamızda, ölçek Cronbach alfa değeri 0,879 bulunmuştur.

Acil Durum Ekipleri Çalışan Öz Yeterlilik Ölçeği: Yalçın tarafından 2018 yılında acil durum ekiplerinde çalışanların öz yeterlilik durumlarını belirlemek amacıyla geliştirilmiştir. Ölçek 5'li likert tipte olup ilgi, istek ve yetkinlik olmak üzere üç alt boyutu vardır. Toplam madde sayısı 19'dur ve her bir alt boyut için Cronbach alfa katsayısı sırayla; 0.909, 0.767 ve 0.639 dur. İstek alt boyutunu oluşturan sorular içinde 10- 11- 12-13. sorular ters yönlendirmeli sorulardır. Yetkinlik alt boyutu için çalışanın yanıtlarının 18 puan altında kaldığı durumlarda, istek alt boyutu için çalışanın yanıtlarının 18 ve üstü puan olduğu durumlarda, ilgi alt boyutu için çalışanın yanıtlarının 10 puan altında kaldığı durumlarda, çalışanın öz yeterlilik düzeyi düşük olduğu anlamına gelmektedir (Yalçın, 2018). Çalışmamızda, ölçek toplam Cronbach alfa değeri 0,795 bulunmuştur.

Verilerin Toplanması

Veriler, Ekim 2023-Ekim 2024 tarihleri arasında Google forms aracılığıyla hazırlanan anket ile çevrim içi olarak toplanmıştır.

Etik Açıklamalar

Araştırmaya başlamadan önce, Bartın Üniversitesi Sosyal ve Beşeri Bilimler Etik Kurulu'ndan (18.01.2023 tarihli, 2023-SBB-0025 numaralı) etik izin onayı ve kullanılan ölçekler için yazarlarından elektronik posta yoluyla ölçek kullanım izni alınmıştır. Google form

üzerinden katılımcılar bilgilendirilmiş ve onamları alınmıştır. Araştırma Helsinki İlkeler Deklarasyonu'na uyularak gerçekleştirilmiştir.

Verilerin Değerlendirilmesi

Veriler SPSS 24.0 istatistik programı kullanılarak analiz edilmiştir. Verilerin analizinde betimleyici istatistiksel yöntemlerin (sayı, yüzde, ortalama, standart sapma vb.) yanı sıra, normallik testleri, korelasyon testleri, t testi ve ANOVA yöntemleri kullanılmıştır. Tüm testlerde istatistiksel olarak anlamlı bir fark olup olmadığını belirlemek için $p < 0,05$ değeri dikkate alınmıştır. Skewness-kurtosis değerleri +1,5 ve -1,5

aralığında olan değerlerin normal dağılım gösterdiği kabul edilmiştir.

BULGULAR

Katılımcılara ait değişkenler Tablo 1'de verilmiştir. Buna göre; katılımcıların yaş ortalaması $30,08 \pm 6,51$, %54,04'ü bekar, %45,7'si lisans mezunu, %52,6'sı 0-5 yıldır çalışmaktadır. Katılımcıların yarısı UMKE'de diğer yarısı 112'de çalışmakta iken %54,7'si daha önce afet yaşadığını, %67,2'si daha önce bir afet olayında görev aldığını bunların %71,8'i doğa kaynaklı afette görev aldığını bildirmiştir.

Tablo 1. Sağlık Çalışanlarına Ait Özellikler

Değişken	n	%
Medeni Hali		
Evli	51	43,96
Bekar	65	56,04
Eğitim Durumu		
Lise	7	6,00
Ön Lisans	48	41,40
Lisans	53	45,70
Lisansüstü	8	6,90
Çalışma Yılı		
0-5 Yıl	61	52,60
6-10 Yıl	17	14,70
11-15 Yıl	19	16,40
16 Yıl ve Üstü	19	16,40
Çalıştığı Birim		
UMKE	58	50,00
112	58	50,00
Afet Yaşama Durumu		
Evet	63	54,30
Hayır	53	45,70
Afette Görev Alma Durumu		
Evet	78	67,20
Hayır	38	32,80
Görev Alınan Afet Türü		
Doğa Kaynaklı Afet	56	71,80
İnsan Kaynaklı Afet	12	15,40
Doğa-İnsan Kaynaklı Afet	10	12,80
Ort±SS		Min-Max
Yaş	30,08±6,51	21-50

Ort: Ortalama SS: Standart Sapma %: Yüzde

Katılımcıların ölçeklere vermiş olduğu yanıtlara göre toplam ve alt boyut puan ortalamaları Tablo 2’de verilmiştir. HASPAHA Ölçeği toplam puan ortalaması 115,43±16,66 iken en yüksek alt boyut puan ortalaması 34,22±5,41 ile müdahale becerisi alt boyutunda, en az alt boyut puan ortalaması istek alt boyutundadır. Katılımcıların Acil Durum Ekipleri Öz

Yeterlilik Ölçeği’ne verdikleri yanıtlara göre toplam puan ortalaması 63,02±5,74 iken sırasıyla yetkinlik alt boyut puan ortalaması 33,62±4,92; istek alt boyut puan ortalaması 15,20±2,53 ve ilgi alt boyut puan ortalaması 13,92±1,98’ dir.

Tablo 2. Ölçek Toplam Puan ve Alt Boyut Puanları

Değişken	Ort±SS	Min-Max
HASPAHA Ölçeği		
İstek Alt Boyutu	11,61±2,61	6-15
Önem Alt Boyutu	23,34±2,24	10-25
Öz-Yeterlilik Alt Boyutu	30,75±6,59	15-40
Müdahale Becerisi Alt Boyutu	34,22±5,41	16-40
Yarar Alt Boyutu	11,78±2,75	6,15
Toplam	115,43±16,66	56-140
Acil Durum Ekipleri Öz Yeterlilik Ölçeği		
Yetkinlik Alt Boyutu	33,62±4,92	20-45
İstek Alt Boyutu	15,20±2,53	8-24
İlgi Alt Boyutu	13,92±1,98	8-20
Toplam	63,02±5,74	46-79

Ort: Ortalama SS: Standart Sapma Min: Minimum Max: Maksimum

Katılımcıların yanıtlarına göre, ölçek toplam ve alt boyut puan ortalamaları arasındaki korelasyon analizi Tablo 3’te verilmiştir. HASPAHA Ölçeği ile Acil Durum Ekipleri Öz Yeterlilik Ölçeği toplam puan ortalamaları arasında istatistiksel olarak anlamlı pozitif yönde orta-güçlü düzeyde ilişki bulunmuştur. HASPAHA Ölçeği müdahale becerisi alt boyut puan ortalaması ve yarar alt boyutu puan ortalaması ile Acil Durum Ekipleri Öz Yeterlilik Ölçeği toplam puan ortalaması arasında istatistiksel olarak anlamlı pozitif yönde orta-güçlü düzeyde ilişki bulunmuştur. HASPAHA Ölçeği toplam puan ortalaması ile Acil Durum Ekipleri Öz Yeterlilik

Ölçeği istek alt boyutu puan ortalaması ve yetkinlik alt boyutu puan ortalaması arasında istatistiksel olarak anlamlı pozitif yönde orta-güçlü düzeyde ilişki tespit

edilmiştir. HASPAHA Ölçeği yarar alt boyut puan ortalaması ile Acil Durum Ekipleri Öz Yeterlilik Ölçeği yetkinlik alt boyutu puan ortalaması arasında ve HASPAHA Ölçeği müdahale becerisi alt boyut puan ortalaması ile Acil Durum Ekipleri Öz Yeterlilik Ölçeği yetkinlik alt boyutu puan ortalaması arasında istatistiksel olarak anlamlı pozitif yönde güçlü düzeyde ilişki bulunmuştur.

Tablo 3. Ölçek Toplam ve Alt Boyut Puan Ortalamaları Arasındaki Korelasyon Analizi

Ölçekler		Acil Durum Ekipleri Öz Yeterlilik Ölçeği			
HASPAHA Ölçeği		Toplam Puan Ortalaması	İstek Alt Boyutu Puan Ortalaması	Yetkinlik Alt Boyutu Puan Ortalaması	İlgi Alt Boyutu Puan Ortalaması
	Toplam Puan Ortalaması	r= 0,562 p<0,001	r=0,589 p<0,05	r= 0,672 p<0,001	r=0,397 p<0,001
	Müdahale Becerisi Alt Boyut Puan Ortalaması	r= 0,540 p<0,001	r=0,475 p<0,05	r= 0,722 p<0,05	r= 0,317 p<0,05
	Öz Yeterlilik Alt Boyut Puan Ortalaması	r= 0,491 p<0,001	r=0,407 p>0,05	r=0,646 p<0,001	r= 0,366 p<0,05
	Önem Alt Boyutu Puan Ortalaması	r= 0,221 p>0,05	r=0,387 p<0,05	r=0,350 p<0,05	r= 0,281 p<0,05
	İstek Alt Boyutu Puan Ortalaması	r= 0,271 p<0,05	r= -0,150 p>0,05	r=0,394 p<0,05	r=0,202 p>0,05
	Yarar Alt Boyutu Puan Ortalaması	r= 0,531 p<0,001	r=0,314 p<0,05	r= 0,667 p<0,001	r=0,356 p<0,05

r: Pearson Korelasyon Katsayısı

Katılımcılara ilişkin değişkenlere göre ölçek toplam puan ortalamaları karşılaştırıldığında (Tablo 4), daha önce afet yaşadığını bildirenlerin ve daha önce bir afet olayında görev alanların her iki ölçek puan ortalaması istatistiksel olarak anlamlı düzeyde daha yüksek çıkmıştır ($p<0,05$). Ayrıca daha önce doğa+insan kaynaklı bir afette görev alanların her iki ölçek puan ortalaması daha yüksek iken, HASPAHA ölçeği puan ortalaması bu

grupta istatistiksel olarak anlamlı farklılık yaratmıştır (Bonferroni test; $p<0,05$). İstatistiksel olarak anlamlı farklılık bulunmayan değişkenlere (eğitim durumu, medeni hali, çalışma süresi vb.) tabloda yer verilmemiştir.

Tablo 4. Sağlık Çalışanlarına İlişkin Değişkenlerine Göre Ölçek Toplam Puan Ortalamalarının Karşılaştırılması

Değişken	HASPAHA Ölçeği Toplam Puan Ortalaması		Acil Durum Ekipleri Öz Yeterlilik Ölçeği Toplam Puan Ortalaması	
	Ort±SS	İstatistik değeri	Ort±SS	İstatistik değeri
Afet Yaşama Durumu				
Evet	119,85±15,58	p<0,05 ^a	64,14±5,46	p<0,05 ^a
Hayır	110,18±16,52		61,37±5,83	
Afette Görev Alma Durumu				
Evet	119,69±15,17	p<0,000 ^a	63,46±5,83	p>0,05 ^a
Hayır	106,71±16,36		61,80±5,42	
Görev Alınan Afet Türü				
Doğa Kaynaklı (1)		3-1 p<0,05		
İnsan Kaynaklı (2)	118,03±13,26	3-2 p<0,05	62,68±6,40	
Doğa+İnsan Kaynaklı (3)*	113,30±16,10	2-1 p>0,05	65,60±4,51	p>0,05 ^b
	128,06±13,10	p<0,05 ^b	63,02±5,74	
Bonferroni test				

Ort: Ortalama, SS: Standart Sapma, ^aBağımsız örneklem t testi, ^bTek Yönlü ANOVA testi

TARTIŞMA

Çalışmamızda, Batı Karadeniz Bölgesinde yer alan bir ilde görev yapan acil sağlık çalışanlarının afete hazırlık algılarının yüksek düzeyde olduğu bulundu.

Gümüşhane’de 112 sağlık çalışanları ile yapılan çalışmada da çalışanların afetlere hazırlık algılarının orta düzeyde bulunmuştur (Kocaman, 2019). Tan ve Maydan Acımiş’in 112 sağlık çalışanları ile yaptığı çalışmada ise, afet hazırlık algılarının orta düzeyin üstünde bulunduğu ancak bu seviyenin yeterli olmadığına dikkat çekilmiştir (Tan & Maydan Acımiş, 2022). Başka bir çalışmada, çalışanların %17,7’sinin afete hazır oldukları belirtilmiştir (Ağahan, 2018). Gökçay ve Bağış’ın çalışmasında ise, çalışanların afet hazırlık algısının yüksek olduğu rapor edilmiştir (Gökçay ve Bağış, 2022). Çelebi ve Uçku’nun çalışmasında, 112 UMKE görevlisinin %18,4’ünün afet bilgi puanının

düşük seviyede olduğu bulunmuştur (Çelebi ve Uçku, 2017). Ancak yapılan başka bir çalışmada ise, afetlere hazırlık algısının ortalamasının önemli derecede üstünde olduğu bulunmuştur (Denizli ve Kınış, 2024). Yine UMKE çalışanları ile yapılan bir çalışmada afete hazırlık algılarının orta düzeyin üstünde olduğu bulunmuştur (Ayvazoglu ve ark., 2023). Hastane öncesi acil çalışanlarının afetlere hazırlık algılarının çalışmalarda farklı düzeylerde olmasının sebebinin katılımcılara ait değişkenlerden (afet yaşama durumu, yaş, cinsiyet, eğitim durumu, meslekte geçirilen süre, unvan vb.) kaynaklı olabileceği düşünülmektedir. Ayrıca, ülkemizin farklı illerinde yapılan bu çalışmalarda, çalışanların afetlere hazırlık algısının ve afet bilgi durumlarının değişkenlik gösterdiğine dikkat çekmek gerekmektedir.

Çalışmamızda, hastane öncesi acil sağlık çalışanlarının öz yeterliliklerinin yüksek düzeyde olduğu bulunmuştur.

Ayrıca katılımcıların afetlere hazırlık algısı ile öz yeterlilik düzeyleri arasında orta derecede pozitif bir ilişki tespit edilmiştir.

Umman da hemşireler arasında yapılan çalışmada öz yeterliliklerinin orta düzeyde olduğu tespit edilmiştir (Labrague ve ark., 2021). Öksüz ve arkadaşlarının çalışmasında, hemşirelerin afet özyeterlilikleri orta düzeyde bulunmuş ve öz yeterlilik düzeyleri arttıkça afet algısının da arttığı sonucuna ulaşmıştır (Öksüz ve ark., 2025). Bir çalışmada, Bangladeş'teki hemşirelerin afet durumundaki müdahalelerini öz yeterlik düzeylerinin yüksek oranda etkilediği bulunmuştur (Hasan ve ark., 2024). Ürdün'de yapılan bir çalışmada orta düzeyde öz yeterlilik tespit edilmiştir (Sharour ve ark., 2022). Başka bir çalışmada, bireylerin afetlere hazırlık algılarının genel öz yeterlilik düzeyleri arttıkça arttığı bulunmuştur (Kılıç ve Şimsek, 2019). Jonson yaptığı çalışmada, yüksek öz yeterlilik algısının bir felaket durumunda hemşirelerin daha iyi müdahale etmesine ve etkili performans göstermesine katkıda bulunduğu tespit edilmiştir (Jonson ve ark., 2017). Benzer olarak başka bir çalışmada, acil durum hazırlığı davranışları ile öz yeterlilik arasında güçlü bir ilişki bulunmuştur (Marceron ve Rohrbeck, 2019). Araştırma sonuçlarımız literatür ile paralel olup afetlere hazırlık algısı ve öz yeterlilik arasında pozitif bir ilişki olduğu görülmektedir. Özellikle hemşireler ve acil sağlık çalışanları üzerinde yapılan önceki araştırmalar da, öz yeterliliğin afet durumundaki müdahale kapasitesini ve hazırlık düzeyini anlamlı şekilde etkilediğini ortaya koymaktadır.

Araştırmamızda, öz yeterlik istek ve yetkinlik alt boyut puan ortalamaları ile afete hazırlık algısı arasında orta-güçlü düzeyde pozitif bir ilişki, öz yeterlik yetkinlik alt boyut puan ortalaması ile afete hazırlık algısı yarar ve müdahale alt boyut puan ortalamaları arasında orta-güçlü düzeyde pozitif bir ilişki saptanmıştır.

Öz yeterlilik ve tıbbi yetkinlik doğru orantılıdır. Öz yeterlilik yetkinliğin geliştirilmesine yardımcı olur (Li ve ark., 2017). Öz yeterlilik ve afete müdahale etme isteği arasında pozitif bir ilişki olduğu da bildirilmiştir (Al-Hunaişi ve ark., 2019). Bir çalışmada, öz yeterliliğin bir hemşirenin bir felakette yardım etme ve müdahale

isteğinin en önemli belirleyicisi olduğu ifade edilmiştir (Said ve ark., 2020). Düşük öz yeterlilik düzeyine sahip hemşireler herhangi bir felakete veya acil duruma yanıt verme ve müdahale konusunda daha az yetkindir (Uhm ve ark., 2019). Pakistan'da yapılan bir araştırma sonucunda öz yeterlilik düzeyi ile afete müdahale etme isteği arasında pozitif bir ilişki olduğu bulunmuştur (Kang ve ark., 2023). Turner'ın araştırmasında göre öz yeterlilik afete müdahale isteğinin bir öngörücüsü olarak vurgulanmıştır (Turner ve ark., 2020). Kamanyire'nin Umman da yapmış olduğu çalışma sonucunda, afete müdahale konusunda öz yeterliliğin önde gelen bir sebebi olduğunu ve öz yeterliliği geliştirmeye yönelik çalışmalar yapılması gerektiği belirtilmiştir (Kamanyire ve ark., 2021). Araştırma sonuçlarımız ve literatürdeki benzer çalışmalar, acil sağlık çalışanlarının kendilerini yetkin bulmalarının afete hazırlık algılarını artırdığını ve müdahale ve yarar sağlama yönünde algılarının yükseldiğini göstermektedir.

Çalışmamızda, daha önce afet yaşamış olanların öz yeterlik düzeylerinin daha yüksek olduğu ve daha önce afette görev almış çalışanların ise hem afete hazırlık algılarının hem de öz yeterlik düzeylerinin daha yüksek olduğu belirlenmiştir.

Afetlere müdahalede daha önce afette görev alma durumu afet hazırlığını etkileyebilecek önemli bir faktör olabilir (Becker ve ark., 2017). Bu durum; kişisel deneyimlerin hazırlık düzeylerini etkilediğini, bir başkasına yardım etmiş olanların ve bir felaketten kişisel olarak etkilenenlerin, diğerlerine göre daha yüksek düzeyde hazırlıklı olması ile açıklanabilir (McNeill ve ark., 2018). Hemşirelerin afetlere hazırlıklı olmaları, afet anında görevlerini yetkin bir şekilde yerine getirmeleri ve hızlı müdahale edebilmeleri gerekmektedir (Koçak ve Serin, 2023; Songwathana ve Timalsina, 2021). Bir çalışmada, afet durumlarını yönetme konusunda daha fazla deneyime sahip acil sağlık çalışanlarının daha yüksek oranda hazır oldukları gösterilmiştir (Almukhlifi ve ark., 2021). Okan'ın yapmış olduğu çalışmada, daha önce afette görev alanların görev almayanlara göre afet hazırlık algılarının daha yüksek olduğu bulunmuştur (Okan ve ark., 2023).

Kore’de yapılan diğer bir araştırmada afet deneyimi olan sağlık çalışanlarının afet olaylarına müdahale isteğini artırdığı ve afet hazırlığının daha yüksek olduğu sonucuna varılmıştır (Choi ve ark., 2022). Çin’de yapılan araştırmanın sonucu, afet deneyimine sahip sağlık hemşirelerin afet hazırlığını önemli ölçüde etkilediğini ortaya koymuştur (Wang ve ark., 2023). Uluslararası Kızılhaç Komitesi’nde (ICRC) görevlendirilen tıp uzmanlarının katıldığı çalışmada, sağlık çalışanlarının daha önce afette deneyim sağlamasının afete hazırlığın en önemli bileşeni olduğu sonucuna varılmıştır (Haverkamp ve ark., 2022). İran’da yapılan çalışmada afet aşamasında ve afet müdahalesinde deneyimi olan hemşirelerin afet temel yeterliliklerini deneyimi olmayanlardan daha iyi algıladığını bulunmuştur (Chegini ve ark., 2022). Başka bir çalışmada, gerçek bir afete müdahale deneyimi, gelecekteki afet olaylarında afet müdahalelerine yönelik hazırlık algısının pozitif yönde etkilediği saptanmıştır (Lin ve ark., 2023). Yine gönüllü olarak daha önce afete müdahalesi yapmış hemşirelerin daha yüksek öz yeterliliğe sahip oldukları bildirilmiştir (Emaliyawati ve ark., 2021). Bir çalışmada, hemşirelerin afetlere hazırlık düzeyleri arttıkça, afet yönetimiyle ilgili görev ve sorumluluklarının daha fazlasını yerine getirdikleri bulunmuştur (Kaya ve Erdoğan, 2025). Acil servis hemşireleri ile yapılan bir araştırma, afet temel yeterliliklerinin algılanmasının afetlere hazırlık düzeyini artıracağını göstermiştir (Chegini ve ark., 2022). Araştırma sonuçlarımız, literatürde yer alan çalışmalarla örtüşmekte olup afet deneyimi ve afette görev alma durumunun, bireylerin öz yeterlilik düzeylerini ve afete hazırlık algılarını artıran önemli etkenler arasında yer aldığını göstermektedir. Daha önce afette görev almış ya da afet yaşamış sağlık çalışanlarının, afetlere yönelik bilgi, beceri ve özgüvenlerinin gelişmesiyle birlikte, gelecekteki afetlere daha hazırlıklı ve etkili bir şekilde müdahale etmeye yatkın oldukları anlaşılmaktadır.

Araştırmanın Sınırlılıkları

Araştırmanın ülkemizin yalnızca bir bölgesinde yer alan ilde yürütülmüş olması elde edilen sonuçların genellenebilirliği açısından sınırlılığını oluşturmaktadır.

Hedeflenen örneklem sayısının %71,16’sına ulaşılabilmiş olması da araştırmamızın bir diğer sınırlılığdır. Bu durum, yanıtlayan bireylerin belirli özelliklere sahip olma olasılığını (örneğin daha ilgili ya da deneyimli çalışanlar) artırarak seçim yanlılığını oluşturabilir. Ayrıca araştırmamızın kesitsel tasarıma sahip olması değişkenler arasında nedensellik kurulamamıştır. İleride acil sağlık çalışanlarının afet algıları ile özyeterlilik düzeyleri arasındaki ilişkiyi inceleyen farklı illeri kapsayan daha geniş katımlı, özdeğerlendirme ölçeklerinin yanı sıra nitel araştırma yöntemlerin de dahil edildiği çalışmaların tasarlanması önerilmektedir.

SONUÇ

Ülkemizde ve tüm dünyada son yıllarda yaşananların etkisiyle ciddi sorun haline gelen afet yönetimi konusunda sağlık çalışanlarının hazırlıklı olmalarının önemi daha görünür hale gelmiştir. Araştırma bulgularımız, hastane öncesi acil sağlık çalışanlarının afetlere hazırlık algılarının ve öz yeterlilik düzeylerinin birbiriyle ilişkili olduğunu ve daha önceki deneyimlerin öz yeterlilik ve hazırlık algısı düzeylerini etkilediğini göstermiştir. Bu doğrultuda, acil sağlık çalışanlarının öz yeterlilik düzeyleri ve afete hazırlık algılarını artırıcı çalışmalara gereksinim olduğu düşünülmektedir. Bu amaçla, gerçek afet deneyimlerinin yanı sıra gelişen teknolojiye dayanarak sağlık çalışanlarına simüle edilmiş ortamlarda gerçeğe yakın deneyimler kazanma fırsatı sunan eğitimlerin düzenlenmesi yararlı olacaktır. Bu eğitimlerin etkinliğini değerlendiren çalışmalar ile sonuçlar daha açık bir şekilde ortaya koyulabilmektedir.

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Derleme Makalesi / Review

**Geriatrik Hastalarda Kalça Protezi Ameliyatı Sonrası Yoğun Bakım Ünitesinde Gelişen Akut Böbrek Yetmezliği ve Hemşirelik Bakımı**Mehmet DALKILIÇ^{1*} | Özlem BİLİK² | Fatma VURAL²**Acute Renal Failure and Nursing Care in Geriatric Patients in the Intensive Care Unit After Hip Arthroplasty****ÖZET**

Yaşlanma, tüm organ sistemlerini kapsayan kompleks ve çok faktörlü bir süreçtir. Fizyolojik rezervin azalması, ek hastalıkların varlığı ve ameliyata bağlı stresörler hastanın genel sağlık durumunun bozulmasına neden olabilir. Yaşlı hastalarda cerrahi işleme bağlı olumsuz etkileri ve komplikasyonları en aza indirmek, iyileşmeyi en üst düzeye çıkarmak için optimal perioperatif tedavileri belirlemek önemlidir. Bu nedenlerden dolayı hastanın cerrahi işlem sonrası yoğun bakım ünitesinde (YBÜ) takip edilmesi uygun olabilir. Yaşlılıkta kalça kırıklarının çok görülmesi ve insidansının artması ile birlikte kalça cerrahisine bağlı görülen komplikasyonların sayısı da artmaktadır. Bu komplikasyonlardan birisi Akut böbrek yetmezliği (ABY) olup önemli ölçüde morbidite ve mortaliteye sebep olduğundan hastaların YBÜ’de izlenmeye gereksinimi vardır. Hastaların çoğunun kırılmalı ve kırılmalı öncesi hasta grubunda olması bu duruma katkı sağlamaktadır. Bu nedenle hemşirenin takip, tedavi ve bakım süreci oldukça önemlidir. Hastaya uygulanacak doğru tedavi ve multidisipliner yaklaşımla hastalar en iyi sağlık hizmetini almış olur. Bu derlemenin amacı, geriatrik hastalarda kalça protezi ameliyatı sonrası YBÜ’de ABY gelişmesi durumunda uygun hemşirelik bakımını sunmaktır.

Anahtar kelimeler: Böbrek yetmezliği, Geriatri hemşireliği, Kalça artroplastisi, Yoğun bakım hemşireliği

ABSTRACT

Aging is a complex and multifactorial process involving all organ systems. Decreased physiologic reserve, the presence of comorbidities and stressors related to surgery may lead to deterioration of the patient's general health status. In elderly patients, it is important to determine optimal perioperative treatments to minimize the adverse effects and complications related to the surgical procedure and to maximize recovery. For these reasons, it may be appropriate to follow the patient in the intensive care unit after the surgical procedure. With the increasing incidence of hip fractures in the elderly, the number of complications related to hip surgery is also increasing. One of these complications is Acute renal failure (ARF), which causes significant morbidity and mortality and patients need to be followed up in the intensive care unit. The fact that most of the patients are in the frail and pre-frailty patient group contributes to this situation. Therefore, the nurse's follow-up, treatment and care process is very important. With the right treatment and multidisciplinary approach to the patient, patients receive the best health care. The aim of this review is to provide appropriate nursing care in the case of ARF in the ICU after hip replacement surgery in geriatric patients.

Keywords: Renal failure, Geriatric nursing, Hip arthroplasty, Intensive care nursing

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GİRİŞ

Yaşlı popülasyonunda kalça kırığı önemli sağlık sorunlarından biridir. Yaşla birlikte artan kalça kırığının 50 yaşından sonra her 10 yılda bir ikiye katlandığı tahmin edilmektedir. Kalça kırığı sayısının 1990 yılında 1,7 milyondan iken 2050 yılında 6,3 milyona çıkması beklenmektedir (Povoroznyuk et al., 2018; Wang et al., 2023). Kalça kırığının giderek artan tedavi maliyeti sağlık sistemlerine ekonomik yük getirmektedir (Ferris et al., 2022; Wang et al., 2023). Bu sürecin başarılı şekilde yönetilmesinde risklerin belirlenmesi ve kontrol altına alınması önemlidir. Yaşlı hastalar; cerrahi girişim sonrası komplikasyonlar, fonksiyonel kapasitede azalmalar, bağımsızlık kaybı gibi cerrahiye veya anesteziye bağlı risklere daha fazla maruz kalmaktadır (Wolfe et al., 2020; Yadav et al., 2024). Bu nedenle yaşlılarda acil veya elektif cerrahinin morbidite ve mortalite riskini arttırmaktadır (Kara ve Yılmaz, 2021; Yadav et al., 2024). Kalça kırığı nedeniyle ameliyat olan yaşlılarda bu riski arttıran önemli problemlerden biri de postoperatif renal perfüzyonun bozulmasına bağlı oluşan akut böbrek yetmezliği (ABY)'dir. Literatürde akut böbrek hastalığı (ABH) olarak da adlandırılmaktadır. ABH Akut böbrek hasarı tanımına; Risk, Hasar, Yetmezlik, Kayıp, Son dönem böbrek yetmezliği (Risk, Damage, Failure, Loss, End-stage renal failure / RIFLE), Akut Böbrek Hasarı Ağı (Acute Kidney Injury Network / AKIN) ve Böbrek Hastalıkları: Küresel Sonuçların İyileştirilmesi Vakfı (Kidney Disease Improving Global Outcomes / KDIGO) sınıflandırılması getirilmiştir. Standartlaştırılmış bir tanımlama, klinik bakım ve araştırmayı kolaylaştırmak için önemlidir (Küçükosman ve Ayoğlu, 2018). Kalça kırığı; hastaları travmaya, ağrıya, kanamaya, hipotansiyona ve dehidratasyona maruz bırakarak böbrek perfüzyonunun azalmasına ve inflamatuvar durumun artmasına yol açabilir ve bunların tümü ABY gelişimine neden olabilir (Borges et al., 2019). Bazı çalışmalar, kalça kırığı olanların %8-24'ünde ABY oluştuğunu göstermektedir (Ganta et al., 2021; Rantalaiho et al., 2019).

Yaşlılarda mevcut risk faktörleriyle birlikte fizyolojik ve anatomik değişiklikler de bu hastaların ameliyat sürecindeki bakımını diğerlerinden farklı kılmaktadır

(Kara ve Yılmaz, 2021; Yadav et al., 2024). Bu nedenle yaşlılarda total kalça protezi ameliyatı öncesi tüm sistemlerin kapsamlı tanınması yapılmalı, risk faktörleri ve mevcut sağlık durumlarına uygun bakım sağlanmalı, ameliyat sonrası ilk 15 günde sürekli değerlendirme yapılarak komplikasyonlar erken tanınmalıdır (Ayan ve Dağtekin, 2020; Wolfe et al., 2020).

Kalça Kırığı Ameliyatı Sonrası ABY için Potansiyel Risk Faktörleri

Kalça kırıkları hastaların yaşam kalitesini olumsuz etkilemektedir. Bu hastalara komplikasyon ve mortalite riskini azaltmak için acil ameliyat yapıldığından; elektif ameliyatlara kıyasla daha fazla postoperatif komplikasyon riskiyle karşılaşmaktadırlar (Çelik ve Dağlı, 2021). Bu komplikasyonlardan ABY'nin, kalça kırıklarından sonra morbidite ve mortalite üzerinde zayıflatıcı etkisi vardır (Rantalaiho et al., 2019). Kalça kırığı nedeniyle ameliyat olan hastaların yaklaşık 1/5'inde ABY gelişir ve bunun sonucunda %0,5-%1,8'i diyalize girer (Braüner Christensen et al., 2020; McAlister et al., 2022). Kalça kırığı ameliyatlarından sonra ABY'nin potansiyel belirleyicilerini araştıran çalışmalar; ileri yaş, eşlik eden hastalıklar, intraoperatif düşük kan basıncı, postoperatif albümin seviyeleri, beden kitle indeksi (BMI) ve NT-pro BNP düzeyleri gibi artan ABY riskiyle ilişkili olabilecek çeşitli faktörleri tanımlamıştır (Braüner Christensen et al., 2020; Haddad et al., 2023; Wang et al., 2023; Zhao et al., 2021).

Cerrahi işlemlerin sayısının ve çeşitliliğinin artması, postoperatif dönemde hastaların monitörize edilerek izlenmesini, olası komplikasyonların erken tanınmasını ve ciddi sağlık sorunlarına dönüşmeden önlenmesini sağlayacak özel birimlere olan ihtiyacı artırmaktadır (Coşkun, 2020). Genel olarak, hastaneye yatırılan 65 yaş ve üzeri bireylerin %27'sinin yoğun bakım ünitesinde (YBÜ) takibe gereksinim duyduğu belirtilmektedir (Coşkun, 2020). Yoğun bakım ünitelerine kabul edilen hastaların %22'sinin cerrahi bölümlerden geldiği ve 30 gün ve üzeri YBÜ'nde kalan hastaların %72'sinin cerrahi YBÜ'nde takip edildiği gösterilmiştir (Balkan ve Seki, 2021; Coşkun, 2020). Bu

ünitelerde, hipovolemi, şok, sepsis, travma, cerrahi girişimler, antibiyotikler ve non-steroidal antiinflatuvar ilaçlar gibi nefrotoksik ajanların kullanımı, radyokontrast madde maruziyeti, renal vasküler hastalıklar, maligniteler, hepatik hastalıklar, çoklu organ yetmezliği ve kardiyak hastalıkların yol açtığı hemodinamik bozuklukların ABY gelişiminde önemli bir rol oynadığı bildirilmiştir (Gameiro et al., 2020; Hadadi et al., 2022; Kung and Chou, 2023). Bununla birlikte, hastanede yatan bireylerde kötü prognoz, hastalığın iyatrojenik yapısı, YBÜ'nde uygulanan mekanik ventilasyon (MV) ve vazopressör ajanlar ABY gelişimi ile ilişkilendirilmiştir (Zeng et al., 2023). Kalça kırığı olan yaşlılarda yağ embolisi oluşumu

ameliyat öncesi dönemde akut tıkanıklığa yol açarak renal perfüzyonu bozar ve ABY gelişebilir (Coşkun, 2020; Bakı ve ark., 2021).

ABY SINIFLAMASI

ABY'nin Akut böbrek yetmezliğinin tanımı ve sınıflamasına standart getirmek üzere, çeşitli gruplar RIFLE ve AKIN kriterlerini oluşturmuştur. AKIN: Akut böbrek hasarı ağı; RIFLE: Renal risk, hasar, yetmezlik, böbrek işlev kaybı; SDBY: Son dönem renal yetmezlik; GFH: Glomerular filtrasyon hızı (Kahvecioğlu, 2023; Kellum et al., 2021), (Şekil 1).

AKIN evresi	RIFLE sınıflaması	Serum kreatinin	İdrar miktarı
1	Risk	>0.3 mg/dL veya 1.5-2 kat artış (GRH azalma >%25)	<0.5 mL/kg/sa x 6 saat
2	Hasar	2-3 kat artış (GFH'da azalma>%50) <0.5 mL/kg/sa x 12 saat	<0.5 mL/kg/sa x 12 saat
3	Yetmezlik	>3kat artış veya >0.5 mg/dL artışla birlikte serum kreatinin>4 mg/dL (GFH'da azalma >%75)	<0.3 mL/kg/sa x 24 saat veya anüri x 12 saat
	Kayıp	Süre giden böbrek yetmezliği >4 hafta	
	SDBY	Süre giden böbrek yetmezliği >3 ay	

Şekil 1. ABH sınıflandırması- AKIN ve RIFLE sınıflamaları (Kahvecioğlu, 2023; Kellum et al., 2021).

ABH'yi Akut böbrek hasarını erken dönemde göstermek için en güncel evreleme yöntemi Avrupa Böbrek En iyi Uygulamadır (Avrupa Renal Best Practice / ERBP). ERBP Bu yöntem, böbrek enfeksiyonunun yayılması ve yönetimi konusunda Avrupa'daki en iyi uygulamaların belirlenmesinde önemli bir rol oynamaktadır. Bu hem klinik pratiğe hem de araştırmaya yön vermekte ve böbrek hastalığına sahip olabilecek geniş kapsamlı standartlaşmayı sağlamaktadır (Hoste et al., 2018; Brothers et al., 2022). En güncel evreleme yöntemi olan ERBP, ABH'nin dağılımında RIFLE ve AKIN belirtilerinin birleştirilmesiyle oluşur. ABY Akut böbrek yetmezliği tanısı için serum kreatinin ve idrar çıkışı temel ölçümler olmaya devam etmektedir. Sistatin C gibi küçük

proteinler akut böbrek hasarının erken tanısında kullanılmaktadır (Çetin, 2018; Levey, 2022). ABH Akut böbrek hasarı gelişen hastalarda hiperkalemi, metabolik asidoz, volüm yüklenmesi oluşabilmekte ve ciddi ABH olan hastalarda renal replasman tedavisi (RRT) gerekmektedir (Çetin, 2018). Gelecekte böbrek hasarı biyobelirteçleri, biyopsi ve görüntüleme ABY' nin evrelenmesi, nedenin sınıflandırılması, prognoz ve tedavi açısından yararlı olabilir.

ABY ve Hemşirelik Yaklaşımları

ABY' Akut böbrek yetmezliğinde oligüri ve diürez evresine göre hemşirelik yaklaşımları uygulanır.

a) Oligüri Evresi ve Hemşirelik Yaklaşımları:

ABY Akut böbrek yetmezliği sürecinde, çeşitli etiyolojik faktörlere bağlı nefronların harabiyeti sonucu idrar miktarı 400 mL'nin altına düşebilir ve bazı durumlarda 100 mL'ye kadar azalabilir veya anüri gelişebilir. Bu dönemde idrarda ani bir azalmayla birlikte üre ve diğer metabolik atıkların birikimi söz konusu olmaktadır. Birkaç gün ile birkaç hafta arasında değişebilen oligürük evrede; potasyum, kreatinin, fosfor ve üre düzeyleri artarken, klor ve kalsiyum seviyeleri düşmektedir. Hastalarda bu dönemde gelişebilecek başlıca komplikasyonlar hipervolemi, hiponatremi, hiperkalemi, metabolik asidoz, hiperfosfatemi ve hipokalsemidir (Gerkuş ve Sivrikaya, 2020; Zhang et al., 2019). Bu süreçte uygulanacak hemşirelik girişimleri, gelişebilecek komplikasyonların önlenmesine yönelik olmalıdır. Özellikle hastanın sıvı dengesinin düzenlenmesi, yeterli renal perfüzyonun sağlanması ve hipervolemiye bağlı pulmoner ödemin engellenmesi, hasta prognozunun iyileştirilmesi açısından önemlidir.

b) Diürez Evresi ve Hemşirelik Yaklaşımları:

ABY' Akut böbrek yetmezliğinin diürez evresinde, nefronlardaki fonksiyonel bozukluklar düzelmekte ve hasta artan idrar miktarı ile metabolik atıkları vücuttan atmaya başlamaktadır. Bu dönemde günlük idrar çıkışı 1-2 litre, bazı durumlarda ise 3-4 litreye kadar ulaşabilmektedir. Artan idrar miktarı ile birlikte potasyum, fosfor, kreatinin ve üre düzeyleri düşmekte, kan biyokimyası normale dönmeye başlamaktadır. Diürez evresinde hastalar, sıvı-elektrolit dengesi, beslenme durumu ve enfeksiyon gelişimi açısından yakından izlenmelidir. Bu dönemde artmış sıvı ve elektrolit kayıplarının replase edilmesi gerekmektedir. ABY' Akut böbrek yetmezliği olan hastalarda yüksek protein katabolizma hızına bağlı negatif nitrojen dengesi gelişebildiğinden, beslenme yönetimi çok önemlidir. Oligürük ve diürez evrelerinde beslenme stratejileri dikkatle planlanmalıdır. Oligürük evrede protein, potasyum, tuz ve sıvı kısıtlanırken; üre oluşumunu azaltmak ve hücre dışına potasyum çıkışını engellemek amacıyla, karbonhidrattan zengin (en az 100 g/gün) beslenme planı uygulanmaktadır.

Gerektiğinde enteral veya parenteral beslenme desteği sağlanarak hastanın metabolik ihtiyacı karşılanmalıdır (Emmens et al., 2022; Gerkuş ve Sivrikaya, 2020).

AKUT BÖBREK YETMEZLİĞİ TEDAVİSİ VE HEMŞİRELİK BAKIMI

Sıvı Yönetimi: Akut böbrek hasarı olan hastalarda sıvı resüsitasyonu endike olduğundan izotonik kristalloidler; kolloidlere tercih edilir. Kritik hasta ve kritik olmayan hastalarda sıvı resüsitasyonu için %0,9 sodyum klorür yerine dengeli kristalloidler tercih edilir (Argaiz et al., 2022; Michael et al., 2019).

Akut böbrek yetmezliği olan hastalarda hipovolemi durumunda sıvı resüsitasyonu endikedir. Bu hastalarda ilk tercih olarak izotonik kristalloid çözeltiler, kolloidlere göre daha güvenli ve etkili bulunmuştur (Argaiz et al., 2022). Özellikle kritik ve kritik olmayan hastalarda sıvı resüsitasyonu için %0.9 sodyum klorür yerine dengeli kristalloid solüsyonlar önerilmektedir. Dengeli çözeltiler, asidoz riskini azaltarak böbrek fonksiyonlarını daha iyi koruyabilir (Michael et al., 2019).

Hemşireler; hastanın sıvı-elektrolit dengesinin korunmasında, komplikasyonların önlenmesinde ve hasta eğitiminin sağlanmasında aktif rol oynar. Hemşirenin görevleri şu şekilde özetlenebilir:

Hastanın idrar çıkışı, günlük vücut ağırlığı, yaşam bulguları ve laboratuvar değerleri (BUN, kreatinin, elektrolitler) düzenli olarak takip edilmelidir. Gerekirse sıvı alımı ve çıkımı kaydedilerek sıvı dengesi değerlendirilir (Wang and Bellomo, 2021). Hemşire; hastada ödemi, akciğer oskültasyonu ile sıvı birikimi belirtilerini, mukozaların nem durumu gibi semptomları değerlendirmelidir (NKF, 2023). Diüretik, antihipertansif ve diğer ilaçların etkileri gözlenmeli, istenmeyen ya da olumsuz etkiler erkenden fark edilmelidir. Nefrotoksik ilaçların kullanımı varsa dikkatli izlenmeli, gerekli durumlarda hekime bildirilmelidir (Mbutiwi and Sylvestre, 2023). Hastaya sıvı alımı kısıtlamaları, beslenme düzenlemeleri, ilaç kullanımı ve komplikasyon belirtileri konusunda eğitim verilmelidir.

Ayrıca taburculuk sonrası izlem ve takip süreçleri hakkında hasta bilgilendirilmelidir (Morrison and Liu, 2022). Akut böbrek yetmezliği süreci hastada anksiyete, korku ve stres yaratabilir. Hemşire, hastanın psikolojik durumunu değerlendirerek uygun iletişim teknikleriyle destek sağlamalıdır (Gebreyohannes et al., 2019).

Albumin: Randomize kontrollü çalışmalarda albumin kullanımının (hiper-onkotik solüsyonlar dahil) böbreklere veya diğer sonuçlara zararlı olduğu gösterilmemiştir (Bannard-Smith et. al., 2024). Bununla birlikte, faydaya ilişkin açık kanıtlar da eksiktir. Albumin nispeten güvenli gibi görünmektedir ancak kristalloidlerle karşılaştırıldığında tutarlı bir hayatta kalma avantajı sağladığı belirtilmemiştir (Bannard-Smith et al., 2024; Venkatakrishnaiah et al., 2022).

Saline Versus Albumin Sıvı Değerlendirmesi (SAFE) çalışmasında, albumin alan hastalarda renal veya mortalite açısından herhangi bir faydanın olmadığı, ancak resüsitasyon için daha az toplam hacim gerektiği, bunun da pozitif sıvı dengesini azaltmada cazip olabileceği bildirilmiştir (Gameiro et al., 2020). Ayrıca, Kritik Hastanın Resüsitasyonunda Kolloidlere Karşı Kristalloidler (CRISTAL) çalışmasında, kolloid alanlarda, (MV) ihtiyacında, vazopressör ihtiyacında ve 90. günde mortalitede azalma olmuştur (Gameiro et al., 2020). Bazı çalışmalarda, hacmi tükenmiş ve vasküler geçirgenliği artmış septik şok hastalarında hiperonkotik albumin kullanımıyla ilgili bazı endişeler dile getirilmiştir; çünkü bu, hacmi genişletmek için hücre içi dehidrasyonu teşvik ederek ABH riskini artırabilir (Udeh et al., 2018; Gameiro et al., 2020).

Bu bağlamda hemşireler, albumin tedavisi uygulanan hastalarda bakımın yönetiminde kilit bir role sahiptir. Öncelikle, hastanın hemodinamik durumunun izlenmesi, yani kan basıncı, kalp atımı, santral venöz basınç gibi değerlerin takibi hemşirenin sorumluluğundadır (National Kidney Foundation [NKF], 2023). Ayrıca, sıvı dengesi açısından idrar çıkışı, günlük vücut ağırlığı değişimleri ve sıvı alım/çıkım kayıtlarının düzenli tutulması, albumin infüzyonunun etkilerini değerlendirmek açısından önemlidir (Wang and

Bellomo, 2021). Hemşireler aynı zamanda, serum albumin düzeylerini, elektrolitleri ve böbrek fonksiyon testlerini (BUN, kreatinin vb.) izler. Albumin infüzyonları sırasında olası reaksiyonlara karşı hasta gözlemi yapar, infüzyon hızını kontrol eder ve gerekli durumlarda müdahale eder (Morrison and Liu, 2022). Buna ek olarak, aşırı hidrasyon veya dehidratasyon belirtileri (ödem, dispne, hipotansiyon) hemşire tarafından erken fark edilmelidir. Enfeksiyon riski açısından damar yolu giriş yerleri düzenli kontrol edilmeli ve aseptik teknikler kullanılmalıdır (NKF, 2023). Hasta eğitimi de hemşirenin sorumlulukları arasındadır. Albumin tedavisi gören hastalara; tedavinin amacı, olası yan etkileri, sıvı ve tuz alımı gibi konularda bilgi verilmeli ve hasta sürece aktif olarak dahil edilmelidir (Morrison and Liu, 2022).

Böbrek Fonksiyonunu Etkileyen Nefrotoksik Ajanlar ve İlaçlar:

Kronik hastalıkları olan hastalarda böbrek hasarı veya fonksiyon bozukluğuna neden olan nefrotoksik ilaçların kullanımı yaygındır. Bu ilaçların birçoğu doğrudan glomerüler veya tübüler hücre hasarı olmadan böbrek fonksiyon bozukluğuna yol açar. Ayrıca, serum kreatinin düzeyinde artışa neden olabilecek bazı ilaçlar aslında reno-koruyucudur ve daha iyi sonuçlarla ilişkilidir (örneğin, diyabetik nefropatide anjiyotensin dönüştürücü enzim inhibitörleri veya sodyum-glikoz ortak taşıyıcı-2 inhibitörleri) (Neuen et al., 2019; Ostermann et al., 2020).

Bu klinik tabloda hemşirelerin rolü kritik öneme sahiptir. Hemşireler nefrotoksik ilaç kullanan hastaların takibini yaparken, ilaçların potansiyel etkilerini değerlendirmeli ve böbrek fonksiyonlarını etkileyebilecek durumları erken dönemde fark edebilmelidir. Serum kreatinin, glomerüler filtrasyon hızı (GFR), kan üre azotu (BUN) ve idrar çıkışı gibi laboratuvar değerlerinin düzenli olarak takip edilmesi, olası bir böbrek fonksiyon bozulmasının erken tanısı açısından önemlidir (Wang and Bellomo, 2021). Ayrıca kilo takibi, ödem kontrolü ve sıvı dengesine yönelik günlük değerlendirmeler de hemşire tarafından yapılmalıdır. Hemşire, aynı zamanda nefrotoksik

ajanların dozu, süresi ve olası etkileşimleri hakkında farkındalık sahibi olmalı ve gerektiğinde ilgili sağlık ekibiyle iletişime geçerek ilaç düzenlemelerinin yapılmasına katkıda bulunmalıdır (Mehta et al., 2021).

Hasta eğitimi, hemşirelik bakımının vazgeçilmez bir bileşenidir. Hemşire, nefrotoksik ilaçların doğru kullanımı, sıvı tüketiminin önemi, idrar miktarı takibi ve yaşam tarzı düzenlemeleri hakkında hastayı bilgilendirmelidir. Bu eğitimler, böbrek fonksiyonlarını desteklemek ve hasta katılımını artırmak açısından hayati öneme sahiptir (Morrison and Liu, 2022). Ayrıca, risk altındaki hastalarda ilaç toksisitesine bağlı gelişebilecek akut böbrek hasarını önlemek adına düzenli değerlendirme yapmalı ve multidisipliner ekip üyeleriyle yakın iş birliği içinde çalışmalıdır (Mehta et al., 2021). Hemşirelerin bu çok yönlü rolleri, yalnızca mevcut böbrek fonksiyonlarının korunmasını değil, aynı zamanda hasta güvenliği ve yaşam kalitesinin artırılmasını da destekler.

Kontrastla ilişkili ABY'yi Önleme ve Yönetme:

İntravenöz (IV) kontrastla ilişkili risklerin modern ajanlar ve uygulama kalıplarıyla çok daha az olduğunu ve başlangıçta böbrek fonksiyonu normal veya hafif azalmış olan hastalarda ciddi böbrek hasarının olağandışı olduğunu göstermektedir (McDonald et al., 2017). Kontrast çalışmasından elde edilen bilgilerin önemli terapötik çıkarımlara sahip olabileceği hayatı tehdit eden durumlarda ABH'ye yönelik endişeler nedeniyle IV kontrastından kaçınılmalıdır (Ostermann et al., 2020).

Bu bağlamda hemşirelerin rolü, kontrast madde uygulamasına hazırlanacak hastaların doğru şekilde değerlendirilmesi ve kontrast madde uygulamasından sonra gelişebilecek potansiyel komplikasyonların önlenmesinde büyük önem taşır. Hemşireler, kontrast madde uygulanmadan önce hastanın mevcut böbrek fonksiyonlarını —özellikle serum kreatinin ve glomerüler filtrasyon hızı (GFR) düzeylerini— değerlendirmelidir. Riskli hasta gruplarının (örneğin diyabet, dehidratasyon, yaşlılık gibi durumları olanlar) belirlenmesi, uygun hidrasyonun sağlanması ve sıvı dengesinin takip edilmesi hemşirelik bakımının temel

bileşenlerindendir (Wang and Bellomo, 2021). İntravenöz kontrast madde uygulanmadan önce ve sonra yeterli hidrasyonun sağlanması, olası nefrotoksisiteyi önlemeye yönelik en etkili uygulamalardan biridir. Bu kapsamda hemşire, hastanın IV sıvı alımını takip etmeli, idrar çıkışını izlemeli ve yaşam bulgularını düzenli olarak kontrol etmelidir (Morrison and Liu, 2022). Ayrıca, hastanın ve ailesinin bilgilendirilmesi de hemşirenin sorumluluğundadır. Kontrast maddenin neden gerekli olduğu, olası risklerin neler olduğu ve alınan önlemler konusunda hasta ile açık ve güvene dayalı bir iletişim kurulması, kaygıların azaltılmasına yardımcı olur. Sonuç olarak, hemşirelerin bu süreçteki etkin değerlendirme, izlem ve eğitim rolleri, kontrast madde ile ilişkili ABH gelişme riskini en aza indirmekte ve hastaya güvenli bir bakım süreci sunulmasını sağlamaktadır.

ABY'de Beslenme: ABY Akut böbrek yetmezliği yönetiminde nütrisyonel tedavinin temel hedefleri; protein-enerji kaybının önlenmesi, kas kütlesi ve beslenme durumunun korunması, metabolik komplikasyonların minimize edilmesi, mevcut basınç yaralarının iyileşme sürecinin desteklenmesi, immün sistem fonksiyonlarının güçlendirilmesi, inflamasyonun azaltılması, antioksidan kapasitenin artırılması, endotel fonksiyonlarının iyileştirilmesi ve mortalitenin düşürülmesidir (Çetin, 2018; Fiaccadori et al., 2021; MacLaughlin, 2022). Avrupa Parenteral ve Enteral Beslenme Derneği (ESPEN) kılavuzu, hastanede yatan ABY hastalarına beslenme desteği sağlanmasını şiddetle tavsiye etmektedir (Fiaccadori et al., 2021; Liao et al., 2023). Aynı zamanda bazı tıbbi besinler, ABY hastalarında böbrek fonksiyonunun iyileşmesini kolaylaştırabilir (Liao et al., 2023). Ancak yetersiz beslenme, özellikle yaşlı ve kırılgan hastalarda yeterince tanınmamakta ve teşhis edilmemektedir. Yatan hastaların ~%9'una malnütrisyon tanısı konduğu, aslında yatan hastalarda malnütrisyon görülme sıklığının ~%40 olduğu bildirilmektedir (Liao et al., 2023; Xie et al., 2020). Bu nedenle, beslenme durumunun doğru bir şekilde değerlendirilmesi, yetersiz beslenmenin iyileştirilmesinde çok önemlidir. Özellikle yaşlanan nüfus için basit ve kullanışlı bir

beslenme tarama aracı olan Geriatrik Beslenme Risk İndeksi (GNRI), kanser, kalp yetmezliği, kardiyovasküler hastalık ve akut solunum yetmezliği olan hastalar da dahil olmak üzere birçok klinik senaryoda yaygın olarak kullanılmaktadır (Shi et al., 2021; Xie et al., 2020; Yuan et al., 2021). ABY Akut böbrek yetmezliği olan hastalarda enerji gereksinimi, hastalığın etiyolojisi, eşlik eden komorbiditeler ve gelişebilecek komplikasyonlar doğrultusunda bireyselleştirilerek belirlenmelidir. Aşırı enerji alımı, artan karbondioksit üretimine yol açarak solunum yükünü artırabileceğinden bu husus beslenme yönetiminde dikkate alınmalıdır. Pozitif nitrojen dengesinin sağlanabilmesi amacıyla protein gereksinimi, hastanın katabolizma oranı, böbrek fonksiyonları ve diyaliz tedavisi ile oluşan protein kayıpları göz önünde bulundurularak düzenlenmelidir. Genel olarak, ABY’de günlük enerji gereksinimi 25-30 kcal/kg olarak belirlenirken, hiperkatabolik durumlar, sepsis varlığı veya çoklu organ disfonksiyon sendromu gelişmesi halinde bu gereksinim 35 kcal/kg/gün düzeyine kadar artırılabilir (Türker, 2019). Non-katabolik ve stabil durumdaki hastalarda protein gereksinimi en düşük seviyede tutularak 0.8-1.0 g/kg/gün olarak önerilmektedir. GFH normale döndükçe protein alımı artırılmalı, hiperkatabolik hastalarda ve diyaliz uygulanan ABY vakalarında ise protein gereksinimi 1.2-1.5 g/kg/gün düzeyine yükseltilmelidir (Fiaccadori et al., 2021; MacLaughlin, 2022; Türker, 2019).

ABY hastalarında, uygunsuz nutrisyonel destek, mevcut malnütrisyon durumu ve katabolizma gibi faktörler protein-enerji kaybını arttırmaktadır. Özellikle sepsis, travma, ameliyatlara ve performans gibi durumlar, metabolizmasını etkileyerek protein kaybını azaltabilir (Cleto-Yamane et al., 2019; Tutupoho et al., 2021). Metabolik asidoz ve kan kaybı gibi durumlar daha da kötüleşebilir (Feyisa et al., 2023, Larson-Nath and Goday, 2019). Bu nedenle ABY olan hastalarda beslenme belirteçlerinin değerlendirilmesi ve ölçümlerin yapılması gerekmektedir. Hiperkaleminin erken tanı ve tedavisi, mortalite ve morbiditeyi azaltmak açısından kritiktir. Bu nedenle, hastaların elektrolit düzeyleri, özellikle sodyum ve potasyum

seviyeleri, düzenli ve dikkatli bir şekilde izlenmelidir. Sıvı ve potasyum retansiyonu kardiyovasküler sisteme olumsuz etki edebileceğinden, hastaların elektrokardiyografik izlemi büyük önem taşımaktadır. Hiperkalemi durumunda T dalgasında sivrileşme, ST segment depresyonu, PR aralığında uzama, QRS kompleksinde genişleme gibi değişiklikler görülebilir ve ileri evrelerde kardiyak fibrilasyon ve kardiyak arrest gelişme riski bulunmaktadır. Hiperkalemi saptanan hastalarda insülin infüzyonu gerektiğinden, hemşirelik yönetiminde kan glukoz düzeyi dikkatle izlenmeli ve hipoglisemi riskine karşı önlemler alınmalıdır. Hastanın diüretik döneme girmesiyle birlikte sıvı-elektrolit dengesi, dehidratasyon belirtisi ve bulguları ile hastanın aldığı-çıkarıldığı sıvı miktarı sık değerlendirilmelidir (Dépret et al., 2019; Vinson et al., 2022). Böylece hemşire, RRT gereksinimini değerlendirerek tedavi endikeyse hemodiyaliz veya periton diyalizine göre hemşirelik bakımı uygular (Li et al., 2021; Osterman et al., 2020).

SONUÇ VE ÖNERİLER

Yaşlı bireylerde kalça kırıkları yaygın görüldüğünden kalça cerrahisi sıklıkla uygulanmaktadır. Bu hastalarda, preoperatif ve postoperatif dönemde ABY gelişme riski yüksek olduğundan güncel ve etkin bakımın sürdürülmesi; ABY komplikasyonlarının önlenmesi ve bakım kalitesinin artırılması açısından kritiktir. Kalça kırığı ameliyatının hemen yapılması, ABY’nin etkin yönetimini sağlayarak komplikasyon riskini azaltabilir. Yaşlı hastaların perioperatif bakımın titizlikle ele alınması ve hemşirelerin bu hasta grubuna yönelik bakım bilgi ve becerilerinin artırılması, hastanede yatış süresinin kısalmasına katkı sağlayarak cerrahi bakımın kalitesini yükseltecek ve hastaların yaşam kalitesini olumlu yönde etkileyecektir.

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