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DIFFICULTIES EXPERIENCED BY PREGNANT WOMEN DURING THE COVID 19 PANDEMIC PROCESS IN TURKEY:A QUALITATIVE STUDY

TÜRKİYE'DE COVID 19 PANDEMİSİ SÜRECİNDE GEBELERİN YAŞADIKLARI ZORLUKLAR: NİTEL BİR ÇALIŞMA

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ABSTRACT
Pregnant women were in the risk group in the COVID19 pandemic as in previous pandemics. Being in a risk group can make coping even more difficult. This study was conducted to determine the difficulties experienced by pregnant women during the pandemic process. This is a phenomenological and qualitative study. The study was conducted with 33 participants. An interview form consisting of 10 questions was used to collect the data. Qualitative data were evaluated with content analysis. The study data were categorized using codes, and then themes and sub-themes were created.
We found four themes and twelve sub-themes related to the strengths that participants experienced during the COVID19 pandemic. These four themes were determined as (a) emotional burden, (b) challenge, (c) support and (d)prenatal care checkups. Pregnant women were emotionally affected and compulsory social isolation caused pregnant women to feel lonely during periods when support is needed such as pregnancy, childbirth and postpartum period. Pregnant women wanted to be isolated, on the other hand, they felt a sense of loneliness. Pregnant women had to postpone their prenatal care checkups, and some pregnant women could not reach their doctor. Pregnant women were most concerned about the health of their babies. They had ambivalent feelings about social support during pregnancy.

Keywords: COVID19, pandemic, pregnancy, prenatal care checkups, support.

ÖZ
Önceki pandemilerde olduğu gibi COVID19 pandemisinde de gebeler risk grubunda yer aldı. Risk grubunda olmak başa çıkmayı daha da zorlaştırabilir. Bu çalışma, gebelerin pandemi sürecinde yaşadıkları zorlukları belirlemek amacıyla yapılmıştır. Bu, fenomenolojik ve nitel bir çalışmadır. Çalışma 33 katılımcı ile gerçekleştirilmiştir. Verilerin toplanmasında 10 sorudan oluşan görüşme formu kullanılmıştır. Nitel veriler içerik analizi ile değerlendirilmiştir. Çalışma verileri kodlar kullanılarak kategorize edilmiş, ardından temalar ve alt temalar oluşturulmuştur.
Katılımcıların COVID19 pandemisi sırasında deneyimledikleri güçlü yönlerle ilgili dört tema ve on iki alt tema belirlendi. Bu dört tema (a) duygusal yük, (b) zorluk, (c) destek ve (d) doğum öncesi izlem olarak belirlenmiştir. Gebelerin duygusal olarak etkilenmeleri ve zorunlu sosyal izolasyon, gebelik, doğum ve doğum sonrası dönem gibi desteğe ihtiyaç duydukları dönemlerde gebelerin kendilerini yalnız hissetmelerine neden olmuştur. Gebe kadınlar yalnız kalmak isterken, bir yandan da yalnızlık duygusu hissettiler. Gebeler doğum öncesi bakım kontrollerini ertelemek zorunda kalırken, bazı hamileler doktorlarına ulaşamadı. Gebeler en çok bebeklerinin sağlığı ile ilgili endişe duyuyorlardı. Gebelik sırasında sosyal destek konusunda ambivalan duygulara sahiplerdi.

Anahtar kelimeler: COVID 19, pandemi, gebelik, doğum öncesi izlem, destek.

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INTRODUCTION

Pregnant women and their fetuses are among a high-risk group during infectious disease outbreaks.[1] In the three major influenza epidemics of the last 100 years (1918, 1957-1958 and 2009), pregnant women in the second and third trimesters were significantly more likely to be hospitalized or die than the general population.[2]

In the COVID19 Pandemic, compared to the general population, pregnant women increase the risk of contracting the disease, severe illness, pneumonia, morbidity or mortality due to the physiological, anatomical and immunological changes that occur during pregnancy.[1-6]

With the declaration of COVID19 as a pandemic, measures such as social isolation, quarantine and curfew were taken to keep the spread of the epidemic under control. These measures have caused pregnant women to be affected by the disruptions that may occur in the health system during the pandemic, due to their need for reproductive health.[7]

This study was conducted to determine the difficulties experienced by pregnant women during the pandemic process.

MATERIAL AND METHODS

Design

The study is a qualitative research with a phenomenological approach. Phenomenology is a qualitative research method that allows people to express their understanding, feelings, perspectives and perceptions about a particular phenomenon or concept and is used to describe how they experience this phenomenon.[8] Pregnant women were in the risk group during the pandemic. Because there was a risk for both themselves and their fetuses. Therefore, this study aimed to determine the difficulties experienced by pregnant women through their experiences during the pandemic process. In reporting this research, 'Consolidated Criteria for Reporting Qualitative Research (COREQ)' guidelines were used as a guide.[9]

Sampling

The research consisted of 33 participants living in different provinces of Turkey and pregnant during the pandemic period. Pregnant women who were not diagnosed with COVID19 and had no communication problems were included in the study. A qualitative study does not require a specific sample size; therefore, data collection is terminated when data analysis is performed during the data collection process and when concepts and phrases that could potentially answer the study questions begin to be repeated (i.e. saturation is reached).[9] As a result, this study was concluded with 33 pregnant women.

The ages of the pregnant women ranged from 25 to 42 years. 1, 7, 21 and 4 pregnant women are primary school, high school, undergraduate and graduate graduates, respectively. In addition, 9 pregnant women were living in districts and 24 pregnant women were living in cities. Also, 12 pregnant women were unemployed and 21 women were working in a paid job. According to their statements, 1 pregnant woman had a low income, 24 had a medium income and 8 had a high income. In addition, while 31 pregnant women have a nuclear family, 2 pregnant women have an extended family.

Data collection tools

In the collection of data, an Descriptive Information Form to determine the socio-demographic characteristics of the participants and an Interview Form 1-7 to determine to determine the difficulties they experienced during the pandemic period were used.

Descriptive Information Form

The form included information about the participants' age, education level, place of residence, family structure, where the pregnant woman's family lived, working status during the pandemic, the spouse's employment status and perceived income level during this period.

Interview Form

It is a form developed by researchers consisting of 9 questions to determine the problems experienced by pregnant women during the pandemic process. The questions in the form are as follows.

1. How do you see yourself emotionally during the pandemic process?
2. Do you think you can take protective measures to prevent virus transmission during the pandemic process? What problems are you having about this?
3. What worries you the most because you are pregnant during the pandemic process?
4. Could you explain how the pandemic process affected the support you will receive from your family/relatives during your pregnancy? How did this situation make you feel?
5. How did the pandemic process affect your pregnancy follow-ups? Did you have any problems with this? Can you explain these problems? How did you feel?
6. How do you feel about giving birth during the pandemic? How did this process affect your decisions such as the mode of delivery and the choice of hospital?
7. During the pandemic, do you think you can take precautions against the risk of infecting yourself and your baby with a virus in the postpartum period? What are your concerns about this?
8. What do you think about the situation of not getting support from your relatives regarding your own care and your baby's care in the postpartum period during the pandemic process? How does it make you feel to be able to get support or not?
9. What do you think about the restriction of visitors in the postpartum period during the pandemic process? (Can you make restrictions? Visitors wanting to come, your ability to prevent this, etc.)

Collection of data

In the study, mothers were reached by using snowball and chain method, which are purposeful sampling methods. The data were collected between 11.06.2020-24.06.2020 using interview forms containing the introductory information of the pregnant women and a semi-structured interview. Participants' responses were collected using a Google Form survey. Due to the pandemic, the link of the interview questions was sent to a pregnant participant via social media. The pregnant woman was asked to send the link to another pregnant

woman she knew, and another pregnant woman to another pregnant woman. First, the possible participants were selected from the women who were consulted by the principal investigator, and then, through these participants, the women who were their relatives, neighbors or friends and met the inclusion criteria of the study were reached and the sample group was formed. When the concepts and expressions started to repeat (saturation point was achieved), data collection was terminated.

Analysis of the data

Qualitative data were evaluated by content analysis. The study data were categorized using codes, and then themes and sub-themes were created.In the evaluation of the data, coding was done manually and no program was used.The themes and sub-themes created were evaluated by taking expert opinion, unnecessary coding was removed, the links between them were regrouped, and the themes and sub-themes were finalized.[10]

Reflexivity

Two female researchers who carried out this study completed their doctoral studies in the field of Obstetrics and Gynecology Nursing. Researchers have conducted many studies on obstetrics and women's health and have clinical experience in this field. In the study, the interviews were conducted by the primary researcher, and the first and second researchers did the reporting together. Researchers live in different provinces and have different experiences and observations on pregnancy.

RESULTS

In this study, we found four themes and twelve sub-themes related to the strengths that participants experienced during the COVID19 pandemic. The first theme is the emotional burden theme, which includes the emotional changes experienced by the participants during the pandemic. The second theme is the theme of challenge, in which the participants try to cope with difficulties during the pandemic process. The third theme is the support theme, which includes the difficulties they experienced in getting support from their relatives regarding pregnancy, birth and postpartum period during the pandemic. The fourth theme is prenatal care checkup (Table1).

Theme 1. Emotional Burden (Fear, Anxiety, Hope, Unknown)

In the study, it was seen that the anxiety experienced by the participants regarding their babies, themselves and their families during the pandemic, the fear of being infected with the virus, the uncertainty about the birth and the future put them under an intense emotional burden. This feeling experienced by pregnant women; It was defined under four sub-themes: (a) fear, (b) anxiety (c) Hope, and (d) unknown.

Anxiety

Most of the participants stated that they were worried about the virus infecting their baby, themselves and their loved ones during the pandemic process.

'I feel anxious. I am afraid of the repetition of the process. The possibility that people do not pay enough attention to this situation and that it may take a long time to return to our old order worries me. I am quite anxious, the unknown is very tiring. Most of all, she worries if something happens to my baby.' (P1)

'I am worried because if the disease is transmitted, I will have problems using medication because I am pregnant and I do not know how it will affect the baby. I do not go to the hospital for control as much as possible.'(P21)

'I am anxious because I have the fear of getting sick, the fear of harming my baby, the fear of losing my relatives.'(P27)

'Life outside gives me anxiety. When I first went to the hospital, I almost cried when I saw the streets secluded.'(P22)

'I am afraid that me and the people around me will be infected with the virus. I am worried that if it gets infected, it will have bad consequences.'(P20).

'I am anxious. First of all, I was terrified that something bad happen to my baby. Then I worried about my loved ones and relatives.'(P3).

'I am pregnant and afraid for my baby.'(P12)

'Tired, anxious, sad, stressed, helpless, lonely unhappy... I experienced almost all kinds of negative emotions.'(P32)

'I'm more worried about my baby than myself. I

Table 1. Theme and sub-themes

Theme	Sub -themes
Emotional Burden	Fear Anxiety Hope Unknown
Challenge	Control Adapt
Support	Loneliness Anxiety Limitation
Prenatal care checkups	Postpone Precaution Inaccessibility

making an effort to prevent virus infection.'(K5).

Fear

Most of the participants are afraid of being infected with the virus and harming themselves and their baby. They stated that they were afraid that they would not be able to take care of their babies if they were sick with the virus.

'I am afraid that the disease will infect one of my family and that I will not be able to help my family living far away in this process.'(P21)

'I was very afraid to go to pregnancy checkups, even I didn't go to pregnancy checkup for 2 months. I was afraid to even go to the market because there were many people coming from abroad to the neighborhood, I was careful to shop in markets that were not crowded. I never bought food from outside.'(P8)

'I am worring that if I gave birth prematurely, no one would be able to come to my aid. I am pregnant and have a daughter. We have deep concerns about what our treatment will be like if I or my partner get sick and who will take care of our daughter.'(P22)

'I am afraid of getting sick during the pandemic process and harming the baby and myself. I hear from my environment that pregnant women who are infected with the virus are experiencing difficulties. Since I am a teacher, I think the risk of contagion at school is very high.' (P20)

'My only thought is to have my baby born healthy. Maybe not being able to do that scared me too much. Even if I gave birth to my baby in good health, the feeling of being sick and not being able to take care of him, maybe never in my baby's life, scared me a lot.'(P3)

'The possibility of giving birth while infected with the virus scares me.'(P23)

'It scares me that my baby and I are infected with the virus and have to be separated, the possibility of my other child being alone (I have another son), the medications I will take and the difficult treatment.'(P20)

'It scares me to know that people can't come when I want to reach out.'(P22)

'I am worried about the transmission of the virus to my baby and me during the birth, during my stay in the hospital.'(P2)

'I am afraid of how the treatment will be in case of catching this disease during pregnancy, the use of medication, and how my baby and I will be affected by this situation. (P1)

Going to the birth alone scares me.'(P19)

Unknown

The participants stated that they experienced uncertainty about the 'future', 'the future of their babies', 'hospital and disease process'.

'I am not sure about anything for the future.'(P23)

'I think, 'What kind of world am I going to bring a baby into?' This worries me.'(P27)

'Pregnancy controls and not knowing how the disease will progress at birth worries me. If I get sick, will I stay in the hospital for a long time, how will my baby and I be affected by this situation, how will the drug use and treatment process be?'(P1)

Hope

Participants expressed their hopes in the pandemic process with expressions such as "We have taken the measures, the rest is destiny", "The pandemic will pass", "I do not give up hope in God".

'The virus didn't worry me much. Because we took the measures, the next is destiny.'(P18)

'I hope the pandemic process will pass and I try not to worry.'(P31)

'I was badly affected by this situation. I have never experienced so much fear and anxiety in my previous pregnancy. But I do not give up hope in God, I pray for the virus not to be transmitted and for this process to end as soon as possible.'(P2)

Theme 2. Challenge (Control, Adapt)

Despite all the difficulties experienced by the participants during the pandemic process, it was seen that they challenged for the health of their babies and themselves. Under the main theme of struggle, two sub-themes were gathered under two sub-themes, control (a) and adaptation (b) to the new normal.

Control

The majority of pregnant women stated that they followed the rules of 'mask', 'distance' and 'hygiene' to protect themselves from virus contamination. Some participants, on the other hand, stated that they were afraid that they would not be able to prevent their visits to see the baby, which became a ritual in the postpartum period.

'As my wife comes into contact with many people due to her job, I stay with my family as a precaution. I used gloves and a mask when I had to go to the hospital for pregnancy checkups. It is a very difficult situation psychologically. When I got back from the hospital, I immediately took a shower and changed my clothes. I wanted a baby for 6 years and got pregnant as a result of treatment. People around me wanted to meet but I didn't. I can't take a step in the last week of my pregnancy, my body gets tired very quickly from being inactive at home.'(P4)

'I have never left the house except for pregnancy checkups.'(P6)

'We acted carefully, reduced our shopping and reduced it to a maximum of 2 per month.'(P8)

'We did not receive visitors to our house and we did not visit anyone. We did not go out of the house except for essential needs. We used masks and followed social distancing. We cleaned the products we bought. We used disinfectant all the time. We cleaned the environment we live in frequently.'(P20)

'I took precautions as much as possible. I followed the hygiene and mask distance rules. The only problem for me was that I was nervous when my husband came home from work because he worked in a crowded environment.'(P3)

'I'll have to restrict. I hope people will understand this as well.' (P30)

'In the city where I live, I only have friends, no relatives, so I don't think there will be many visitors. If they come to visit us, I will appropriately refuse them.'(P21)

'I guess I won't be able to restrict visitors. I don't want to offend anyone, but I'll hint that they don't come. Everyone missed each other so much.'(P22)

'I am worried for I will to give a negative answer to those who want to come to visit us.' (P20)

'I'm considering not accepting visitors, but I'm not sure if I can do it.'(P9)

'Even if I make a restriction, visitors will not conform.' (P19)

'I don't think I can restrict visitors. Although I do not want to accept visitors, especially our families will definitely visit.'(P31)

Adapt

Participants were physically and psychologically affected by the restrictions during the pandemic process, and stated that they tried to adapt to this new situation by 'doing regular sports', 'praying', 'meeting online with their friends' and 'trying to calm down'.

'For my baby's health, I try not to watch the news as much as possible and not to stress myself.'(P31)

'Inactivity had a negative effect on me during this process. I gained a lot of weight and my pain increased. I had online meetings with my friends to reduce my psychological impact.'(P22)

'Where I live, there were insensitive people who didn't follow the rules because people didn't care about the pandemic. So I did not dare to go outside, albeit cautiously, and I hardly did any hiking. I was also suffering from vitamin D deficiency and pain because our house was not exposed to the sun. Being inactive and being at home all the time made me tired. Not being able to get fresh air affected my sleeping pattern. In this process, I did regular sports with my brother at home.'(P1)

Theme 3. Support (Loneliness, Anxiety, Limitation)

In the study, it was seen that the participants experienced loneliness due to their families being far away from their relatives in terms of pregnancy and postpartum period during the pandemic, they were worried about not being able to receive support, and those who would receive support had a limited possibility of receiving support. Opinions of pregnant women on support are defined under three sub-themes: (a) Loneliness, (b) Anxiety, (c) Limitation.

Loneliness

The majority of the participants stated that they could not get enough support because their relatives were far away, and therefore they felt lonely. The feelings of some of the participants about support are ambivalent because they both want support and are afraid of the risk of virus contamination of the visits.

'Only my husband was with me, unfortunately, because our families were in different cities, they could not be with us. I am sad about this situation. Because, during my pregnancy, under normal conditions, my family would be with me often, but it is not possible at the moment.'(P6)

'In this process, I feel alone. I feel lonely because I can't see my relatives, and at the same time, the thought of being in the same environment with them worries me.'(P20)

'I didn't expect it to be like this. Until this process is over, I don't want to see my relatives for our health.'(P10)

'The pandemic period is really affecting us because we have a baby to think about before ourselves. Of course, I don't want anyone to come to my house for a while.'(P7)

'I can get support from my relatives. If I didn't get support, I would feel so helpless.'(P22)

'I could not experience emotional satisfaction due to my distance in my meetings with my relatives. I couldn't feel the spirituality, which is the best part of being human.'(P3)

Anxiety

The participants stated that they experienced anxiety both because they would not be able to receive adequate support during pregnancy, childbirth and postpartum period, and because of the risk of being infected by the people who would provide support.

'I'm very worried about not getting enough support. It is right to restrict visitors as a precaution, but it is a pity that we cannot see each other with our relatives. But there can never be a situation like not following the rules.'(P32)

'Of course, it feels bad not to be able to get support, but meeting with a few people will be enough anyway. My relatives are already conscious people, I think they will pay attention to social isolation. But if anyone wants to come visit us, I guess I'll politely postpone it.'(P27)

'Our families will be with us after the birth. Their support and experience will enable us to get through the first months after birth more easily. It only worries me that they will use public transport on their way to the city (they live in another city).'(P1)

Limitation

Participants stated that they would limit their support during pregnancy, birth and birth, and limit the support and visits of people other than their parents.

'We will only receive support from our parents. We will not accept visitors outside of our family.'(P4)

'We will get support from our mothers. If this process gets worse, unfortunately we won't be able to do it either.'(P6)

'I will only get support from my parents.'(P33)

'I will get support from my mother. I am not considering accepting any other visitors. 'I'm not sure visitors will act accordingly.'(P9)

'I'm thinking of restricting visitors except our families.'(P5)

'I will get support from my mother in taking care of myself and my baby. If I can get this support without a setback, I hope that I will have a very safe period. Yes, of course I will make restrictions. I will not accept anyone except those who are very close to me.'(P3)

'There are a few people I interviewed, I think they will be enough. They will help me'(P23)

'I will get support from my mother. But I will quarantine my mother at home for 15 days before giving birth. I am happy to receive postpartum support.'(P13)

Theme 4. Prenatal care checkups(Postpone, Precaution, Inaccessibility)

In the study, it was observed that the participants had problems with prenatal care checkups during the pandemic process. The problems experienced are defined under four sub-themes as (a) postspone , (b) precaution and (c) inaccessibility.

Postpone

Majority of the pregnant women stated that they postpone their prenatal care checkups because they were afraid of being infected with the virus.

'I had to postpone the tests I had to do. I tried to go to the hospital as little as possible. (P1)

'I didn't go to pregnancy checkups often.'(P10)

'The pandemic has caused the frequency of my pregnancy check-ups to decrease.'(P11)

'The frequency of my pregnancy check-ups has

decreased. While I was supposed to go for a control every 3 weeks, I went to the controls every 6 weeks in this process.'(P24)

'I postponed pregnancy checkups. I was also nervous when I went to the controls.'(P25)

'While I had to go three times for my pregnancy check -ups, I couldn't go to one. It was the peak period of the pandemic. It's a very bad feeling not being able to find out about your baby's condition.'(P26)

'I decided not to have pregnancy follow-ups as often as with my first baby. Because the hospital environment is very crowded, although masks and disinfection are taken care of, it is not possible to avoid virus contamination in the hospital. I plan to go every 2 months unless I have pain, bleeding or any discomfort. In the last weeks of my pregnancy, I may have to tighten my checks for my baby's health.'(P31)

'I could only go to pregnancy checkups once.'(P7)

'While I was having pregnancy checkups every month, I postponed my checkup for 3 months.'(P8)

'I postponed my pregnancy checkups by talking to my doctor.'(P9)

'I went less for pregnancy checkups.'(P19)

'I went to pregnancy follow-ups very rarely. I am afraid to go to hospitals and health centers.'(P20)

'I did not go to pregnancy checkups as much as possible.'(P21)

'I couldn't get my pregnancy checkups done.'(P32)

Precaution

They stated that the participants took precautionary measures to prevent virus transmission and had pregnancy check-ups.

'I was afraid to go to the hospital for my checkups. Due to my pregnancy controls, I did not touch unnecessary contacts and things while I was in the hospital, I took a shower as soon as I got home.'(P2)

'I was a little scared when I went to the hospital for my pregnancy checkups, but I took precautions and my doctor made calm and comforting explanations. Thus, I did not disrupt my routine checks. If I lived in a big city, I might not have this opportunity.'(P3)

Since we took the necessary precautions, my pregnancy controls did not affect. (P5)

'I had to go to my pregnancy checkups by wearing a mask and taking all the precautions. Because I had to.'(P12)

'I was nervous, but I did not neglect my pregnancy controls.'(P30)

Inaccessibility

Some of the pregnant women stated that they delayed their prenatal care checkups due to not being able to reach their doctor.

'I could not reach my doctor, I had to postpone my prenatal care checkups for 3 weeks.'(P4).

'In this process, I could not reach my doctor, I felt bad.'(P17)

DISCUSSION

Participants experienced fear, anxiety and uncertainty about their babies, themselves and their families during the pandemic process. Mostof the participants were worried that their baby, themselves and their loved ones would be infected with the virus during the pandemic process, and they were afraid of harming themselves and their baby. The inability to care for their babies when infected was another cause for fear. Some participants, on the other hand, stated that they were afraid that they would not be able to prevent the 'baby sight visits', which is a ritual in the postpartum period.One study showed that the coronavirus pandemic has significant potential to cause anxiety, distress and fear in pregnant women. The women in the study were worried about their own health and the health of their baby.[11] In another study, it was determined that the pandemic caused many negative emotions, especially anxiety and fears.[12] The results of another study were similar, and the pregnant women stated that they experienced "anxiety and fear" because of the risk of transmitting the virus to the fetüs.[13] In an Australian study, women were concerned about the health and safety of themselves and their families due to COVID19.[14]

The COVID19 pandemic has caused a high degree of uncertainty around the World.[15] Unclear messages about the uncertainty and restrictions about the effects of COVID19 on pregnancy at the beginning of the epidemic increased the concerns of pregnant women in this process.[16] In the study, the participants stated that they experienced uncertainty about the 'future', 'the future of their babies', 'hospital and disease process'. Pregnant women were a disadvantaged group in the epidemic, and they needed to receive antenatal care to protect their health and that of their babies. Uncertainty was associated with greater risk of anxiety for pregnant women.

Participants expressed their hopes in the pandemic process with expressions such as "We have taken the measures, the rest is destiny", "The pandemic will pass", "I do not give up hope in God". Fatalism is a philosophical trend that argues that everything is predetermined by a supernatural power and that no one can change this fate.[17] The fatalism perception of some pregnant women may have been effective in their hopefulness during the pandemic process.

It was seen that the participants struggled for the health of their babies and themselves, despite all the difficulties they experienced during the pandemic process, and the majority of them followed the rules of 'mask', 'distance' and 'hygiene' for protection. In a study, it was seen that pregnant women took the necessary precautions to protect themselves from COVID19.[18]

In our country, families support women during pregnancy, childbirth and postpartum period. In the study, the majority of the participants stated that they could not get enough support due to the distance of their relatives and therefore they felt lonely. The results of the studies conducted in our country are similar.[11-13] In a study conducted in another country, women stated that they were afraid of being alone without their support, relatives and families during and after childbirth.[19] It has also been reported that inadequate support during the pandemic increases the symptoms of anxiety and depression more among pregnant women during the first wave of the pandemic.[20]In our study, it was determined that some of the participants' feelings of support were ambivalent. Participants both want support from their families or relatives and are afraid of

being infected with the virus during these visits.

Due to their need for reproductive health, women are exposed to disruptions that may occur in the health system during the pandemic.[7] In the study, it was observed that the participants experienced delay and inaccessibility problems related to prenatal care checkups during the pandemic process. Some of the pregnant women took precautionary measures and had pregnancy check-ups. In a study, it was determined that pregnant women had difficulty in reaching the doctor and they delayed their pregnancy checks because they were afraid of being infected with the virus. In the same study, it was stated that the pandemic caused the expectation of antenatal care to deteriorate and the inability to access reliable information.[11] In another study, it was determined that the pandemic negatively affected the pregnant women to receive antenatal care.[13] Taneri et al. In the study, it was determined that 17.1% of pregnant women did not go to prenatal visits due to COVID19 concerns.[21]In another study, 17.4% of pregnant women had inadequate antenatal care[22]. In the study of Kumru et al., it was determined that 17.2% of the pregnant women could not go to their prenatal follow-ups during the COVID19 pandemic and nearly half (45.9%) demanded that their follow-ups be reduced due to the risk of coronavirus.[23] Inadequate antenatal care may delay the intervention in risky situations that may arise during pregnancy.

CONCLUSION

Pregnant women were in the risk group in the COVID19 pandemic as in previous pandemics. Being in a risk group can make coping even more difficult. In this study, which we conducted to determine the difficulties experienced by pregnant women in the COVID19 pandemic, we determined that pregnant women were emotionally affected. It has been determined that compulsory social isolation caused pregnant women to feel lonely during periods when support is needed such as pregnancy, childbirth and postpartum period. Pregnant women who wanted to be isolated, on the other hand, felt a sense of loneliness. In addition to all these, they had ambrivalent feelings about whether to ask for support or not because of the concern that the people they would receive support would be infected with the virus.At the same time, pregnant women are struggling with the negative effects of the pandemic. Due to the necessity of regular prenatal care checkups, the pandemic period caused more problems for pregnant women. Pregnant women had to postpone their prenatal care checkups, and some pregnant women could not reach their doctor. Some pregnant women did not delay their prenatal care checkups by taking precautions.

Ethics Committe Approval: Ethics committee approval (date 12.06.2020 and number 2020.13.144) and study permission were obtained from the Ministry of Health for this study.

Informed Consent: Informed consen twas obtained from the participants. In the study, codes were used to anonymize the names of the participants, and the codes are shown as P1, P2, P3, P4...P33.

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OPINIONS OF INTENSIVE CARE NURSES ON THE WEB-BASED EDUCATION MODEL: A HOSPITAL EXAMPLE
YOĞUN BAKIM HEMŞİRELERİNİN WEB TABANLI EĞİTİM MODELİNE İLİŞKİN GÖRÜŞLERİ: BİR HASTANE ÖRNEĞİ

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ABSTRACT
Intensive care nurses provide nursing care to critical patients not only using advanced knowledge and advanced clinical skills but also by racing against time. Therefore, it is vital for intensive care nurses to maintain their professional development and closely follow current trends related to the care process. This study aims to determine the opinions of intensive care nurses about the use of the web-based education method in in-service education. The sample of this study consisted of 62 intensive care nurses working in the adult intensive care unit. All the nurses volunteered to participate in the web-based in-service education program on the "The Effect of Web-Based Education on the Knowledge and Practice of Sedation Management of Intensive Care Nurses." The study data were obtained with the "Nurse Introduction Form" and the "Evaluation Form of the Opinions of Nurses on Web-Based Education". These data were evaluated with the SPSS 22.0 software and descriptive statistics (frequency, percentage, median, and interquartile range). This study found that the rate of agreement on the statements "web-based in-service education activities support nurses in maintaining continuing education/lifelong education after graduation," "web-based in-service education activities can be a solution to the problem that nurses cannot participate in in-service education programs due to working hours," and "web-based in-service education activities facilitate the family life of nurses" was very high. Nurses believe that web-based education is supportive in maintaining continuing professional development and in-service education.

Keywords: Continuing nursing education, distance education, intensive care nursing.

ÖZ
Yoğun bakım hemşireleri üst düzey bilgi, ileri klinik beceriler kullanarak ve zamana karşı yarışarak kritik hastalara hemşirelik bakımı sunmaktadır. Dolayısıyla yoğun bakım hemşirelerinin mesleki gelişimlerini sürdürmeleri ve bakım süreçlerindeki güncel konuları yakından takip etmeleri önemlidir. Bu araştırma, yoğun bakım hemşirelerinin hizmet içi eğitimde web tabanlı eğitim yönteminin kullanımına ilişkin görüşlerini belirlemeyi amaçlamaktadır. Araştırmanın örneklemini yetişkin yoğun bakım ünitesinde görev yapmakta olan 62 yoğun bakım hemşiresi oluşturmuştur. Hemşirelerin tamamı 'Web Tabanlı Eğitimin Yoğun Bakım Hemşirelerinin Sedasyon Yönetimi Bilgi ve Uygulamalarına Etkisi' konulu web tabanlı hizmet içi eğitim programına katılmayı gönüllü olarak kabul etmiştir. Araştırma verileri; "Hemşire Tanıtım Formu" ve "Hemşirelerin Web Tabanlı Eğitime Yönelik Görüşlerini Değerlendirme Formu" kullanılarak elde edilmiştir. Çalışma verileri SPSS 22.0 programı ile tanımlayıcı istatistikler (sayı, yüzde, medyan ve çeyreklikler arası uzaklık) kullanılarak değerlendirilmiştir. Çalışmada "web tabanlı hizmet içi eğitim etkinliklerinin, yaşam boyu eğitimi sürdürmede hemşireleri destekleyici olduğu", "yüz yüze eğitim programlarına katılamama sorununa çözüm olabileceği" ve "aile hayatını sürdürmede kolaylık sağlayacağı" yönündeki ifadelere katılım oranlarının oldukça yüksek olduğu belirlenmiştir. Hemşireler sürekli mesleki gelişimi ve hizmet içi eğitimleri sürdürmede web tabanlı eğitimin destekleyici olduğuna inanmaktadır.

Anahtar kelimeler: Sürekli hemşirelik eğitimi, uzaktan eğitim, yoğun bakım hemşireliği.

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INTRODUCTION

Continuing professional development education is one of the most efficient ways for nurses working in these specialized units to meet the care needs of critically ill patients and adapt to advances in science and medical technology during the care processes of patients.[1,2] In many countries, it is considered a professional obligation for every health worker to maintain continuing professional development in increasing the quality of health services. In this sense, nurses should continue learning throughout their careers to improve their professional skills, maintain their clinical competence, and adapt to rapid changes in the working environment.[3,4] However, it may be difficult for intensive care nurses to participate in face-to-face in-service education programs due to the constraints in their professional lives, such as the excessive workload and lack of personnel in the field.[5]

Today, we see that vocational education has recently transformed from traditional education to technology-based education in order to avoid wasting time in terms of the workforce and increasing costs for institutions.[6] One of the current learning models used to ensure the continuing professional development of healthcare professionals is web-based learning in which technology and social networks are used all together.[7,8,9] Web-based learning is considered a more flexible, accessible, convenient, and cost-effective option. Also, it increases learning opportunities and offers nurses a different learning environment than traditional learning methods.[10] This learning method has been applied in nursing, and it has been reported to offer the same learning outcomes and better satisfaction than the traditional one.[11,12] It is possible to consider that web-based learning is an alternative method to bridge the gap between nurses' learning needs and educational services. Assessing their attitudes and needs towards web-based learning will contribute to offering recommendations for the design and delivery of learning programs.[8,13]

Web-based education, particularly for intensive care nurses, has notable advantages such as providing the opportunity to learn regardless of time and place,[11,14] allowing the individual to choose the education time by taking into account their obligations such as domestic and professional responsibilities and providing flexibility[14,15], providing learning opportunities suitable for individual needs with multimedia opportunities and appealing to more than one sense.[15,16] Gest (2021) reported that because online education provided flexible and optional use, participation and satisfaction rates of intensive care nurses on online education were high, and their knowledge levels increased at the end of the education.[17]

Web-based education models, which offer many advantages compared to traditional teaching in the in-service education, are considered a favorable option, especially for intensive care nurses, because they transfer evidence-based knowledge during patient care, benefit from research and the results, increase their participation in in-service education programs, and fulfill their professional roles and responsibilities. This study aims to reveal the opinions of intensive care nurses regarding the use of the web-based education method in in-service education.

MATERIALS AND METHODS

Study Design: This descriptive study was carried out to determine the opinions of nurses regarding the use of the web-based education method in in-service education.

Study Setting and Characteristics: This study was carried out in adult intensive care units of a public hospital between 29 July and 31 August 2019.

Study Population: During the study, 62 intensive care nurses were working in the adult intensive care units of the hospital. We aimed to include all nurses without selecting the sample. All the nurses in intensive care units (62 nurses) volunteered to participate in the web-based in-service education program on the "The Effect of Web-Based Education on the Knowledge and Practice of Sedation Management of Intensive Care Nurses."

Data Collection Tools: The study data were obtained by applying the Nurse Introduction Form (Annex-1), and the Evaluation Form of the Opinions of Nurses on Web-Based Education (Annex-2).

Nurse Introduction Form (Annex-1): This form consisted of 7 questions to determine the sociodemographic characteristics of the nurses, the intensive care unit they work in, their working experience in the intensive care unit, and their working type.

The Evaluation Form of the Opinions of Nurses on Web-Based Education (Annex-2): This form was developed by the researchers with the help of the literature review. It consisted of 15 questions to determine the opinions of nurses on the function of online education. The form had three options (Agree, Disagree, Undecided). "Disagree" was given 1 point, "Undecided" was given 2 points, and "Agree" was given 3 points. The data were collected meticulously by determining the most appropriate time for each nurse. Before the application, the researcher explained the study purpose and obtained the informed consent of the participants. The participants were asked to answer all the questions.

For the form to be used, first, the purpose of the form, the number of items, the way of answering, and the target audience were determined, and a question pool was created. For the form prepared in line with the literature information, content validity analysis was performed using the Davis technique. Substances in the Davis technique; Four points are rated as "appropriate", "item should be slightly revised", "item should be seriously reviewed" and "item not suitable". In this technique, the "content validity index (CGI)" for the item is obtained by dividing the number of experts who marked the appropriateness of the items and the options for the item to be slightly revised by the total number of experts. If the CGI index is 0.80 and greater, the item is sufficient for content validity. Substances with low CGI are eliminated (Davis, 1992; Taskın and Akat, 2010).[18,19] The questions in this form used in the research were arranged in accordance with the Davis technique; Opinions of five experts, two of whom are specialists in the field of Intensive Care Nursing and three of them from Internal Medicine Nursing faculty members, were taken. When we evaluated the results for each item, it was determined that the CGI index was greater than 0.80.

Ethical Considerations: Ethical approval was obtained for the study from the Sivas Cumhuriyet University Ethics Committee with the decision number 2019-07/13. In

addition, necessary institutional permissions were obtained from the Provincial Health Directorate of the hospital where the study was carried out.

Statistical Methods: The study data were evaluated through SPSS 22.0 software. Continuous variables in the study do not conform to normal distribution. Likert-type questions used in the study were accepted as ordinal data, and median and interquartile range values were given as descriptive statistics in the analysis of the data obtained from the questions. Likert-type questions were coded according to the number of options used in the question starting from 1. In this coding, the most negative answer "I disagree" was represented by the lowest number (1), the most positive answer "I agree" was represented by the highest number (3), and "I am undecided" was represented by the number (2).

RESULTS

Table 1 shows some sociodemographic characteristics of the intensive care nurses participating in the study. Of the nurses participating in the study, 77.4% were women, 59.7% were in the 21-30 age group. 67.7% of the nurses received nursing education at the undergraduate level, 43.5% had been working in the intensive care unit for five years or more, and 71.0% worked the night shift (Table 1).

Table 2 shows the opinions of nurses on web-based education. These results were obtained by averaging each item in the form, thus revealing the participation rates of nurses in the statements. The statements with which the nurses agreed on the highest average were respectively, “web-based in-service education activities can be a solution to the problem that nurses cannot participate in in-service education programs due to working hours” (100%), “web-based in-service education activities facilitate the family life of nurses” (96.8%), “web-based in-service education activities support nurses in maintaining continuing education/lifelong education after graduation” (93.5%). These statements were followed by "web-based in-service education activities provide a working environment suitable for the individual's learning style and pace," and "the learner can determine the learning hours in web-based in-service education." The averages of other statements had similar values, and nurses agreed with them. The one with the lowest average was the statement, “in web-based in-service education activities, it is possible to access education materials/ content whenever needed.”

DISCUSSION

Taking part in in-service education aiming to increase the quality and efficiency of health services is substantially significant in providing the health and other services given in an error-free and perfect manner and ensuring continuing professional development.[20,21] Continuing education has become an essential professional responsibility as well as a professional requirement. Continuing education, particularly for critical patient care practice, is a key element in hospitals since intensive care nursing requires special knowledge and advanced skills and nurses work in units with various

Table 1. Sociodemographic Characteristics of Nurses

Characteristics	Number	Percentage (%)
Gender		
Women	48	77.4
Men	14	22.6
Age		
21-30 y/	37	59.7
31-40 y/	21	33.9
41-43 y/	4	6.4
Marital Status		
Married	47	74.6
Single	15	23.8
Education Level		
High School Degree	6	9.7
Associate Degree	10	16.1
Undergraduate Degree	42	67.7
Master’s Degree	4	6.5
ICU Department		
Anesthesia ICU-1	20	32.3
Anesthesia ICU-2	19	30.6
Anesthesia ICU-3	23	37.1
Working Experience		
0-6 months	4	6.5
7 months-1 year	17	27.4
2-4 years	14	22.6
5 years and more	27	43.5
Working Type		
Night Shift	44	71.0
Day & Night Shift	18	29.0

Table 2. Statements Related to Opinions of Nurses on Web-Based Education

Statements Related to Opinions of Nurses on Web-Based Education	Disagree n %	Undecided n %	Agree n %	Median	Interquartile Range
-The learner can determine the learning hours in web-based in-service education	-	10 16.1	52 83.9	3.00	0.00
-Web-based in-service education activities provide a working environment suitable for the individual's learning style and pace	-	8 12.9	54 87.1	3.00	0.00
-In web-based in-service education activities, it is possible to access education materials/content whenever needed	24 38.7	12 19.4	26 41.9	2.00	2.00
-Web-based in-service education activities support nurses in maintaining continuing education/lifelong education after graduation	-	4 6.5	58 93.5	3.00	0.00
-Web-based in-service education activities allow colleagues/learners in different locations to interact	3 4.8	21 33.3	38 61.3	3.00	1.00
-Web-based in-service education activities can be a solution to the problem that nurses cannot participate in in-service education programs due to working hours (shift work)	-	-	62 100.0	3.00	0.00
-Web-based in-service education activities facilitate the family life of nurses	-	2 3.2	60 96.8	3.00	0.00
-In a web-based in-service education environment, there is a chance to meet with experts and experienced educators in nursing	8 12.9	20 32.3	34 54.8	3.00	1.00
-Web-based in-service education activities are not costly	-	17 27.4	45 72.6	3.00	1.00
-Web-based in-service education activities contribute to efficient learning	7 11.3	11 17.7	44 71.0	3.00	1.00
-Things learned through web-based in -service education activities can be put into practice more easily	22 35.5	9 14.5	31 50.0	2.50	2.00
-Web-based in-service education activities can be limiting/hampering for participants to be active	21 33.9	-	41 66.1	3.00	2.00
-Nursing knowledge and skills can be gained through vision-based activities in web-based educational environments	16 25.8	9 14.5	38 59.7	3.00	2.00
-Nursing knowledge and skills can be gained through listening and vision-based activities in web-based educational environments	12 19.4	10 16.1	40 64.5	3.00	0.50
-Nursing knowledge and skills can be gained in web-based education environments	10 16.1	9 14.5	43 69.4	3.00	2.00

medical and technological developments.[22] However, intensive care nurses face difficulties in terms of cost, the time required for participation, and time and location when all nurses come together during education. In addition, since there are not enough intensive care nurses to replace one another, some situations require urgent intervention, the shift working system or the in-service education activities are considered ineffective and insufficient, continuity of education face several difficulties.[16,23,24]

Our study suggests that the rate of participation in web-based education can be a solution to the problem of not being able to participate in in-service education programs due to the shift work of intensive care nurses is notably high. A study conducted in Taiwan to determine nurses' perceptions of web-based learning indicated that the professional development of nurses who could not attend in-service education due to time and space limitations could be achieved with web-based courses.[24] Shahhosseini and Hamzehgardeshi (2015) stated that shift working of nurses might prevent them from participating in continuing education programs; therefore, web-based education could be a practical method to meet the educational needs of nurses within the con-

straints of their busy professional lives.[24]

It is more challenging for women to participate in education, given their domestic and professional obligations, especially their responsibilities that require more effort and time, such as the role of motherhood. Some studies, including our study, reported that findings supported that web-based education would provide convenience for nurses to maintain their family life.[14,25,26]

Our study found that the rate of agreement of intensive care nurses on "web-based in-service education activities support nurses in maintaining continuing education/lifelong education after graduation" regarding the function of web-based education was high. Continuing education is of great importance for nurses working in intensive care units in order to adapt to constantly changing and developing technology and treatment methods to meet the care needs of critical patients and to meet their critical thinking skills. Tung et al., (2014) found that nurses could not attend the education due to workload and lack of personnel in the field; therefore, web-based education was a more suitable option compared to others in offering in-service education and continuing professional development.[8] Boz-Yuksekdag (2015) stated that distance-learning might be ideal for individuals who were motivated, needed flexibility, and wanted to maintain their professional responsibility through continuing education.[27]

Web-based learning offers a suitable working environment according to the individual's learning style and pace. Our study determined that the rate of agreement of the nurses on the statement about this advantage was high. Lera et al., (2020) suggested that distance learning was a flexible, accessible, and effective method in allowing participants to learn at their desired pace and place.[14]

In our study, it is notable that 50% of the nurses agreed with the statement "things learned through web-based in-service education activities can be put into practice more easily." After conducting a web-based education activity for intensive care nurses, Gest (2021) determined that most of the nurses stated that they would use the information learned in the education activity in practice.[17] Chuang and Tsao (2013) reported that web-based learning could effectively shorten learning hours and improve knowledge and skills.[11] In the study conducted to determine the effectiveness of the web-based learning module, Vaona et al. (2009) maintained that after the web-based education, nurses' knowledge increased significantly, and this type of teaching strategy could help overcome the barriers associated with traditional education.[28]

CONCLUSION

There is a need for continuity of in-service education to maintain the qualifications and competencies of health care professionals. Web-based learning is a significant option for increasing the accessibility and flexibility of continuing education, particularly for intensive care nurses in their professional businesses. This study shows that the opinions of intensive care nurses about web-based distance learning methods are affirmative. However, the development of web-based learning programs by nursing service managers and educators, encouraging their participation in these programs and providing appropriate help to meet their learning needs, and their more patient-centered work will eventually lead to positive results, such as being more collaborative and supportive.

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THE IMPORTANCE OF PRACTICAL EDUCATION AND INTERNSHIP IN RADIOTHERAPY TECHNICIAN EDUCATION*

RADYOTERAPİ TEKNİKERLİĞİ EĞİTİMİNDE UYGULAMALI EĞİTİMİN VE STAJIN ÖNEMİ

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ABSTRACT

The purpose of this study was to assess the practical training provided by associate degree programs in radiotherapy education in the United States, as well as the preparedness of students for internships and their post-internship learning levels. A total of 317 participants, including both face-to-face and online students, as well as graduates of the radiotherapy program, completed a survey consisting of 68 questions. Of the participants, 66.2% were female (n=210) and 33.8% were male (n=107). Lab facilities are available at institutions where the majority of participants (70.3%) have received education. Binary logistic regression tests were used to investigate whether there was a difference between the pre- and post-internship status. It was statistically significant that interns who had experienced professional growth prior to the internship performed better in achieving such gains after the internship ($p<0.05$). The rate of error among participants who underwent laboratory training was 58.4% lower, and the time it took for them to begin working with patients independently was 61.1% less compared to those who were trained in an educational institution with inadequate practical training. Our survey underscores the significance of both theoretical and hands-on training in the education of radiotherapy technicians. Starting internships with theoretical training in a laboratory environment reinforces students' knowledge and improves their success during the internship. This type of training also enhances self-confidence, strengthens their connection to their profession, and prepares them for professional life after graduation.

Keywords: Education opportunities, experience, internship, radiotherapy technician, vocational training

ÖZ

Ülkemizde radyoterapi eğitimi veren önlisans programlarının uygulamalı eğitimleri ile öğrencilerin staja hazır bulunuşlukları ve staj sonrası öğrenme düzeylerinin değerlendirilmesi amaçlanmıştır. Radyoterapi programında okuyan önlisans öğrencilerine ve mezunlarına yüz yüze ve online olarak uygulanan 68 soruluk anket değerlendirmeye alınmıştır. Ankete toplam 317 kişi katıldı. Katılımcıların %66.2'si kadın (n=210) ve %33.8'i erkektir (n=107). Katılımcıların %70.3'ünün eğitim gördüğü kurumlarda laboratuvar olanakları mevcuttur. Staj öncesi ve sonrası durumun karşılaştırılmasında fark bulunup bulunmadığı binarylojistik regresyon testleri kullanılarak araştırılmıştır. Staj öncesinde mesleki kazanımlar yaşamalarının staj sonrasında bu kazanımları daha iyi elde etmelerini sağladığı istatistiksel olarak anlamlı bulunmuştur ($p<0.05$). Laboratuvar eğitimi alan katılımcıların hata oranı ve tek başına hasta almaya başlama süresi, uygulama eğitimi yetersiz olan bir eğitim kurumunda eğitim alan katılımcılara göre istatistiksel olarak sırasıyla %58.4 ve %61.1 daha azdı. Araştırmamız, radyoterapi teknikerlerinin eğitiminde hem teorik hem de pratik eğitimin gerekli olduğunu göstermektedir. Öğrencilerin aldıkları bilgileri laboratuvar ortamında teorik eğitimle pekiştirerek staja başlamaları staj süresince daha başarılı olmalarını sağlamaktadır. Staj eğitimi ile öğrenciler özgüven kazanır, mesleğine daha yakın hisseder ve iş hayatına hazır hale gelir.

Anahtar kelimeler: Eğitim imkanları, tecrübe, staj, radyoterapi teknikeri, mesleki eğitim

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INTRODUCTION

Health services associate degree programs are in high demand in recent years, as students interested in the health field seek out opportunities to advance their education. The number of students enrolling in these programs continues to increase, reflecting the growing need for skilled professionals in the health industry. The radiotherapy program specifically trains technicians to work in oncology clinics, preparing them for a career in this vital area of healthcare. Radiotherapy technicians must undergo a rigorous and disciplined training process to perform a crucial role in treating cancer patients who are experiencing a challenging period in their lives.[1]

According to the statistics of the 2022-Higher Education Institutions Examination (YKS) of the Council of Higher Education (YOK) Atlas, there are 9 state universities, 18 foundation universities and 4 foundation universities in our country. Out of the total radiotherapy program quota of 1854, 1794 candidates registered. Of the registered candidates, 485 chose state universities, 1235 chose foundation universities, and 74 chose foundation universities in Cyprus.[2] Although the number of hospitals and healthcare centres has increased in our country over the past decade, the Radiotherapy department has not seen a proportional rise in staffing levels. The shortage of qualified personnel remains a concern.[1] It is becoming progressively challenging for recent graduates to secure employment. To address this issue, it is crucial to develop more highly qualified professionals and prepare individuals to begin working immediately upon completion of their studies with respect to their technical expertise and knowledge. Participation in internships affords students the opportunity to acquire professional skills, acclimate to their profession, and gain intimate familiarity with their respective fields.[3]

Radiotherapy technicians operate linear accelerator (Linac) devices to treat oncology patients. Technical abbreviations will be explained upon their first usage. Working with Linac devices, which are radiation-generating devices, requires prior knowledge of radiation protection and treatment methods. It is imperative to use objective evaluations, clear and concise language, a conventional structure, and appropriate academic language. This includes neutral, high-level language that is free from biased or ornamental terminology and avoids first-person perspectives. Additionally, adhering to a consistent citation and footnote style, and ensuring grammatical accuracy, precision in word choice, and logical structure is vital.[3] While deficiencies in acquiring skills during face -to-face education are well-documented, the rise of distance or hybrid education due to the pandemic has resulted in new challenges. For example, radiotherapy technicians may be unable to participate in practice courses, or the number of practice courses they can take may decrease.[4] With the rising number of students, the challenges in securing internships have raised concerns about declining technician training quality.

The purpose of this study is to evaluate the preceptorship provided by associate degree programs that offer radiation therapy education in the country, the preparation of students before, during, and after their preceptorship, and the level of learning after their preceptorship.

MATERIAL AND METHODS

The study surveyed associate degree students and graduates of the Radiotherapy program with a questionnaire approved by the Altınbaş University Ethics Committee (02.03.2023-46353), conducted in adherence to the principles of the Declaration of Helsinki. Since no prior studies on this subject have been conducted, we ensured the content validity of the questionnaire by utilizing the Kendall coefficient of agreement W correlation test with a p-value greater than 0.05.

Kaiser-Meyer-Olkin (KMO) and Barlet Spherty test were used to determine whether the data were suitable for factor analysis. As the data were found to be suitable for factor analysis (KMO: 0.893; $p<0.01$), exploratory factor analysis was used to examine the construct validity and factor structure of the scale, Principal Components as a factorization technique, and Varimax Axis Rotation Method was used to form factors for interrelated variables. These factors explain 71.987% of the total variance. Since the first factor is related to the problemsolving skills of the instructors, this factor is named as "Competence" and explains 18.231% of the total variance. The second factor explains 17.315% of the total variance. Since this factor includes variables related to the professional knowledge and expertise of the instructors, it is named as "Behavior". The third factor explains 31.187% of the total variance and this factor is named as "Learning level" because it includes the attitudes of the lecturers towards the students.

The reliability test revealed a Cronbach Alpha value of 0.842 in our pilot study, indicating high reliability, and was then applied to the full-scale survey with a reliability range of $0.60 \leq \alpha \leq 0.80$, indicating high reliability. The survey was conducted in both face-to-face and online formats. The online survey was supported by the Radiotherapy Technologists Association (RTT-Der). The research study participants were informed of the study, and volunteers were included. Volunteer participants provided their consent.

The first part of the questionnaire included demographic questions regarding age and gender, while the second part consisted of questions 4-25, which aimed to assess the participants' proficiency levels prior to the internship. These questions focused on the continuation of their education, the school and program they attended, and the educational opportunities available at their institution. When evaluating educational opportunities, objective and measurable criteria were prioritized, particularly for positions that require physical dexterity during internships and practical application. The third portion of the evaluation consisted of questions numbered 26 to 39, containing demographic information about the internship site, while the final section spanned questions 40 to 68. The survey aimed to assess student behavior and professional skill acquisition during the internship. To accomplish this, a 5-point Likert scale was utilized when constructing some of the questions.

The survey data was collected and analyzed at a single center using SPSS 28.0. To investigate differences between the situation before and after the internship, binary and multinomial logistic regression tests were conducted in addition to descriptive statistical methods (frequency, percentage). Any results with a p<0.05 were considered statistically significant.

RESULTS

A total of 317 participants from 29 Turkish universities, eight of which are state universities, participated in the survey. 66.2% of the participants were female (n=210) and 33.8% were male (n=107). The mean age ranged from 79.2% to 18-24 (n=251). 16.7% are 25-31 years old, 1.9% are 32-38 years old, 1.9% are 39-45 years old, and the rest are 46 years old and over. 52.1% of the respondents are graduates (n=165), 47.9% are continuing their education (n=152).

In the second section of the survey, we aimed to assess the effectiveness of offering ample practical experience and opportunities to adequately prepare participants for their internship. Table 1 displays the responses and corresponding percentages of participants regarding the services provided by their educational institutions. The percentage representation of the fixation devices that the participants could use during the training is given in Figure 1.

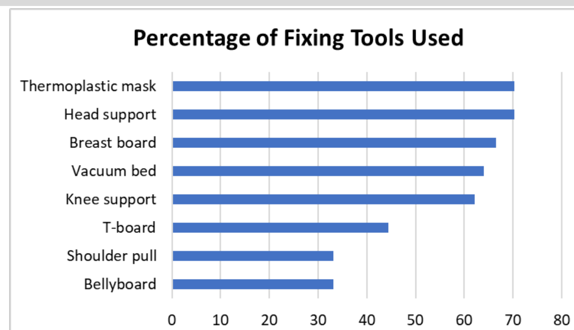

Figure 1: Fixing tools that participants can use during their training

46.4% of respondents reported facing challenges in securing an internship placement (n=147), while 30.6% had to pay a fee to participate in an internship program (n=97). Private hospitals provided internship opportunities for 59.6% of participants (n=189), compared to 40.4% in public hospitals (n=128). Notably, 46.7% of respondents expressed confidence in their ability to administer patient care at the commencement of their internship (n=148). Of the participants, 28.7% completed a 20-day internship, 58.7% completed a 30-day internship, and 12.7% completed an internship lasting 60 days or more. The

Table 1. The feedback was given by the participants to the questions about the training they received

Questions		Yes	No
Did your school have a radiotherapy laboratory?	n	223	94
	%	70.3	29.7
Was there a real Linac in the lab before the internship?	n	45	272
	%	14.2	85.8
Was there a virtual Linac in the lab before the internship?	n	59	258
	%	18.6	81.4
Was there any fixing equipment in the laboratory before the internship?	n	235	82
	%	74.1	25.9
Did you determine the isocentre in the laboratory before the internship?	n	183	134
	%	57.7	42.3
Did you make a mask in the laboratory before the internship?	n	186	131
	%	58.7	41.3
Did you prepare a lead block in the laboratory before the internship?	n	53	264
	%	16.7	83.3
Did you do a bolus in the laboratory before the internship?	n	95	222
	%	30	70
Did you make a vacuum bed in the laboratory before the internship?	n	177	140
	%	55.8	44.2
Did you set up a patient in the laboratory before the internship?	n	198	119
	%	62.5	37.5
Were you able to use Linac in the laboratory before the internship?	n	15	302
	%	4.7	95.3
Did you make effective use of the radiotherapy laboratory?	n	52	265
	%	38.2	61.8

duration of internships varied among participants; 10.7% completed internships lasting 1-4 hours, 27.4% completed internships lasting 4-6 hours, 54.9% completed internships lasting 6-8 hours, and 6.9% completed internships lasting more than 8 hours. Refer to Table 2 for the participants' responses to questions about their internship experiences.

It was tried to measure the level of the participant's ability to obtain the necessary gains for their needs in their working life according to the 5-point Likert scale before and after the internship. In this part, the answers given to the questions asked to the participants are shown in Table 3.

Table 2. Feedback is given by the participants to the questions about their internship experiences

Questions		Definitely not	Not really	No idea	Up to a point	More than enough
I did an internship in the department appropriate to the education I received.	n	7	13	13	95	189
	%	2.2	4.1	4.1	30	59.6
I had the opportunity to apply the theoretical knowledge I learned at school during my internship and I reinforced my understanding.	n	3	7	8	240	59
	%	0.9	2.2	2.5	75.7	18.6
I observed that there is a parallelism between the theoretical education given at the school and the practices in the enterprises.	n	10	14	18	231	44
	%	3.2	4.4	5.7	72.9	13.9
After my internship, my interest in the department I studied increased.	n	3	7	12	238	57
	%	0.9	2.2	3.8	75.1	18
My internship was helpful in getting to know business life.	n	2	7	4	226	78
	%	0.6	2.2	1.3	71.3	24.6
My internship increased my self-confidence professionally.	n	2	6	6	235	68
	%	0.6	1.9	1.9	74.1	21.5
I believe my internship will contribute to my success in my business life after graduation.	n	2	8	8	230	69
	%	0.6	2.5	2.5	72.6	21.8
When I returned to school at the end of the internship, positive changes occurred in my perspective on lessons and subjects.	n	1	7	11	234	64
	%	0.3	2.2	3.5	73.8	20.2
I gained experience in human relations in general and health personnel-patient relations in particular.	n	1	5	5	237	69
	%	0.3	1.6	1.6	74.8	21.8
My internship contributed positively to my desire to work in health services.	n	2	6	7	231	71
	%	0.6	1.9	2.2	72.9	22.4
I had the opportunity to get to know health services through my internship.	n	2	3	5	237	70
	%	0.6	0.9	1.6	74.8	22.1
I consider the internship period sufficient to improve my professional skills.	n	1	9	7	245	55
	%	0.3	2.8	2.2	77.3	17.4
I gained experience in the division of labour and coordinated work.	n	2	7	3	243	62
	%	0.6	2.2	0.9	76.7	19.6
I received the necessary support to learn during my internship.	n	4	3	7	226	77
	%	1.3	0.9	2.2	71.3	24.3
Do you have too much workload on you?	n	39	231	13	31	3
	%	12.3	72.9	4.1	9.8	0.9
Has your learning decreased because of the backlog because more interns work at the same internship?	n	39	226	13	31	8
	%	12.3	71.3	4.1	9.8	2.5
Did you work as a permanent staff rather than a trainee student during your internship?	n	28	37	209	39	4
	%	8.8	11.7	65.9	12.3	1.3
Have you done any applications that you did not learn in internship applications?	n	18	28	200	48	23
	%	5.7	8.8	63.1	15.1	7.3
Have you been expected to do business above your level?	n	42	230	15	25	5
	%	13.2	72.6	4.7	7.9	1.6
Have you been subjected to verbal insults at the internship site?	n	281	20	6	10	0

Table 3. Comparison of the learning levels of the participants regarding professional experiences before and after the internship

Questions			Definitely not	Not really	No idea	Up to a point	More than enough
My level of learning to determine isocenter	Before Internship	n	13	21	15	239	29
		%	4.1	6.6	4.7	75.4	9.1
	After Internship	n	14	15	12	107	169
		%	4.4	4.7	3.8	33.8	53.3
My level of knowing how to make masks	Before Internship	n	13	17	18	233	36
		%	4.1	5.4	5.7	73.5	11.4
	After Internship	n	19	17	13	83	185
		%	6	5.4	4.1	26.2	58.4
My level of knowing how to use blocks	Before Internship	n	38	27	206	32	14
		%	12	8.5	65	10.1	4.4
	After Internship	n	57	41	40	93	86
		%	18	12.9	12.6	29.3	27.1
My level of knowing how to make a vacuum bed	Before Internship	n	16	21	198	53	29
		%	5	6.6	62.5	16.7	9.1
	After Internship	n	44	28	11	95	139
		%	13.9	8.8	3.5	30	43.8
My level of knowledge of bolus	Before Internship	n	21	36	207	33	20
		%	6.6	11.4	65.3	10.4	6.3
	After Internship	n	48	38	25	104	102
		%	15.1	12	7.9	32.8	32.2
My level of knowing how to use CT	Before Internship	n	27	25	205	47	13
		%	8.5	7.9	64.7	14.8	4.1
	After Internship	n	16	34	33	99	135
		%	5	10.7	10.4	31.2	42.6

After completing the internship, we conducted a paired-sample t-test to statistically analyze the level of knowledge gained in professional experiences, including isocenter determination, mask preparation, lead block making, vacuum bed preparation, bolus preparation, and computed tomography (CT) scanning. The analysis was conducted based on the participants' prior experience in these areas before starting the internship. Our null hypothesis (H0) was that there would be no statistically significant difference in knowledge before and after the internship. H1: "Significant Difference Found Between Before and After Internship" A statistically significant difference was observed between the levels of professional competency before and after the internship ($p<0.05$). Table 4. presents the obtained data.

The authors conducted a binary logistic regression analysis to examine the association between laboratory training status, internship location, and three measures of professional development: skill knowledge acquired after the internship, internship mistakes, and time to independently manage patients during the internship. The evaluation was conducted objectively, without subjective evaluations, and technical term abbreviations were explained upon first use. The authors employed clear, objective, and value-neutral language, avoiding biased or emotional language. They adhered to a conventional academic structure, including common sections and maintaining regulatory formatting. The text was free from grammatical errors and unnecessary jargon, using high-level, standard language. Finally, the authors aimed for clear structure with a logical progression, including causal connections between statements. The dependent variables selected were whether participants received laboratory training during their education and where they completed their internship, whether in a public or private hospital. Table 5 displays the obtained data, with being in a laboratory and completing an internship in a public hospital chosen as the reference category.

The acquisition of professional skills during internships can be better understood by examining whether participants received laboratory training during their education, which explains 20.4% of the variation (Nagelkerke R square). Analyses indicate strong agreement in questionnaire data (94.2%) (Hosmer &Lemeshow Test Sig Value). Furthermore, significant differences were observed in the level of determining isocenter based on laboratory status

Table 4. Paired sample t test results of professional competencies obtained before and after internship

	Paired Samples Test			
Professional experience expected to be gained	Mean	Fark	t	Two-sided p
Level of learning to determine isocenter	3.7886	-0.47950	-6.962	0.000
	4.2681	-0.42902	-5.824	0.000
Knowing how to make masks	3.8265	-0.48265	-5.986	0.000
	4.2555	-0.62776	-6.871	0.000
Knowing how to use blocks	2.8644	-0.56467	-6.755	0.000
	3.3470	-0.97476	-13.378	0.000
Knowing how to make a vacuum bed	3.1830	-0.47950	-6.962	0.000
	3.8107	-0.42902	-5.824	0.000
Knowing how to make bolus	2.9842	-0.48265	-5.986	0.000
	3.5489	-0.62776	-6.871	0.000
Knowing how to use CT	2.9811	-0.56467	-6.755	0.000
	3.9558	-0.97476	-13.378	0.000

Table 5. Binary logistic regression analysis results of professional competencies according to being a laboratory and internship place

Professional experience expected to be gained	According to the status of being a laboratory before the internship						By internship place					
	Cox & Snell R Square		Nagelkerke R Square		Hosmer& Lemeshow Test Chi-square	Hosmer& Lemeshow Test Sig	Cox & Snell R Square		Nagelkerke R Square	Hosmer& Lemeshow Test Chi-square		Hosmer& Lemeshow Test Sig
	0.144		0.204		2.870	0.942	0.157		0.213	3.733		0.880
					95% C.I.forExp(B)						95% C.I.forExp(B)	
	B	Wald	Sig.	Exp (B)	Lower	Upper	B	Wald	Sig.	Exp (B)	Lower	Upper
Level of learning to determine socenter	-1.668	5.950	0.001	0.431	1.388	20.255	-0.160	0.210	0.026	0.64	0.430	1.689
Knowing how to make masks	-0.443	1.115	0.001	0.499	0.282	1.461	0.276	0.181	0.024	0.653	0.369	4.708
Knowing how to use blocks	-0.700	3.380	0.001	0.546	0.955	4.247	0.439	2.403	0.001	0.661	0.490	2.705
Knowing how to make a vacuum bed	-1.031	3.446	0.001	0.433	0.120	1.059	-0.784	5.311	0.073	0.743	0.235	0.889
Knowing how to make bolus	-0.678	3.274	0.001	0.424	0.145	4.105	0.595	3.033	0.003	0.675	0.428	3.542
Knowing how to use CT	0.624	2.397	0.001	0.41	0.147	4.109	-0.452	2.468	0.025	0.709	0.362	1.118
Error status	-0.103	0.503	0.001	0.416	0.135	1.471	0.085	0.395	0.001	0.666	0.435	1.419
The ability to take a patient alone	0.378	2.902	0.001	0.389	0.145	2.255	-1.052	20.532	0.007	0.72	0.221	0.550
Costant	-0.971	8.905	0.003	0.379			0.143	0.298	0.004	1.153		

(p<0.05). Those who received laboratory training show a significant improvement in learning isocenters, with an Exp(B) value of 5.302. The statistical analysis revealed that the professional skills gained after the internship were significantly higher (p=0.003<0.05) in the group that underwent laboratory training, where the effect size was calculated at 0.379 (Exp(B)).

We can account for 21.3% (Nagelkerke R squared) of the variance in professional skill acquisition after internships based on participants' sector of internship. The logistic regression model yielded a Hosmer&Lemeshow Test Sig value of 88.0% compatibility. We found a significant difference in vacuum bed proficiency between interns in the public and private sectors (p<0.05). Those who completed their internship in the public sector demonstrated 0.457 times (Exp(B)) higher proficiency with the vacuum bed. Those who completed their internship in the public sector demonstrated 0.457 times (Exp(B)) higher proficiency with the vacuum bed. The time required to begin working with patients independently was significantly different (p < 0.05) for participants with a public sector internship. These individuals initiated independent patient care 0.349 times (Exp(B)) sooner than their peers. In general, there was no statistically significant difference (p=0.585>0.05) in the level of professional skill acquisition among public internship students after the internship.

The professional skills acquired by the participants after the internship were evaluated through multinominal logistic regression analysis, taking into consideration the varying duration of the internships. The dependent variable for the analysis was the duration of the participants' internships. Table 6

presents the obtained data. The reference category for the analysis was the group with internships lasting 60 days or more.

Likelihood Chi-Square and Sig values of 168.125 and 0.000, respectively, indicate a statistically significant model. Furthermore, with a Pearson Chi-Square of 832.6 and p-value of 0.000<0.005, we can confirm that the model is suitable for evaluation. Additionally, the Pearson Chi-Square value was divided by the df value of 591 to obtain a value of 1.41 for the evaluation of the complete separation problem, which indicates the absence of such a problem. According to our model, the increase in internship duration can explain 41.2% and 47.4% of the increase in professional skill

Table 6. Multinominal logistic regression analysis results of professional competencies according to internship duration

stajsure[a]		B	Std. Error	Wald	Sig.	Exp(B)	95% Confidence Interval for Exp(B)	
							Lower Bound	Upper Bound
20 days	Level of learning to determine isocenter	-17.05	0.880	375.706	0.000	25520361.476	4549092.136	143168973.143
	Knowing how to make masks	1.580	1.658	0.908	0.341	4.857	0.188	125.329
	Knowing how to use blocks	1.814	1.047	3.002	0.083	6.132	0.788	47.703
	Knowing how to make a vacuum bed	1.641	1.207	1.847	0.174	5.161	0.484	55.019
	Knowing how to make bolus	1.045	1.517	0.474	0.491	2.843	0.145	55.631
	Knowing how to use CT	-6.478	1.896	11.670	0.001	0.002	3.739E-05	0.063
	Error status	-0.759	0.613	1.533	0.216	0.468	0.141	1.556
	The ability to take a patient alone	-1.310	0.814	2.586	0.108	0.270	0.055	1.332
30 days	Level of learning to determine isocenter	-1.958	1.033	3.591	0.058	7.083	0.935	53.657
	Knowing how to make masks	2.988	1.696	3.103	0.078	19.841	0.714	551.069
	Knowing how to use blocks	-1.731	1.032	2.814	0.093	0.177	0.023	1.338
	Knowing how to make a vacuum bed	2.162	1.191	3.293	0.070	8.688	0.841	89.763
	Knowing how to make bolus	-1.096	0.872	1.579	0.209	0.334	0.060	1.847
	Knowing how to use CT	-6.052	1.852	10.683	0.001	0.002	6.242E-05	0.089
	Error status	-0.777	0.585	1.762	0.184	0.460	0.146	1.448
	The ability to take a patient alone	0.211	0.742	0.081	0.776	1.235	0.288	5.290
60 days	Level of learning to determine isocenter	2.399	1.438	2.782	0.095	11.016	0.657	184.686
	Knowing how to make masks	3.957	2.494	2.517	0.113	52.316	0.394	6945.453
	Knowing how to use blocks	-2.450	1.717	2.035	0.154	0.086	0.003	2.500
	Knowing how to make a vacuum bed	2.391	1.551	2.377	0.123	10.924	0.523	228.333
	Knowing how to make bolus	-0.641	1.333	0.231	0.630	0.527	0.039	7.177
	Knowing how to use CT	-2.969	2.283	1.691	0.193	0.051	0.001	4.509
	Error status	-1.840	0.943	3.809	0.051	0.159	0.025	1.008
	The ability to take a patient alone	2.555	1.281	3.976	0.046	12.870	1.045	158.555

The reference category is: 60days and above
Pearson Chi-Square=832.6
Pearson p=0.000<0.005
Likelihood Chi-Square = 168.125
Sig=0.000
Cox and Snell R-Square=0.412
Nagelkerke R-Square=0.474

knowledge. Cox and Snell R-Square was 0.412 and Nagelkerke R-Square was 0.474.

The level of learning the isocentric determination was significantly lower among individuals who completed internships of 20 days (B=-17.05; Wald=375.706; p=0.000) and 30 days (B=-1.958; Wald= 3.591; p=0.058) compared to those with internships lasting 60 days.

The proficiency in utilizing CT is significantly lower among individuals who completed 20 days (B=-6.478; Wald=11.670; p=0.001) and 30 days of internship (B=-6.052; Wald=10.683; p=0.001) in comparison to those who completed 60 days of internship.

DISCUSSION

Radiotherapy is one of the most preferred treatment methods in cancer treatments. The success of the treatment depends on good planning and the correct application of the treatment to the patient. In order to ensure that this planning is carried out correctly, the radiotherapy technician must ensure that the patient remains motionless, fixed and in the same position during the treatment. Fixing devices are used in clinics for this. Learning to use this equipment correctly for the right disease is part of the student's educational process. Internships are important for students to transfer the knowledge they have learned in the lessons into practice and to develop their skills.[3,5] For this reason, we evaluated by surveying practice and internship training and opportunities in the light of statistical data based on survey data about associate degree programs providing radiotherapy education in our country.

Facilities are available in institutions where 70.3% of the participants are educated. However, before the internship, 85.8% of the participants did not see a real link. Virtual simulation programs have been actively used in education in Europe since 2007.[6] With the virtual training program that has just started to be used in our country, 18.6% of the participants had the opportunity to see a virtual link before the internship. However, the number of people who can use the linac device before the internship is quite low (4.7%). He thinks that the use of virtual education programs will increase in the coming years.[4] It is thought that the spread of virtual education is related to the fact that the number of students is much higher than the number of clinics that can do internships. As Hoşgor mentioned in his study on the use of virtual reality, it is thought that virtual education applications will provide more effective and permanent learning compared to traditional methods.[7] Although the majority of the participants (74.1%) reported that they had seen the fixation equipment in the laboratory before the internship, 38.2% thought that they did not use the laboratories effectively. As a result, 53.3% of the participants reported that they did not find themselves sufficient when starting the internship. As in Yuksel's study for Electroneurophysiology and the first half of the emergency program students,[5] it is thought that this situation can be improved by developing and increasing the applied education in accordance with its purpose.

94.3% of the participants stated that they could use the information they received from their theoretical training during their internship. Similarly, 86.8% of the participants stated that there is a parallelism between theoretical training and the practices in the enterprises. This shows that the participants received a good theoretical education. Similar results were observed in Yenal and Gultekin's study and Tunc and Dal's study for students studying in different programs of health vocational school.[3,8]

53.6% of the participants had difficulty finding an internship place and 69.4% paid for the internship, they reported that the internship contributed positively to their department, their profession and their self-confidence after the internship. The duration of the internship of the participants varies. While some students did their internships more, some of them were able to complete their internship in much shorter periods (28.7% 20 days, 58.7% 30 days, 12.7% 60 days and more and 10.7% ' 1-4 hours, 27.4% 4-6 hours, 54.9% 6-8 hours). This is an indication of the lack of equality of opportunity. However, 94.7% of the participants think that the internship period is sufficient.

Participants stated that they gained experience in the division of labour and coordination during the internship, received support for learning from other technicians and did not encounter any bad situations (see Table 2).

The contribution of laboratory practice activities in gaining professional experience was found to be statistically significant (p<0.05) (see Tables 3). The learning levels of the participants, who saw important professional practices in the laboratory environment before the internship, such as determining isocentre, mask, block, vacuum bed, bolus and patient set-up after the internship were 56.9%; 50.1%; 45.4%; 56.7%; 57.6% and 59% were found to be statistically better. The rate of making mistakes and the time to start taking patients on their own were statistically 58.4% and 61.1% less, respectively than those who received training in an educational institution with insufficient practical training (see Table 5).

The importance of the internship place in gaining professional experience has been examined statistically. Those who do internships in private hospitals are 36% in terms of knowing how to determine isocenter, make a mask, make a block, make a bolus and use a CT; 34.7%; 33.9%; 32.5% and 29.1% are statistically better. However, no statistically significant result was obtained in terms of knowing how to make a vacuum bed (p>0.05).

Professional experience was analyzed through multinominal logistic regression, taking into account the duration of interns' placements. The study determined that individuals who completed an internship lasting 60 days or more had significantly higher levels of learning compared to those who completed shorter internships of 20 or 30 days (see Table 6). Interns were required to demonstrate technical skills including isocenter determination, mask, block, vacuum bed and bolus making. Furthermore, interns who completed longer placements were able to start taking patients independently 12 times sooner. A study by Gokce and Yildiz revealed that graduate students highlighted the inadequacies in the duration of internships, absence of

laboratories in schools, and insufficient guidance and psychological support.[9]

The high number of patients in public hospitals and the high number of trainee students who prefer these hospitals make us think that vocational skills are not fully learned by the students in these hospitals. It is thought that the number of interns in private hospitals is less and the interns who come for training are more closely involved, so students are more successful here.

It has been observed that the students are provided with a suitable environment for learning, they are helped in their mistakes and they receive the necessary support at the internship places. It was observed that they were not employed in side jobs during the internship, they integrated and adopted the clinic. However, the number of interns who receive job offers after the internship is quite low. It is thought that this situation arises not from the inadequacies of the students but from the lack of clinical need.

CONCLUSION

Our survey shows that both theoretical and practical training are important in the training of radiotherapy technicians. Students starting internships by reinforcing the knowledge they have acquired through theoretical training in the laboratory environment makes them more successful. Even if the institutions that provide radiotherapy training have their hospital, performing professional practices in a laboratory will make them more successful in their internships and working lives. Hybrid training, which has gained importance and become digital in recent years, and some compulsory virtual training have been adapted for radiotherapy.[7] Systems have been developed that allow students to practice the features of the device by projecting the image of the device onto a wall in a real room. These systems are combined with virtual reality (VR) glasses, allowing the student to realize the technical capabilities of the device with a more realistic perception and to show the options of preparing and treating a patient for treatment.[10] Supporting education with such practices will pave the way for the training of more successful and more accurate technicians. It has been observed that the students are provided with a suitable environment for learning, they are helped in their mistakes and they receive the necessary support at the internship places. It was observed that they were not employed in side jobs during the internship, they integrated and adopted the clinic. With internships, students gain self-confidence and feel closer to their profession and become ready for business life.

Ethics Committe Aproval: This study was conducted in accordance with the guidelines set forth in the Declaration of Helsinki. All procedures involving human participants were approved by the Altınbaş University Ethics Committee (numbered 02.03.2023-46353).

Informed Consent: Verbal consent from participants taken.

Peer-review: Externally peer-reviewed.

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A STUDY ON DIAGNOSTIC AND PROGNOSTIC ROLE OF PERIOSTIN IN RESPIRATORY SYSTEM DISEASE COMPLEX IN CALVES*

BUZAĞILARDA SOLUNUM SİSTEMİ HASTALIK KOMPLEKSİNDE PERİOSTİNİN DİAGNOSTİK VE PROGNOSTİK ROLÜ ÜZERİNE BİR ÇALIŞMA

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ABSTRACT

The purpose of this study was to compare the amounts of serum amyloid a, haptoglobin, fibrinogen, and periostin in calves with respiratory system disease complex before and after treatment. Three groups were used in the study: an acute group (n=10) made up of calves with acute respiratory system disease complex symptoms, a chronic group made up of calves with chronic respiratory system disease complex symptoms, and a control group made up of disease-free, healthy calves. Before and after therapy (day 0, 7 and 14), clinical examinations were performed and blood samples were taken from the acute and chronic groups. Calves in the control group only had one clinical evaluation and blood sample collection. Results showed that both the acute and chronic groups exhibited clinical improvement after treatment. Before treatment, the concentrations of fibrinogen, serum amyloid A, and haptoglobin in the acute and chronic groups were significantly higher than those in the control group ($p<0.001$). On days 7 and 14, the serum periostin concentrations of the acute group were lower than those of the chronic group and control group ($p<0.05$). However, no significant difference was observed in serum periostin concentrations before and after treatment in both the acute and chronic groups ($p>0.05$). Additionally, a positive correlation was found between the respiratory system disease complex scores and the concentrations of serum amyloid A, haptoglobin, and fibrinogen. However, there was no significant correlation between periostin concentrations and respiratory system disease complex scores, as well as between fibrinogen, haptoglobin, and serum amyloid A concentrations ($p>0.05$).Based on the findings, it can be concluded that haptoglobin, serum amyloid A, and fibrinogen values, rather than periostin, play an important role in supporting the diagnosis and prognosis of respiratory system disease complex in calves.

Keywords: Calves, diagnostic, periostin, prognostic, respiratory system.

ÖZ

Bu çalışmada buzağılarda Solunum Sistemi Hastalıkları Kompleks'in de serum amiloid A, haptoglobin, fibrinojen ve periostin konsantrasyonlarının tedavi öncesi ve tedavi sonrası değişimlerinin araştırılması amaçlandı. Çalışmada üç grup kullanılmıştır: Akut solunum sistemi hastalığı kompleksi semptomları olan buzağılardan oluşan bir akut grup (n=10), kronik solunum sistemi hastalığı kompleksi semptomları olan buzağılardan oluşan bir kronik grup ve hastalıksız, sağlıklı buzağılardan oluşan bir kontrol grubu. Tedaviden önce ve sonra (0, 7 ve 14. günler), akut ve kronik gruplardan klinik muayeneler yapıldı ve kan örnekleri alındı. Kontrol grubundaki buzağılardan sadece bir klinik değerlendirme ve kan örneği alınmıştır. Sonuçlar hem akut hem de kronik grupların tedaviden sonra klinik iyileşme gösterdiğini ortaya koymuştur. Tedavi öncesinde, akut ve kronik gruplardaki fibrinojen, serum amiloid A ve haptoglobin konsantrasyonları kontrol grubundakilerden anlamlı derecede yüksekti ($p<0.001$). 7. ve 14. günlerde, akut grubun serum periostin konsantrasyonları kronik grup ve kontrol grubundan daha düşüktü ($p<0.05$). Ancak, hem akut hem de kronik gruplarda tedavi öncesi ve sonrası serum periostin konsantrasyonlarında anlamlı bir fark gözlenmemiştir ($p>0.05$). Ayrıca, solunum sistemi hastalığı kompleksi skorları ile serum amiloid A, haptoglobin ve fibrihojen konsantrasyonları arasında pozitif bir korelasyon bulunmuştur. Ancak, periostin konsantrasyonları ile solunum sistemi hastalığı kompleksi skorları arasında ve ayrıca fibrinojen, haptoglobin ve serum amiloid A konsantrasyonları arasında anlamlı bir korelasyon bulunmamıştır ($p>0.05$).Bulgulara dayanarak, buzağılarda solunum sistemi hastalığı kompleksinin tanı ve prognozunu desteklemede periostin'den ziyade haptoglobin, serum amiloid A ve fibrinojen değerlerinin önemli bir rol oynadığı sonucuna varılabilir.

Anahtar kelimeler: Buzağı, diagnostik, periostin, prognostik, solunum sistemi

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INTRODUCTION

Cattle's lungs, compared to the size of their bodies, are very small, which may prevent them from performing the respiratory system's function to its full potential. This syndrome, which primarily affects beef cattle, has a considerable negative influence on feeding performance and increases the risk of respiratory illnesses in both the upper and lower respiratory tracts.[1] Hypercapnia, hypoxia, pulmonary hypertension, bacterial and viral pneumonias, and aspiration pneumonia are serious respiratory system disorders in newborn calves.[2] One of the most important health problems in the global cattle farming industry is respiratory system disease complex (RSDC), which causes morbidity and death in freshly weaned and recently brought animals.[3] According to reports, RSDC is a major contributor to increased morbidity and mortality in calves, especially in feedlots.[4] The livestock business is significantly impacted by the increasing mortality rates brought on by RSDC and the costs related to using drugs and other therapies to address these illnesses. Furthermore, RSDC has a negative effect on feeding effectiveness and carcass quality, which lowers profitability. The most expensive illness in cattle production, RSDC kills 30% to 34% of calves between the ages of 1 and 5 months, which accounts for the majority of calves' deaths. A recent study showed that RSDC could cost as much as $42.15 per affected calf.[5] In this context, understanding the pathophysiological mechanisms behind RSDC has become essential for the effective management of diagnostic and prognostic procedures in calves.

A breakdown in homeostasis brought on by tissue damage, infection, neoplastic development, or autoimmune illnesses causes the organism to exhibit the non-specific acute phase response.[6] Numerous researchers have examined changes in certain acute-phase proteins in calf respiratory system infections.[7-9] RSDC in calves has been shown to cause considerable modifications in hematological and biochemical parameters, as well as an increase in serum levels of haptoglobin (Hp) and serum amyloid A (SAA).[10]

In recent years, research in human medicine has been increasingly focusing on the importance of various biomarkers in addition to the acute phase response in respiratory system diseases. One of these biomarkers is periostin. Periostin is an extracellular matrix protein. It is secreted by bronchial epithelial cells in response to interleukin-13 (IL-13) in the lungs. This extracellular matrix protein, which contributes to fibrosis development in the heart and bone marrow, is also considered a potential marker for fibrosis development in the lungs. Studies have shown that the secretion of periostin in lung tissue is higher in patients with idiopathic pulmonary fibrosis, those with interstitial lung disease, compared to healthy individuals.[11] However, there is no existing research on how this biomarker behaves in calves with RSDC and its diagnostic, therapeutic, and prognostic significance in this context.

While the significance of periostin in various diseases has been investigated in human medicine, its research in veterinary medicine has primarily been conducted through experimental studies. Numerous molecules have been investigated as biomarkers in calves, with acute-phase proteins being among the most studied. To the best of our knowledge, this study is the first to investigate periostin in calves. In this study, serum perios tin levels in healthy calves and those displaying clinical symptoms of RSDC were determined. Periostin levels compared with well-known acute-phase proteins in calves with RSDC and its diagnostic and prognostic significance were elucidated.

MATERIAL AND METHOD

The study was conducted in 7 commercial farms within the boundaries of Aydın Province, with the approval from the Erciyes University Animal Experiments Local Ethics Committee (Decision no: 17/103). Holstein and Simmental breed calves aged between 7 and 60 days were used in the study. The calves were divided into three groups with equal numbers (n=10/group). In this study, a total of 20 calves comprising acute and chronic groups were selected based on clinical findings and medical history information. Both the acute and chronic group calves were evaluated for the following clinical parameters; Rectal temperature (ºC), lung auscultation/ percussion findings, cough, nasal discharge, eye score and ear score. Scoring was performed for these parameters to determine whether the calves were ill and to assess the severity of RSDC as described by McGuirk.[12] Calves displaying clinical symptoms such as fever persisting for 1-3 days, anorexia, respiratory distress, nasal discharge, and cough were assessed as having acute RSDC and formed the acute group. Calves that had previously received treatment for RSDC but still exhibited clinical symptoms such as anorexia, depression, growth retardation, cough, and wheezing, even after 14 days, were considered as having chronic RSDC as described by Mc Guirk.[12] The control group consisted of calves that did not exhibit any clinical symptoms.

The owners of the sick calves were questioned regarding the onset of the fever, hunger, and respiratory issues as well as the presence of any other symptoms including coughing and nasal discharge. They were also questioned about whether any other animals in the vicinity of the calves were exhibiting symptoms of respiratory issues. It was questioned whether the calves had received anti-parasitic medication, were immunized against the RSDC, had undergone any prior treatments, and whether the farm had enough ventilation.

In the present study, clinical examinations were conducted, and findings were recorded for healthy calves (control=10) and calves displaying symptoms of respiratory system disease (acute and chronic=20). Lung auscultation and percussion, lymph node examinations, and clinical observations were performed. Rectal temperatures above 39.5°C were regarded as high fever as a calf's normal body temperature normally ranges from 38.8 to 39.5°C when they are between 19 and 60 days old. Calves normal respiration rates are between 30 and 45 breaths per minute, hence respiratory rates above 45 were regarded as elevated respiratory rates. The heart rate in young, healthy calves normally ranges from 90 to 110 beats per minute.[13]

Heart rates below 90 beats per minute were categorized as bradycardic, while rates exceeding 110 beats per minute were categorized as tachycardic. Abnormal lung sounds were recorded through lung auscultation and percussion. Additionally, nasal discharge examinations

were conducted in calves, and the nature of any discharge was assessed. Mucous membranes were examined for color changes, and lymph nodes were palpated, with findings noted.

In the acute group (n=10), tulathromycin (Draxxin® - Zoetis, 2.5 mg/kg body weight, SC. single dose) and flunixin meglumine (Flumed® - Alke, 2.2 mg/kg body weight, intramuscularly, for 3 days) were administered along with supportive treatment using vitamin C (Provet Vitamin-C - Provet® 10 ml, intramuscularly, for 3 days). In the chronic group (n=10), tulathromycin (Draxxin® - Zoetis, 2.5 mg/kg body weight, SC. single dose), flunixin meglumine (Flumed® - Alke, 2.2 mg/kg body weight, intramuscularly, for 3 days), bromhexine (Mukolit - Provet® 0.4 mg/kg body weight, intramuscularly, for 3 days) for mucolytic purposes, and supportive treatment with vitamin C (Provet Vitamin-C - Provet® 10 ml, intramuscularly, for 3 days) were administered. The dosage of the medications was carried out in line with each drug prospectus.

Blood samples were collected from the control group animals once and from the diseased groups at day 0 (pre-treatment), as well as on days 7 and 14 after treatment, through the jugular veins Clot activator-coated plastic tubes (5 ml) were used for blood collection (BD Vacutainer®) then the sera were separated by centrifugation at 3000 rpm for 10 minutes. Serum samples were transferred to Eppendorf tubes. The tubes were labeled and stored at -20°C until the analysis day.

The sera were diluted in accordance with the manufacturer's procedure at appropriate ratios before being placed in Enzyme-Linked Immuno Sorbent Assay (ELISA) microplates. Haptoglobin, Periostin, Serum Amyloid A (SAA), and Fibrinogen values in the serum were measured using the ELISA method. To enhance the reliability of the study, standards were run in duplicate. Hp values from serum samples were measured using the Sun red® Bovine Haptoglobin ELISA Kit (Catalog Number: 201-04-0121, Shanghai, China), SAA values using the Mybiosource® Bovine Serum Amyloid A ELISA Kit (Catalog Number: MBS778656, San Diego, California, USA), Fibrinogen values using the Mybiosource® Bovine Fibrinogen ELISA Kit (Catalog Number: MBS1602414, San Diego, California, USA), and Periostin values using the Mybiosource® Bovine Periostin (POSTN) ELISA Kit (Catalog Number: MBS2610037, San Diego, California, USA). The tests were performed following the appropriate test procedure using the Sandwich ELISA method, and the results were read at 450 nm on a Biotek® ELx800 ELISA device.

Statistical Analysis

The statistical analysis of the data was conducted using the SPSS for Windows, version 25.0. The normality of the obtained data was assessed using the Shapiro-Wilk test. It has been confirmed that our data exhibits a normal distribution. Data collected over time for repeated measures analysis of variance. When determining the effect of the intervention, if statistical significance was observed, indicating the source of the difference among groups or subgroups, post-hoc multiple comparisons were carried out employing the Bonferroni test to account for P-value correction. The data are presented as mean ± standard error ($\bar{X} \pm S_{\bar{X}}$). The association between the RSDC Score and serum analyses was investigated using Pearson correlation analysis. A significance level of P<0.05 was considered statistically significant.

RESULTS

Pre-Treatment Clinical Findings

In the control group, all findings were determined to be normal, and physiological measurements (body temperature, heart rate, and respiration) were within normal values during the examinations of the calves. Additionally, it was observed that lymph nodes were normal, there was no cough, nasal or ocular discharge, and the calves had a good appetite. The clinical findings of the sick groups are presented in Table 1. Clinical examinations of the calves in the sick groups revealed that they had a poor appetite, their fur was wrinkled and dull, they appeared depressed, and were not responsive to their surroundings. Abdominal respiration was generally observed as the predominant breathing pattern during the examinations. Day 0: The body temperature in the acute group was higher compared to the control and chronic groups (p<0.001). Respiratory rate was higher in both acute and chronic groups compared to the control group (p<0.01). Despite no statistical difference, the heart rate was numerically higher in the acute group. In calves of the acute group, symptoms consistent with pneumonia were observed, including high fever, rapid and shallow respiration, open-mouth breathing, dilated nostrils, forward positioning of the head, ears drooping, occasional cough, crackling sounds in various lung areas during auscultation, wheezing during expiration, and increased resistance in vesicular sounds. Percussion examinations revealed dull areas, particularly in the cranio-ventral regions of the lungs in some calves, while emphysematous findings were also observed in the dorsal regions of others. Clinical examination of calves in the acute group also revealed nasal discharge ranging from serous to mucopurulent and serous ocular discharge in some individuals. While most calves had hyperemic nasal mucosa and conjunctivae, some calves exhibited cyanotic signs.

The chronic group was made up of calves with RSDC who still showed persistent clinical indications after 14 days of treatment or that had never received any treatment at all. These calves' clinical examinations revealed that they had no nasal discharge, an occasional dry cough, shallow breathing, apprehension when moving, distinct bronchial sounds in different lung areas, poor appetite, emaciation, tangled fur, rapid and shallow breathing, slightly elevated or normal body temperatures, and in some calves, cyanotic symptoms.

Post-Treatment of Clinical Findings

When the groups compared: before treatment; the body temperature value of the acute group was found to be significantly higher than that of the chronic and control groups (p<0.001). Furthermore, there were no statistically significant difference between body temperature values of the control and chronic group. After treatment on day 7, the body temperature values of the acute group were still significantly higher than those of the control group (p<0.05) but not chronic group. On day 14

Table 1. Comparison of body temperature (°C), heart rate (beats/min) and respiratory rates (min) between the acute, chronic and control groups according to group *time interaction.

		Body Temperature (°C)		P_{group}	P_{time}	$P_{group*time}$
Groups	**0. Day**	**7. Day**	**14. Day**			
Control (n= 10)	38.19±0.43^{b}	38.19±0.43^{b}	38.19±0.43			
Acute (n= 10)	39.91±0.07^{a}	38.24±0.02^{a}	38.18±0.02	<0.001	<0.001	<0.001
Chronic (n= 10)	38.36±0.04^{b}	38.09±0.05^{ab}	38.19±0.04			
		Respiratory Rate (min)		P_{group}	P_{time}	$P_{group*time}$
Groups	**0. Day**	**7. Day**	**14. Day**			
Control (n= 10)	45.20±0.64^{a}	45.20±0.64^{a}	45.20±0.64^{a}			
Acute (n= 10)	61.40±0.56^{b}	55.80±0.53^{b}	55.20±1.24^{b}	<0.001	<0.001	<0.01
Chronic (n= 10)	55.30±1.24^{c}	54.40±1.56^{b}	52.20±1.94^{b}			
		Heart Rate (beats/min)		P_{group}	P_{time}	$P_{group*time}$
Groups	**0. Day**	**7. Day**	**14. Day**			
Control (n= 10)	95.80±0.64	95.80±0.64	95.80±0.64			
Acute (n= 10)	98.30±1.08	92.70±0.53	91.80±1.07	>0.05	<0.001	<0.05
Chronic (n= 10)	96.50±1.61	93.00±1.51	93.10±1.72			

Data are expressed as mean ± standard error ($\bar{X} \pm s_{\bar{x}}$). Different letters indicate statistical significance. p<0.05 was considered statistically significant.

after treatment, there was no statistically significant difference in body the temperature values among the acute, chronic, and control groups.

When comparisons were made between the groups: before treatment, the Respiratory Rate value of the acute group was significantly higher than that of the control and the chronic groups (p<0.001). The Respiratory Rate value of the chronic group was significantly higher than that of the control group, but lower than that of the acute group (p<0.001). After treatment on day 7, the Respiratory Rate values of both the acute and chronic groups were significantly higher than those of the control group (p<0.001). There was no statistically significant difference between the Respiratory Rate values of the chronic and acute groups. On day 14 after treatment, the Respiratory Rate values of both the acute and chronic groups were still significantly higher than those of the control group (p<0.001). There was no statistically significant difference in Respiratory Rate values between the chronic and acute groups.

When comparisons were made between the groups; no statistically significant difference was found among the acute, chronic, and control groups before treatment and on days 7 and 14 after treatment (p>0.05).

Laboratory Findings

Table 2shows the concentrations of Periostin, Fibrinogen, Haptoglobin, and Serum Amyloid A before (day 0) and after treatment (days 7 and 14).

Periostin: Before treatment (day 0), there was no statistically significant difference among the groups in terms of the Periostin variable. However, after treatment, it was observed that Periostin concentrations measured on days 7 and 14 in the acute group were statistically significantly lower than those in the control group (p<0.05). There was no statistically significant difference in Periostin concentrations among the other groups on days 7 and 14.

Fibrinogen: When the data were evaluated between the groups: On day 0, the Fb value of the chronic group was found to be significantly higher than both the acute and control groups(p<0.001). Additionally, the Fb value of the acute group was significantly higher than that of the control group. After treatment on day 7 and 14, Fb values in both the acute and chronic groups were significantly higher than the control group (p<0.001). However, there was no statistical difference between Fb values of the acute and chronic groups on day 7.

Haptoglobin: When the data were compared between the groups, it was discovered that the chronic group's Hp value was considerably greater than those of the acute and control groups prior to treatment (p<0.001). The Hp value of the acute group was significantly higher than that of the control group. On day 7 and 14 after treatment, the Hp values in the acute and chronic groups were significantly higher than those in the control group (p<0.001), and the Hp values between the acute and chronic groups were not statistically different.

Serum Amyloid A: Both the acute and chronic groups exhibited significantly higher SAA values than the control group prior to treatment (p<0.001) when the data were examined with regard to the groups. Furthermore, before treatment, the SAA levels in the acute group were considerably greater than those in the chronic group (p<0.001). In addition, SAA values in the acute and chronic groups were substantially higher than in the control group on days 7 and 14 following treatment (p<0.05) than in the control group.

Correlation analysis

In the acute group, a very strong correlation (r= 0.932, p<0.001) was observed between the RSDC scores of the calves and their SAA concentrations, indicating a highly significant positive relationship. The RSDC scores of the calves in the acute group also showed a good correla-

Table 2. Serum Periostin, Haptoglobin, Fibrinogen and Serum Amyloid A concentrations obtained throughout the study in the Acute, Chronic and Control group according to group*time interaction.

		Periostin (ng/ml)		P_{group}	P_{time}	$P_{group*time}$
Groups	**0. Day**	**7. Day**	**14. Day**			
Control (n= 10)	1.60±0.22	1.60±0.22^{a}	1.60±0.22^{a}			
Acute (n= 10)	1.00±0.14	0.71±0.22^{b}	0.92±0.12^{b}	>0.05	>0.05	<0.05
Chronic (n= 10)	1.19±0.24	1.22±0.17^{ab}	1.30±0.19^{ab}			
		Fibrinogen (mg/ml)		P_{group}	P_{time}	$P_{group*time}$
Groups	**0. Day**	**7. Day**	**14. Day**			
Control (n= 10)	1.45±0.08^{a}	1.45±0.08^{a}	1.45±0.08^{a}			
Acute (n= 10)	2.77±0.06^{b}	2.72±0.14^{b}	2.37±0.11^{b}	<0.001	<0.001	<0.001
Chronic (n= 10)	3.48±0.07^{c}	2.62±0.19^{b}	2.38±0.16^{b}			
		Haptoglobin (mg/ml)		P_{group}	P_{time}	$P_{group*time}$
Groups	**0. Day**	**7. Day**	**14. Day**			
Control (n= 10)	0.08±0.15^{a}	0.08±0.15^{a}	0.08±0.15^{a}			
Acute (n= 10)	0.60±0.02^{b}	0.45±0.03^{b}	0.37±0.02^{b}	<0.001	<0.001	<0.001
Chronic (n= 10)	0.77±0.04^{c}	0.54±0.03^{b}	0.32±0.02^{b}			
		Serum Amyloid A (µg/ml)		P_{group}	P_{time}	$P_{group*time}$
Groups	**0. Day**	**7. Day**	**14. Day**			
Control (n= 10)	12.00±0.28^{a}	12.00±0.28^{a}	12.00±0.28^{a}			
Acute (n= 10)	31.55±1.54^{b}	15.79±0.65^{b}	14.76±0.51^{b}	<0.001	<0.001	<0.001
Chronic (n= 10)	18.77±0.57^{c}	13.86±0.47^{a}	14.17±0.62^{b}			

Data are expressed as mean ± standard error ($\bar{X} \pm S_{\bar{x}}$). Different letters indicate statistical significance. P<0.05 was considered statistically significant.

tion (r= 0.775, p<0.001) with their Hp concentrations, indicating a statistically significant positive relationship. However, there was a weak correlation (r= 0.365, p<0.05) observed between the RSDC scores and Fb concentrations, which was statistically significant and positive. However, there was no statistically significant correlation observed between Periostin concentration and RSDC scores. In the acute group, the calves showed a moderate level of correlation (r= 0.444, p<0.02) between Hp and Fb concentrations, which was statistically significant and positive. There was also a good correlation (r= 0.629, p<0.001) observed between Hp and SAA concentrations in the acute group, which was statistically significant and positive. However, in the acute group, there was no statistically significant correlation observed between the serum Periostin concentration and Fb, Hp, and SAA concentrations (Table 3).

In the chronic group, there was a very strong correlation (r= 0.833, p<0.001) observed between the RSDC scores of the calves and their SAA concentrations, indicating a highly significant positive relationship. The RSDC scores of the calves in the chronic group also showed a very good correlation (r=0.801, p<0.001) with their Hp concentrations, indicating a statistically significant and strong positive relationship. Additionally, there was a good correlation (r=0.621, p<0.001) observed between the RSDC scores and Fb concentrations in the chronic group, which was statistically significant and positive. However, there was no statistically significant correlation observed between Periostin concentration

Table 3. Acute Group Correlation Analysis

		Fb	**Hp**	**Periostin**	**SAA**	**RSDC Score**
Fb	Correlation coefficient	1	0.444*	-0.251	0.306	0.365*
	P value		0.014	0.181	0.100	0.047
Hp	Correlation coefficient	0.444*	1	0.142	0.629**	0.775
	P value	0.014		0.455	0.000	0.000
Periostin	Correlation coefficient	-0.251	0.142	1	0.111	0.132
	P value	0.181	0.455		0.559	0.487
SAA	Correlation coefficient	0.306	0.629**	0.111	1	0.932**
	P value	0.100	0.000	0.559		0.000
RSDC Score	Correlation coefficient	0.365*	0.775**	0.132	0.932**	1
	P value	0.047	0.000	0.487	0.000	

*p<0.05 and **p<0.01 are considered statistically significant. Fb: Fibrinojen, Hp: Haptoglobin, SAA: Serum Amyloid A

and the total RSDC scores in the chronic group. In the chronic group, the calves showed a moderate level of correlation (r=0.553, p<0.01) between Hp and Fb concentrations, which was statistically significant and positive. There was also a good correlation (r=0.680, p<0.001) observed between Hp and SAA concentrations in the chronic group, which was statistically significant and positive. On the other hand, in the chronic group, there was no statistically significant correlation observed between the serum Periostin concentration and Fb, Hp, or SAA concentrations (Table 4).

Table 4. Chronic Group Correlation Analysis

		Fb	Hp	Periostin	SAA	RSDC Score
Fb	Correlation coefficient	1	0.553**	0.077	0.323	0.621**
	p value		0.002	0.686	0.082	0.000
Hp	Correlation coefficient	0.553**	1	0.114	0.680**	0.801**
	p value	0.002		0.549	0.000	0.000
Periostin	Correlation coefficient	-0.077	0.114	1	0.231	-0.112
	p value	0.686	0.549		0.219	0.554
SAA	Correlation coefficient	0.323	0.680**	-0.231	1	0.833**
	p value	0.082	0.000	0.219		0.000
RSDC Score	Correlation coefficient	0.621**	0.801**	-0.112	0.833**	1
	p value	0.000	0.000	0.554	0.000	

*p<0.05 and **p<0.01 are considered statistically significant. Fb: Fibrinojen, Hp: Haptoglobin, SAA: Serum Amyloid A

DISCUSSION

The present study was conducted in 7 farms with a high number of animals where RSDC was expected to be prevalent. As a matter of fact, from the anamnesis information, it was determined that the calves in the acute and chronic groups were housed in crowded and poorly ventilated barns. Additionally, none of the calves used in the present study had been vaccinated against RSDC. No external mineral and vitamin supplements or anti-parasitic drugs had been used. Research has shown that stress factors, such as poor welfare standards can facilitate the development of RSDC in calves and the medical history data from the current study is consistent with these findings.[14,15] In the present study, it was observed that the breeders of the calves in the RSDC groups did not appropriately manage the herd under the right circumstances. The fact that the animals were often bought and sold and that new animals, namely from animal markets, were included into the herd without going through RSDC agent checks or quarantine processes, was also noticed. The probability of disease transmission was also increased in this situation, which was brought on by unrestrained animal circulation, making it simpler for illnesses to spread.

Acute-phase proteins are thought to be crucial markers for assessing the severity of an animal's infection and distinguishing whether the illness is acute or chronic.[16] In the current investigation, it was found that there were statistically significant differences (p<0.001) between the serum SAA, Hp, and Fb parameters of the diseased calves (acute and chronic group) and those of the control group calves (p<0.001). SAA, Hp, and Fb concentrations in calves with RSDC were higher compared to healthy calves in the present study and the obtained data were similar to previous studies on this topic.[17-19] On the other hand, in a study on calves showing clinical symptoms of RSDC, no significant changes were observed in the serum Hp and SAA concentrations at the beginning of the treatment process: But, a significant increase was reported from the 5th day of treatment.[20]An increase in Hp levels is reported to be proportional to the severity of the infection.[18]In the present study, on Day 0, the Hp values in the chronic group was significantly higher than the same values in the acute and control groups (p<0.001). These findings are consistent with previous similar studies.[19] Hp is commonly defined as an acute-phase protein by most researchers, but it is also suggested to increase in subacute and chronic cases.[19] In the present study, before treatment, SAA values in both acute and chronic groups were found to be significantly higher than those in the control group (p<0.001). The results obtained in this study are similar to previous research.[16]Although SAA is reported to be an important Acute Phase Protein (AFP) in horses, it is also reported to be an effective AFP in diagnosing infections in ruminants. SAA increases 2-5 hours after inflammatory stimulation and reaches its peak level within 24 hours. Due to this characteristic, it is reported to be effective in the early diagnosis of acute cases.[18]

In the present study, before treatment, Fb (Fibrinogen) value in the chronic group was significantly higher than both the acute and control group values (p<0.001). Furthermore, Fb value in the acute group was significantly higher than that in the control group. (p<0.001). Indeed, it is reported that Fibrinogen starts to rise 24-48 hours after infection and reaches its highest level in approxi-

mately 7-10 days. It can increase 2-5 times higher than normal plasma concentration, and after the inflammation subsides, it returns to normal levels within 2 weeks.[21]In our study, the chronic group fibrinogen value was still high on the 14th day after treatment, and it is thought that calves in this group may have secondary infections. Findings observed in the present study are in line with the results of previous studies.[10,20,22-26] These results obtained in the present study confirm that SAA and Hp values are suitable markers for the early detection of RSDC in field conditions, especially in cattle.[9,27]

In both patient groups, there was a significant decrease in serum Hp concentrations on the 7th and 14th days compared to the baseline ($p<0.001$). Despite this decrease, it was observed that even on the 7th day after treatment, serum Hp concentration was still higher than that in the control group. This finding suggests that Hp is an important biomarker in calves with RSDC.[28] In the present study, significant clinical improvement was observed in both patient groups in the days following treatment. This clinical improvement is consistent with previous similar studies.[29] In the current study, there was no significant decrease in Hp levels parallel to clinical improvement. The fact that Hp levels remained high after recovery in cattle is suggested to be due to the mixed infection nature of RSDC. The long-term increase in Hp levels in the patient groups in this study is compatible with the findings of similar studies.[30]

After inflammatory events, an increase in SAA levels has been reported.[27] In this study, it was also found that the SAA concentrations of the patient groups were significantly higher than those of the control group ($p<0.001$). It was determined that SAA values in the acute group significantly decreased on the 7th day after treatment compared to their pre-treatment values. Indeed, studies on cattle with natural or experimental RSDC have shown increased SAA values similar to those reported in this study.[22,29,30]

The serum Fibrinogen concentration of the calves in the chronic group was found to be significantly higher than that of the acute and control groups ($p<0.001$). The serum Fibrinogen value of the acute group was also found to be higher than that of the control group ($p<0.001$).

The results obtained regarding Fibrinogen values in this study are consistent with the findings of similar studies.[31]Fibrinogen is a positive acute-phase protein that reacts slowly after infection. In our study, the fact that Fibrinogen values in the chronic group were higher than those in the acute group suggests that the infection in the calves in the chronic group is still ongoing and severe. It is understood from our study that Fibrinogen levels decreased in both the acute and chronic groups with treatment. However, even on the 7th and 14th days after treatment, Fibrinogen values in the diseased calves were still higher than those in the control group. It is believed that more than 14 days is required for the Fibrinogen value in the diseased calves to return to normal. In chronic cases, Fibrinogen remains at a high concentration as long as the disease persists.[32]

In this study, it was understood that tulathromycin was successful in the treatment of both acute RSDC and chronic RSDC, which is consistent with earlier studies showing tulathromycin's efficacy in treating RSDC in cattle.[23]It can be concluded that, in the present investigation, acute-phase proteins Hp, SAA, and fibrinogen concentrations in serum significantly increased in cases of respiratory system illnesses in calves. It was also discovered that these parameters temporarily restored to normal following treatment.

Numerous research has been carried out to diagnose early and begin therapy in time in order to minimize the financial losses brought on by RSDC in calves. Periostin has been linked to a number of illnesses in recent years, including bone development, cancer, non-small cell lung cancer, breast, bladder, head/neck, oral, and pancreatic tumors, myocardial infarction recovery, and bone marrow fibrosis, as well as conditions like asthma and allergies in human medicine.[11,33-40] However, in the present study, the severity of clinical symptoms and the course of the disease were not correlated with serum Periostin levels, which were not significantly changed in calves with RSDC.

In the present study, on the 7th and 14th days after treatment, the Periostin values of the acute group were significantly lower than the control group values ($p<0.05$). The reduction in the Periostin level in the acute group could not be explained, butan increase or decrease in its level should not be disregarded, as it may also be an indicator of bone development in growing animals. In the present study, the calves in the control group were selected to be healthy and not to have previously experienced the disease, so they were composed of calves aged between 7-15 days. On the other hand, the diseased groups (acute and chronic groups) were composed of calves aged between 19-60 days. The calves in the control group were younger than the calves in both the chronic and acute groups. It is believed that higher Periostin values obtained from control animals might be related to age differences. On the other hand, no significant relationship was found between Periostin levels and clinical symptoms.

In human medicine, Periostin is considered as a marker for the development of fibrosis in the lungs. According to a study, patients with idiopathic pulmonary fibrosis produce more Periostin from their lung tissue than patients with interstitial lung disease or healthy individuals.[11] The absence of elevated periostin levels in the acute and chronic groups of calves in the present investigation may indicate that lung fibrosis did not manifest.

To the best of our knowledge, no studies in veterinary medicine have looked into the serum level of Periostin up until this point. However, immunohistochemically, the importance of Periostin has been investigated in sheep infected with Fasciola hepatica and in dogs with dermatitis.[41,42] Additionally, using protein analysis, it has been indicated that Periostin secretion increases in cattle during the pathogenesis of ketosis and hypocalcemia.[43] In pigs, Periostin levels have also been studied using PCR.[44]

CONCLUSION

Future research will clarify if this Periostin value will serve as a reference value or not. Periostin, however, cannot be employed as a biomarker in calves exhibiting clinical symptoms of RSDC, based on the information gathered in the present study. Moreover, it should be noted that the limited number of animals used in the present study can be considered as a weakness of the

study. To fully understand the diagnostic and prognostic importance of Periostin in calves, further detailed studies are needed in more animals and different diseases.

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COVID-19 PHOBIA AND SLEEP QUALITY AMONG ADOLESCENTS*
ERGENLERDE COVID-19 FOBISI VE UYKU KALİTESİ

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ABSTRACT

This study was carried out to determine the sleep quality levels of adolescents with COVID-19 phobia and the relationship between them. This descriptive and correlational research was conducted in public high schools in Kırşehir. The data of the study were collected between 20.01.2021 and 24.02.2021 using the "Student Information Form", "Coronavirus 19 Phobia Scale" and "Pittsburgh Sleep Quality Index". The research was conducted with 406 high school students. The Pittsburgh Sleep Quality total score average of the adolescents participating in the study was 5.97±3.53, 'Coronavirus 19 Phobia total score average was 46.97±13.59'. It was determined that 49.5% of the adolescents had poor sleep quality. The sleep quality of the adolescents who went to vocational and technical Anatolian high school was found to be better. In addition, adolescents who are female, feel stressed due to COVID-19, think that nothing will be the same as before due to COVID-19, have moderate COVID-19 phobias and low sleep quality. Adolescents' sleep quality was low and their COVID-19 phobia was moderate. It has been determined that COVID-19 phobia and sleep quality affect each other.

Keywords: Adolescent, COVID-19, COVID-19 phobia, phobia, sleep

ÖZ

Bu çalışma, ergenlerin COVID-19 fobisi ile uyku kalitesi düzeyleri ve aralarındaki ilişkiyi belirlemek amacıyla gerçekleştirilmiştir. Tanımlayıcı ve ilişki arayıcı türde olan bu araştırma Kırşehir'deki devlet liselerinde yapılmıştır. Araştırmanın verileri 20.01.2021-24.02.2021 tarihleri arasında ''Öğrenci Tanıtım Formu'', ''Koronavirüs 19 Fobisi Ölçeği'' ve ''Pittsburgh Uyku Kalitesi İndeksi'' kullanılarak toplanmıştır. Araştırma 406 lise öğrencisiyle yapılmıştır. Araştırmaya katılan ergenlerin Pittsburgh Uyku Kalitesi toplam puan ortalaması 5.97±3.53, 'Koronavirüs 19 Fobisi toplam puan ortalaması 46.97±13.59'dur. Ergenlerin %49.5'inin uyku kalitesinin kötü olduğu saptanmıştır. Mesleki ve teknik anadolu lisesine giden ergenlerin ise uyku kaliteleri daha iyi bulunmuştur. Ayrıca cinsiyeti kadın olan, COVID-19 sebebiyle kendini stres altında hissmeden, COVID-19 sebebiyle hiçbir şeyin eskisi gibi olmayacağını düşünen, ergenlerin COVID-19 fobileri orta düzeyde uyku kaliteleri düşük bulunmuştur. Ergenlerin uyku kaliteleri düşük ve COVID-19 fobileri orta düzeyde bulunmuştur. COVID-19 fobisi ve uyku kalitesinin birbirlerini etkilediği saptanmıştır.

Anahtar kelimeler: Ergen, COVID-19, COVID-19 fobisi, fobi, uyku

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INTRODUCTION

Sleep has an important role in maintaining health and well-being of adolescents.[1] Changes in sleep pattern affect adolescents in terms of biopsychosocial factors and if one of these factors gets adversely affected, then so does their sleep.[2] It is known that factors such as anxiety, stress, and fear have a negative effect on sleep of adolescents.[3] Since the physiology of sleep is related to the hormonal system, mood and sleep are interrelated. Moreover, the literature supports that sleep-related problems and psychiatric disorders affect one another.[1-5] The studies indicated that adolescents frequently suffered from sleep problems during the COVID-19 pandemic.[6,7] In their study, Zhou et al,[7] reported that more than half of the adolescents slept less than 7 hours at night, 59.3% had daytime dysfunction and 44.8% of the adolescents with symptoms of anxiety had symptoms of insomnia.

The COVID-19 pandemic has affected the people's lives in many ways. It has disrupted their routines and has threatened their lives, to the point of causing them to suffer from anxiety and phobic reactions.[8,9] In their web-based study, Kabeloğlu and Gül[10] revealed that the prevalence of mental illnesses such as anxiety and depression increased during the COVID-19 pandemic, and 69.5% of the participants had poor sleep quality.

Within the scope of pandemic measures during the COVID-19 pandemic, people over 65 and under 20 years of age were subjected to lockdown restrictions and schools interrupted their face-to-face education and started distance education in order to reduce the risk of infection. Before the COVID-19 pandemic, the students usually attended their schools between 08.00 and 15.00. At the beginning of the pandemic, the course started at 08.00 in general, however their end time extended by up to 2 hours. In addition, those who were primary responsible persons for the planning, control and evaluation stages of education processes in distance education were students. Especially adolescents have experienced situations such as interruption of face-to-face education, online lessons at home and reducing extracurricular activities during the COVID-19 pandemic. As a result, adolescents acted more flexibly in their sleep patterns due to the restrictions caused by the pandemic. It is thought that one of the factors affecting sleep in adolescents may be COVID-19 phobia.[10] Therefore, pandemic-related sleep disorders need to be evaluated promptly. This study was conducted to determine the correlation between COVID-19 phobia and sleep quality levels of adolescents.

MATERIALS AND METHODS

Study design and participants

This was a descriptive-correlational study. The population was composed of 6676 high school students attending 9th, 10th, 11th and 12th grades of the state high schools, in the city center of Kırşehir. 1568 students studying in private high schools in the city center of Kırşehir and 106 students studying in the Preparatory Class of Kırşehir Social Sciences High School were not included in the study. The sample size was calculated as 351 high school students at the confidence interval of 95% through the sampling method with known population and a number (406) above the sample size determined by considering the data losses that may occur during the application of the study was accepted as the sample size.[11] In the study, stratified sampling method, one of the probabilistic sampling methods, was used in sample selection. High schools offer education with different education methods and conditions in Türkiye. In this study, it is possible to divide the high school into four main layers in terms of the main variable, high school types. The number of students attending Vocational Technical High School was 1818, the number of students attending Anatolian High School was 3268, the number of students attending Science High School was 427 and the number of students attending Imam Hatip High School was 1163. The stratum weight for Vocational Technical High Schools was 0.27, the stratum weight for Anatolian High School was 0.48, the stratum weight for Science High School was 0.06, and the stratum weight for Imam Hatip High School was 0.17. Thus, the sample group consisted of 116 students from Vocational Technical High Schools, 195 from Anatolian High Schools, 25 from Science High School, and 70 from Imam Hatip High School. The students in the strata were selected by simple random sampling method.[11] The data were collected by online surveys over messaging platforms such as WhatsApp and Telegram, which were prepared by the counselors together with the students.

Instruments

The data were collected using the "Student Information Form" which was prepared by the researchers in line with the literature review[1-10] as well as "Coronavirus 19 Phobia Scale (CP19-S) " and "Pittsburgh Sleep Quality Index" between 20.01.2021 and 24.02.2021.

Pittsburgh Sleep Quality Index (PSQI)

This index was developed in 1989 by Buysse et al.[12] to evaluate the sleep quality in psychiatry practice and for clinical studies. The validity and reliability study from our country for this index was conducted by Agargun et al.[13] who found the Cronbach alpha reliability coefficient to be 0.80. The index evaluates the sleep quality with in the past one month and consists of 19 questionsand 7 components. The 19th question involves self reportand is about whether the subject has a room mate or spouse. There sponse to this question is not included in the calculation of the PSQI total and component scores. Scoring is there fore conducted with 18 itemsand 7 components of the index. The score range for each index component is 0 to 3. The answers to the index items vary from"very good" to "very poor". The PSQI score range is 0–21 and a score over 5 indicates poor sleep quality.[13] The Cronbach alpha coefficient was found to be 0.74 in our study.

Coronavirus 19 Phobia Scale (CP19-S)

Coronavirus 19 Phobia Scale (CP19-S) was developed by Arpacı, Karataş and Baloğlu in 2020[14] and can be applied to individuals between the ages of 12-92 years. The scale consists of 20 items and 4 subscales (psychological, psyho-somatic, social and economic). The total score of the scale varies between 20 and 100, and the high score indicates the high score in the subscales and in the overall corona phobia. The Cronbach's alpha value of the scale is 0.92.[14] In this study, the Cronbach's alpha value of the scale was found to be 0.82.

Ethical considerations

In order to conduct the research, firstly, the necessary permissions were obtained from the Ministry of Health of the Republic of Türkiye, Kırşehir Ahi Evran University Non-Interventional Clinical Trials Ethics Committee (2020-14/105) and the Provincial Directorate of National Education of the Kırşehir Governorship of the Republic of Türkiye. Necessary permissions were obtained by e-mail for the PSQI and CP19-S. Informed consent of the parents and the adolescents participating in the study was taken by an online survey, their consent was obtained and the Declaration of Helsinki was followed in the study.

Statistical analysis

The data of the study were assessed using SPSS (25.0) statistical software. Descriptive statistics and frequency were provided in the data assessment. Shapiro-Wilk normality test was performed to determine the normal distribution of the data. The data were determined to exhibit no normal distribution, and Mann-Whitney U test was used for the comparison of two independent groups, Kruskal-Wallis test and All pairwise multiple comparison (Bonferroni) test were used for the comparison of more than two independent groups. Spearman Correlation analysis was used to examine the correlation between the scales. The statistical significance level was accepted as $p < 0.05$.

RESULTS

It was found that the mean age of the adolescents was 15.73± 1.25 years, 57.4% were female and 33.5% were 10th graders. 48% of the adolescents were Anatolian High School students. When the academic achievement status of the adolescents was examined, it was found that 4.4% had poor academic success. The mothers of 97.3% of the adolescents were alive, the fathers of 97.0% were alive, the mothers of 23.6% were university graduates or above, and the fathers of 36.0% were university graduates or above. 40.2% of the adolescents had two siblings. 77.3% of the adolescents had a nuclear family, and 50.7% had a family income equal to their expenses.

The scale mean scores of the adolescents were 46.97±13.59 for CP19-S and 5.97±3.53 for PSQI. 49.5% of the adolescents had a PSQI mean score above five (Table 1).

No statistically significant difference was found between the adolescents' high school, grade and academic achievement and their CP19-S total scores ($p>0.05$). It was found that the PSQI total scores of the adolescents attending Vocational and Technical Anatolian High School were lower than the scores of the adolescents attending other high schools ($p=0.011$). The PSQI total scores of the adolescents who expressed their academic achievement as poor were high ($p=0.003$). The grades of the adolescents did not affect the PSQI mean scores ($p>0.05$). PSQI total scores and CP19-S total scores of the female adolescents were higher and the difference between them was statistically significant ($p=0.001$) (Table 2).

Status of a friend to be infected with COVID-19 did not affect the CP19-S mean score ($p>0.05$). The adolescents having a friend infected with COVID-19 had higher PSQI scores than those who did not ($p=0.001$). The adolescents' status of being infected with COVID-19, having a family member infected with COVID-19 and losing their relatives due to COVID-19 did not affect the PSQI and CP19-S mean scores ($p>0.05$). PSQI and CP19 -S mean scores of the adolescents who felt stressed due to COVID-19 and thought that nothing would be the same due to COVID-19 were higher and statistically significant compared to the other groups ($p=0.001$) (Table 3).

According to the Spearman Correlation analysis, weak correlations were found between both the total scores of the scales and the subscales of the scales. There was a weak, positive and significant correlation between the adolescents' PSQI total score, the PSQI Day Dysfunction and PSQI Sleep disturbance, Coronavirus 19 Phobia Scale (CP19-S) Total Score and its subscales ($p<0.05$). A weak, positive and significant correlation was found between PSQI Habitual Sleep Efficiency subscale and Coronavirus 19 Phobia Scale (CP19-S) Total Score, CP19-S Psyho-somatic Subscale and CP19-S Economic Subscale ($p<0.05$). A weak, positive and signifi-

Table 1. CP19-S and PSQI Scale Total Scores of Adolescents (n=406)

Scales	Mean ±SD	Median (Q_1-Q_3)
CP19-S	**46.97±13.59**	**46(20-95)**
Psychological subscale	17.24±5.37	17(6-30)
Psyho-somatic subscale	9.18±3.50	9(5-24)
Social subscale	12.73±4.30	12(5-25)
Economic subscale	7.81±2.84	8(4-19)
PSQI	**5.97±3.53**	**5(0-18)**
Subjective sleep quality	1.23±0.82	1(0-3)
Sleep latency	1.25±0.91	1(0-3)
Sleep duration	0.60±0.89	0(0-3)
Sleep efficiency	0.57±0.94	0(0-3)
Sleep disturbance	1.25±0.67	1(0-3)
Sleep medication	0.10±0.47	0(0-3)
Daily sleep dysfunction	0.94±0.96	1(0-3)
PSQI	**Number**	**Percentage (%)**
≤5	205	50.5
>5	201	49.5
Total	**406**	**100.0**

CP19-S: Coronavirus 19 Phobia Scale, PSQI: Pittsburgh Sleep Quality Index, SD:Standart Deviation

Table 2. CP19-S and PSQI Scores by Sociodemographic Characteristics of Adolescents (n=406)

Variables	Total CP19-S		Total PSQI	
	Mean±SD	**Median (Q_1-Q_3)**	**Mean±SD**	**Median (Q_1-Q_3)**
Sex				
Female	49.91±13.07	48(21-95)	6.85±3.67	6(0-18)
Male	43.00±13.29	42(20-77)	4.77±2.94	4(0-13)
Mann Whithey U	***U*=14425.500**	***p*=0.001**	***U*=13338.500**	***p*=0.001**
Grade				
9. grade	45.27±13.85	45(20-92)	5.61±3.37	6(0-16)
10. grade	47.38±12.59	47(22-92)	6.05±3.35	5(0-14)
11. grade	49.21±14.24	48(20-95)	6.60±4.14	6(0-18)
12. grade	46.44±14.09	46(20-72)	5.62±3.23	5(1-13)
Kruskal Wallis H	*KW*=5.052	*p*=0.168	*KW*=2.973	*p*=0.396
High school				
Anatolian High School	46.10±13.94	45(20-95)	6.41±3.64	6(0-18)
Vocational and Technical Anatolian High School	46.56±14.18	47(20-79)	5.09±3.27	5(0-17)*
Anatolian Imam Hatip highscool	49.58±11.50	50.5(22-78)	6.10±3.51	6(0-16)
Science High School	48.32±13.06	45(24-76)	6.20±3.22	6(1-16)
Kruskal Wallis H	*KW*=5.854	*p*=0.119	***KW*=11.175**	***p*=0.011**
Academic success				
Very good	47.08±15.32	47(20-92)	5.33±3.59	5(0-15)
Good	46.60±12.62	46(20-78)	5.45±3.20	5(0-17)
Middle	47.09±13.98	46(20-95)	6.48±3.75	6(0-18)
Poor	48.72±13.34	50(24-66)	7.72±2.78	6(5-13)*
Kruskal Wallis H	*KW*=0.873	*p*=0.832	***KW*=13.678**	***p*=0.003**

CP19-S: Coronavirus 19 Phobia Scale, PSQI: Pittsburgh Sleep Quality Index, SD:Standart Deviation, *:Significant Value

Table 3. CP19-S and PSQI Scores According to Some Experiences of Adolescents Regarding COVID-19 (n=406)

Variables	Total CP19-S		Total PSQI	
	Mean±SD	**Median (Q_1-Q_3)**	**Mean±SD**	**Median (Q_1-Q_3)**
Have you been infected with COVID-19?				
Yes	44.37±16.76	44(20-92)	5.97±3.46	6(1-15)
No	47.25±13.19	46(20-95)	5.96±3.54	5(0-18)
Mann Whithey U	*U*=6368.500	*p*= 0.177	*U*=10726.500	*p*= 0.149
Having a family member infected with COVID-19				
Yes	47.60±14.02	47(20-92)	6.31±3.48	6(0-16)
No	46.75±13.46	46(20-95)	5.85±3.54	5(0-18)
Mann Whithey U	*U*=14765.000	*p*=0.471	*U*=14198.500	*p*=0.201
Having a friend infected with COVID-19				
Yes	47.77±14.72	46(20-95)	6.67±3.67	6(0-16)
No	45.94±11.95	46(20-78)	5.07±3.13	5(0-18)
Mann Whithey U	*U*= 19377.500	*p*=0.436	***U*= 14930.000**	***p*=0.001***
Losing their relatives due to COVID-19				
Yes	48.74±14.28	48(20-95)	7.15±4.31	6(0-16)
No	46.78±13.52	46(20-92)	5.84±3.42	5(0-18)
Mann Whithey U	*U*= 6566.00	*p*=0.397	*U*=5933.000	*p*=0.078
Feeling Stressed by COVID-19				
Yes	51.01±12.87	50(20-95)	6.55±3.68	6(0-18)
No	40.06±11.92	40(20-77)	4.97±3.02	5(0-16)
Mann Whithey U	***U*=10103.000**	***p*<0.001****	***U*=14375.000**	***p*=0.001***
Thought that nothing would be the same due to COVID-19				
Yes	50.24±13.84	49.5(20-95)	6.60±6.67	6(0-18)
No	41.72±11.38	42(20-70)	4.96±3.04	5(0-16)
Mann Whithey U	***U*=12485.000**	***p*<0.001****	***U*=14247.000**	***p*=0.001***

CP19-S: Coronavirus 19 Phobia Scale, PSQI: Pittsburgh Sleep Quality Index, SD:Standart Deviation ,**: $p<0.001$, *: $p=0.001$

cant correlation was found between PSQI Sleep duration and Coronavirus 19 Phobia Scale (CP19-S) Total Score, CP19-S Psychological Subscale and CP19-S Psyhosomatic Subscale (p<0.05). A weak, positive, and significant correlation was found between PSQI Sleep Latency and the Coronavirus 19 Phobia Scale (CP19-S) Total Score and its Psychological and Social Subscales (p<0.05). The correlation between PSQI Subjective Sleep Quality and Coronavirus 19 Phobia Scale (CP19-S) Total Score, CP19-S Psychological Subscale and CP19-S

Table 4. Correlation Between Adolescents' PSQI and CP19-S Scores

		PSQI Subjective sleep quality	PSQI Sleep latency	PSQI Sleep duration	PSQI Sleep efficiency	PSQI Sleep disturbance	PSQI Sleep medication	PSQI Daily sleep dysfunction	CP19-S Psychological subscale	CP19- S psyhosomatic subscale	CP19-S Social subscale	CP19-S Economic subscale	CP19-S Total Points	PUKİ Total Points
PSQI Subjective sleep quality	rho	1	0.447**	0.360**	0.081	0.499**	0.129**	0.499**	0.100*	0.160**	0.089	0.079	0.121*	0.718**
	p		<0.001	<0.001	0.101	<0.001	0.009	<0.001	0.044	0.001	0.073	0.113	0.015	<0.001
PSQI Sleep latency	rho		1	0.244**	0.084	0.394**	0.049	0.361**	0.156**	0.096	0.115*	0.057	0.137**	0.635**
	p			<0.001	0.091	<0.001	0.325	<0.001	0.002	0.052	0.021	0.252	0.006	<0.001
PSQI Sleep duration	rho			1	0.419**	0.291**	0.145**	0.332**	0.130**	0.105*	0.083	0.086	0.117*	0.660**
	p				<0.001	<0.001	0.003	<0.001	0.009	0.035	0.094	0.084	0.019	<0.001
PSQI Sleep efficiency	rho				1	0.065	0.041	0.042	0.071	0.152**	0.063	0.123*	0.118*	0.402**
	p					0.188	0.405	0.394	0.152	0.002	0.206	0.013	0.018	<0.001
PSQI Sleep disturbance	rho					1	0.263**	0.497**	0.253**	0.258**	0.183**	0.193**	0.271**	0.668**
	p						<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
PSQI Sleep medication	rho						1	0.137**	0.007	0.080	0-.004	0.095	0.037	0.259**
	p							0.006	0.896	0.109	0.944	0.055	0.455	<0.001
PSQI Daily sleep dysfunction	rho							1	0.219**	0.214**	0.165**	0.113*	0.204**	0.705**
	p								<0.001	<0.001	0.001	0.022	<0.001	<0.001
CP19-S Psychological subscale	rho								1	0.558**	0.722**	0.480**	0.885**	0.220**
	p									<0.001	<0.001	<0.001	<0.001	<0.001
CP19- S psyhosomatic subscale	rho									1	0.583**	0.653**	0.786**	0.234**
	p										<0.001	<0.001	<0.001	<0.001
CP19-S Social subscale	rho										1	0.559**	0.877**	0.160**
	p											<0.001	<0.001	0.001
CP19-S Economic subscale	rho											1	0.726**	0.156**
	p												<0.001	0.002
CP19-S Total Points	rho												1	0.229**
	p													<0.001
PUKİ Total Points	rho													1
	p													

CP19-S :Coronavirus 19 Phobia Scale, PSQI: Pittsburgh Sleep Quality Index, Spearman Correlation Analysis was performed. **The correlation is significant at the 0.01 level. *Correlation is significant at the 0.05 level

Psyho-somatic Subscale were weak, positive, and significant ($p<0.05$) (Table 4).

DISCUSSION

In this study conducted to determine the COVID-19 phobia and sleep quality levels of adolescents and the correlation between them, it was found that the sleep quality of adolescents attending Vocational and Technical Anatolian High School was better than that of adolescents attending other high schools. It is thought that the adolescents attending Vocational and Technical Anatolian High School may have less anxiety compared to the adolescents attending other high schools since they also have vocational education and, therefore, their sleep quality was not affected much. In the study, the sleep quality of adolescents who perceived their academic achievement as poor was found to be low. In a study, it was stated that poor sleep quality was correlated with adolescents' academic achievement.[15] It is thought that poor sleep quality may negatively affect academic achievement and poor academic achievement may adversely affect sleep quality by increasing the anxiety level of adolescents.

In the study, the sleep quality of female adolescents was found to be lower and their COVID-19 phobias were at a higher level. In the literature, it is seen that the sleep quality of female adolescents is lower and their anxiety levels are higher.[6,9,16,17] It has been demonstrated that the biological and psychological factors contribute to the differences between genders; because it is known that girls are more sensitive to stress hormones and threats, are less likely to use adaptive coping methods, and are more likely to make more negative evaluations in emergencies.[18] Accordingly, it is thought that female adolescents are psychologically more affected by COVID -19 and have higher phobia levels about the COVID-19 pandemic. The sleep quality of adolescents with female gender may be poor in itself and the reason for poor sleep quality may also be associated with the level of phobia they experience about COVID-19.

The results of the study revealed that when adolescents themselves, their family member or one of their friends were infected with COVID-19 or lost their relatives due to COVID-19 this did not affect their COVID-19 phobia. In the literature, the presence of family members or friends affected by COVID-19 was found to be associated with the anxiety and depression levels of adolescents.[8,19] This was thought to be due to the fact that adolescents were concerned about the health of their loved ones.[8] In the study, it was observed that the COVID-19 phobia was not high in adolescents who were infected with COVID-19 or a family member or a friend of whom was infected with COVID-19 or who lost a loved one due to COVID-19. This is thought to be due to the fact that adolescents who did not experience any infection or loss were also worried about COVID-19 because of what they saw and heard on social media and television and they had COVID-19 phobia.

When adolescents themselves or one of their family members were infected with COVID-19 or they lost their relatives due to COVID-19, this did not affect their sleep quality, but when one of their friends was infected with COVID-19, this negatively affected their sleep quality. It is known that adolescents pull away from their parents and feel intimacy towards their friends during adolescence.[20] Considering the developmental period characteristics, it was thought that adolescents develop family independence and have the strong friendship relations during this period, therefore, when one of their friends was infected with COVID-19, their sleep quality was negatively affected.

According to the study, the sleep quality of adolescents who felt stressed due to COVID-19 was low and their COVID-19 phobia level was high. In the study by Schwartzveark,[21] it was found that there is a correlation between adolescents' stress and mental health during the pandemic. Factors such as anxiety, stress, and fear negatively affect sleep quality in adolescents.[3] Since it is known that there is a correlation between stress and sleep quality, it is thought that adolescents who feel stressed due to COVID-19 have low sleep quality and high phobia levels.

In the study, the adolescents who thought that nothing would be the same due to the pandemic had high COVID -19 phobias and low sleep quality. During the pandemic, numerous changes that adolescents did not even consider to happen before the pandemic such as imposing various restrictions, economic difficulties for countries, and schools interrupting face-to-face education occurred. In addition to these sudden changes, there is also an uncertainty caused by the pandemic period. For this reason, adolescents may think that nothing will be the same as before, and they may worry that they will continue to experience the things they do not want to experience, and this may cause an increase in the COVID -19 phobia of adolescents and a decrease in their sleep quality.

In the study, it was found that the adolescents' sleep quality was low and COVID-19 phobia levels were moderate, and a correlation was found between adolescents' COVID-19 phobia and sleep quality. It was found that COVID-19 phobia increased the likelihood of daytime dysfunction, caused deviations in habitual sleep efficiency, and affected sleep duration, sleep latency, and subjective sleep quality. The somatic and economic effects of COVID-19 affected adolescents' habitual sleep efficiency, its psychological and somatic effects affected their sleep duration and subjective sleep quality, and its psychological and social effects affected their sleep onset latency.

While factors such as anxiety, stress, and fear negatively affect sleep quality in adolescents, sleep problems also cause anxiety.[3] The COVID-19 pandemic can negatively affect adolescents psychosocially and cause mental health problems such as anxiety, sleep problems, panic attacks, anxiety, and self-harm.[4,5,7,16,17,22]

CONCLUSION

Pittsburgh Sleep Quality total mean score of the adolescents was 5.97±3.53 and their Coronavirus 19 Phobia total mean score was 46.97±13.59. 49.5% of the adolescents had poor sleep quality and moderate COVID-19 phobia. It was found that there was a correlation between adolescents' sleep quality and COVID-19 phobia. There were positive correlations according to both the total scores of the scales and the subscale scores.

Planning and implementing trainings by creating psychosocial support programs to reduce COVID-19 phobias for adolescents who feel under stress and have high

COVID-19 phobias, keeping and following a sleep diary for adolescents who do not have regular sleep hours, keeping and following a sleep diary, school health nurses doing sports/exercise School health nurses are responsible for creating and implementing a regular exercise plan for adolescents who do not do it, for nurses to provide trainings for families and adolescents to develop healthy sleep habits for adequate and quality sleep in studies related to public health, because school is one of the places where adolescents are most frequented, and because of sleep quality of adolescents and COVID- Observing students at school in terms of 19 phobias, collaborating with students' families and teachers, interviewing students with poor sleep quality or experiencing COVID-19 phobia, providing training to both students and their families in order to improve their sleep quality and reduce their COVID-19 phobias, It is recommended to contribute to the literature by conducting qualitative research on phobia of -19 and the evaluation of sleep quality.

Ethics Committee Approval: In order to conduct the research, firstly, the necessary permissions were obtained from the Ministry of Health of the Republic of Türkiye, Kırşehir Ahi Evran University Non-Interventional Clinical Trials Ethics Committee (2020-14/105) and the Provincial Directorate of National Education of the Kırşehir Governorship of the Republic of Türkiye.

Informed Consent: Informed consent of the parents and the adolescents participating in the study was taken by an online survey, their con- sent was obtained and the Declaration of Helsinki was followed in the study.

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CHALLENGES AND OPPORTUNITIES IN RESIDENTS' TRAINING DURING COVID-19 PANDEMIC: A QUALITATIVE STUDY*

COVID-19 PANDEMISI SIRASINDA ASISTAN EĞITIMINDE KARŞILAŞILAN ZORLUKLAR VE FIRSATLAR: NITEL BIR ÇALIŞMA

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ABSTRACT

There are limited studies reporting the opinions of residents from three main sciences which are surgical, internal medicine and basic medical sciences in Türkiye. So, we need to reveal more opinions of residents on their trainings during pandemic to manage the trainings well during emerging situations in the future. It is aimed to reveal the opinions of residents from all main sciences on their training in medicine given at Karadeniz Technical University Faculty of Medicine during the COVID-19 pandemic process. The study was designed as qualitative phenomenological study, and includes focus group interviews. It was conducted between April 2021- March 2022. Gender, department and duration of residency were taken into account in order to ensure diversity in the determination of the participants. Interviews were conducted online through the Zoom. Content analyses was done by researchers. In our study, five focus group interviews were conducted with a total of 38 residents. The five themes that emerged are as follows: changes in education; health care delivery climate; scientific activities; emotions/feelings; structural problems, in education programs. It is necessary to design the frequency, duration and content intensity of online training activities. Scientific research and thesis studies have been adversely affected by the pandemic. However, the online scientific meetings provided during the pandemic were seen as important education opportunities. 'Feeling of decreased emotional resillience' is a new emerged emotional problem. The positive developments in the attitudes and behaviors of the society towards the health professionals during the pandemic contributed positively to the emotions of the residents.

Keywords: COVID-19 pandemic, evaluation, training, qualitative study, medical residencies.

ÖZ

Türkiye'de cerrahi, dahili ve temel tıp bilimlerinde eğitim alan araştırma görevlilerinin pandemi dönemindeki eğitimlerine yönelik görüşlerini bildiren çalışmalar sınırlıdır. Bu nedenle, gelecekte ortaya çıkabilecek durumlarda eğitimleri iyi yönetebilmek için asistanların pandemi döneminde aldıkları eğitimlere ilişkin görüşlerini daha fazla ortaya koymamız gerekmektedir. Bu çalışmada, tüm bilim dallarından araştırma görevlilerinin, Karadeniz Teknik Üniversitesi Tıp Fakültesi'nde COVID-19 pandemisi sürecinde aldıkları tıp eğitimlerine ilişkin görüşlerinin ortaya çıkarılması amaçlanmıştır. Araştırma nitel fenomenolojik çalışma olarak tasarlanmış olup, odak grup görüşmelerini içermektedir. Nisan 2021-Mart 2022 tarihleri arasında gerçekleştirilen araştırmada katılımcıların belirlenmesinde çeşitliliğin sağlanması amacıyla cinsiyet, bölüm ve asistanlık süresi dikkate alınmıştır. Görüşmeler Zoom üzerinden online olarak gerçekleştirilmiştir. İçerik analizleri araştırmacılar tarafından yapılmıştır. Çalışmamızda toplamda 38 araştırma görevlisinin katılımıyla beş odak grup görüşmesi yapılmıştır. Ortaya çıkan beş tema şu şekildedir: eğitimdeki değişimler; sağlık hizmeti sunum iklimi; bilimsel faaliyetler; duygular/hisler; eğitim programlarında yapısal sorunlar. Çevrimiçi eğitim etkinliklerinin sıklığı, süresi ve içerik yoğunluğunun tasarlanması gerekmektedir. Bilimsel araştırma ve tez çalışmaları, pandeminin getirdiği ağır iş yükünden olumsuz etkilenmiştir. Ancak pandemi döneminde sağlanan online bilimsel toplantılar önemli eğitim fırsatları olarak görülmüştür. 'Duygusal dayanıklılıkta azalma hissi' yeni ortaya çıkan bir duygusal sorundur. Pandemi sürecinde toplumun sağlık çalışanlarına yönelik tutum ve davranışlarında yaşanan olumlu gelişmeler, asistanların duygularına da olumlu katkı sağladığı düşünülmektedir.

Anahtar kelimeler: COVID-19 pandemisi, değerlendirme, eğitim, nitel araştırma, tıpta uzmanlık.

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INTRODUCTION

The COVID-19 pandemic not only adversely affected medical education but also limited the execution of existing programs.[1] The medical education activities most affected by the pandemic included interventional and non-interventional skills, field-specific practices, on-the-job training activities in services and clinics, and residency trainings for gaining professional skills and attitudes.

Hospitals faced the challenge of reviewing their priorities regarding outpatient care, patient services, and surgical procedures.[2] Non-emergency elective surgeries and clinical consultations have been postponed or canceled to avoid hospital overcrowding, protect patient populations, and evacuate hospital beds for COVID-19 patients. This situation interrupted the training of residencies and had negative effects for the research residents who were trained in their fields of expertise.[3] Theoretical training activities were carried out using video conferencing and virtual meetings with faculty members.[4]

There are some studies that address the difficulties experienced by residents and the needs they feel during the pandemic. It is seen that there are some complaints and problems related to their profession and education of the residents within the work tempo that requires intense labor.[5] Providing health services to patients, managing extraordinary and difficult situations, supporting patients emotionally, fear of being infected and infecting others, increased workload and protective equipment that restricts the movement/freedom of the person pave the way for the burnout of health professionals and increase feelings of uncertainty.[6] Therefore, in addition to ensuring patient safety, it is necessary to take precautions in areas such as residency training that training processes require direct contact with patients.[7]

Quantitative research has shown that frontline residents in the care of COVID-19 patients are vulnerable to greater risks of anxiety, depression, insomnia, stress and stress-related symptoms.[8] It has been stated that residents are exposed to some physical and psychological problems such as communication difficulties, lack of peer and social support, inadequacy in physical conditions, difficulty in maintaining their well-being and meeting their basic needs (nutrition, rest, etc.) during the pandemic process.[6]

Many papers were published on different residency trainings during pandemic in Türkiye[9-14]. The common points of these studies were that they were cross-sectional studies and were used surveys as a method, and revealed data related to only one residency training. Only one qualitative research was published on residency training in pandemic[15]. The nine in-depth interviews were carried out with residents working at the healthcare services of the COVID-19 pandemic. The residents trained in basic sciences were not included in this study. However, the residents from all three main sciences were employed voluntarily or coercively during pandemic. The interviews were conducted by only one researcher. This is an important limitation for the reliability of data.

There are limited studies reporting the qualitative opinions of residents from three main sciences which are surgical, internal medicine and basic medical sciences in Türkiye. So, we need to reveal more opinions of resident son their trainings during pandemic to manage the trainings well during emerging situations in the future.

It is aimed to reveal the opinions of residents from all main sciences on their training in medicine given at Karadeniz Technical University Faculty of Medicine during the COVID-19 pandemic. The research questions were tried to be answered:

1. What are residents experiences regarding their trainings in COVID-19 pandemic?
2. How did pandemic affect residents' trainings?

METERIALS AND METHODS

Type of research

The study was designed as qualitative phenomenological study, and includes focus group interviews.

Research site

Karadeniz Technical University Faculty of Medicine.

Research universe was consisted ofa total of 475 research residents who received residency training in Internal Medicine Sciences, Surgical Sciences and Basic Medical Sciences at Karadeniz Technical University Faculty of Medicine. The distribution of residents at Karadeniz Technical University Faculty of Medicine according to April 2021 is given below:

Internal Sciences:295
Surgical Sciences: 151
Basic Medical Sciences:29

Research period

The study conducted between April 2021- March 2022.

Research sample

In line with the permission of the institution, all residents were invited to work via mobile phone or e-mail. Gender, discipline and duration of residency were taken into account in order to ensure diversity and to get different opinions in the determination of the participants. Since it was thought that data saturation was not reached in the surgery and internal sciences group, second interviews were held. The number of focus group was determined regarding to data saturation that was decided by researchers. The volunteer participants were decided by using easily accessible sampling method for qualitative focus group interviews.

Inclusion criteria for the study are as follows

- To be working as a resident at Karadeniz Technical University Faculty of Medicine for at least six months, (The period when the effects of the pandemic are felt intensely in Türkiye is between March 2020 and May 2021. Therefore, we thought that both the people who received training during this intensive period and the training processes would be better evaluated with at least six months of experience, and the orientation process regarding residency training would be completed.)
- Volunteering to participate in the study.

Data Collection and Analysis

The researchers SA and BD made a literature review related to the research question and determined the main themes separately to create the 'Semi-structured Interview Questions' to be asked in the focus group I terviews as below:

- Could you please explain the details of your residency training program?
- How has your department, where you have been

trained, been affected by the pandemic?
- -Explain the positive changes in your residency training during pandemic?
- -Explain the negative changes in your residency training during pandemic?
- -What suggestions would you have regarding the residency training you have been receiving if the pandemic process continues? Please explain.

In addition to these questions, researchers were able to obtain in-depth information by asking different questions when needed in line with the answers given by the participants.

The two researchers came together as many times as needed to find common ground in the focus group interview questions. The interviews with residents who agreed to participate in the research were conducted online through the Zoom program. The interviews lasted approximately 60 minutes and were recorded.

To ensure validity and reliability in our study, two researchers participated in the interviews. While one of the researchers conducted the interviews, the other took notes. Researcher notes and records were evaluated by two researchers. Both the transcripts of the researcher who conducted the interview and the documents of the researcher who took notes were compared. After agreement on transcription, codes, subcategories and themes were created by three researchers (MU, YG, ADD). Meetings were held in the required number until there was a consensus on the codes and themes. Then, the themes were presented to the opinion of the experts (SA and BD) among the researchers and a consensus was reached for all themes. and the codes that could not be agreed on were decided at the meeting attended by SA and BD. Quotes from the content of the interviews regarding the common themes were also determined by three researchers (MU, YG, ADD), and it was decided which quotes would be placed in the text at the meeting attended by all researchers.

In order to carry out the study, the ethics committee approval of Karadeniz Technical University Scientific Research Ethics Committee with protocol number 24237859-289 and dated 25.03.2021 was obtained.

RESULTS

Within the scope of our study, for each main science group, 8-10 residents from different departments of science were invited to a focus group interview using an easily accessible sampling method. Since it was thought that data saturation could not be reached in the opinions obtained by the researchers in the focus group interviews, an additional focus group interview in the surgery and internal sciences groups were arranged and conducted with the same method. There fore, a total of five focus group discussions were held: two in the surgical sciences group, two in the internal sciences group, and one in the basic sciences group. The surgery group included departments of thoracic surgery, general surgery, gynecology and obstetrics, Ear-Nose-Throat, urology, anesthesiology, and pathology residents. The internal medicine group included departments of internal medicine, infectious diseases, pulmonary diseases, cardiology, and pediatrics residents. The basic medical sciences group included residents from medical microbiology, histology and embryology, anatomy, biophysics and physiology departments.

The total number of participants was 38 (internal medicine group: 14, surgery group: 16, basic medical science group: eight).

The five themes that emerged as a result of our research are as follows: changes in education; health care delivery climate; scientific activities; emotions/feelings; structural problems in education programs.

Under the theme of 'changes in education', there are activities and situations that shape the resident training process in the pandemic, especially the use of new training methods or the application of old training methods in different ways, educational environments and training opportunities.

Under the theme of 'health care delivery climate', there are issues regarding changing working conditions, changes in the roles of health professionals, and interactions within and between teams, specific to the pandemic.

Under the theme of 'scientific activities', there are headings related to the academic activities carried out during the resident education process throughout the pandemic.

Under the theme of 'emotions/feelings', there are positive or negative emotions and feelings caused by the pandemic in residents such as emotional flexibility and fatigue.

In the theme of “structural problems in the education program”, there are topics that emerge from the views on the details of the program, such as the content of the program, its sharing with the residents, the definition of the roles of the residents, and the evaluations in the residency process.

The resulting categories (sub-themes), themes, and excerpts from the interview contents related to the themes are presented in Table 1.

The challenges and opportunities regarding themes are presented at Figure 1.

DISCUSSION

The results were discussed based on challenges and opportunities of five themes emerged in our study: changes in education; healthcare delivery climate; scientific activities; emotions/feelings; and structural problems in education programs.

The postponement of theoretical lessons, article presentations and case discussions during the COVID-19 pandemic period adversely affected the residency training. During this period, problems such as irregular theoretical training, lack of rapid reaction to online training, and inability to focus on online processes were experienced. Decreased interaction between trainers and residents and, accordingly, disruptions in on-the-job evaluations are other important problems.[16] In addition, the decrease in the number of patients, the postponement of planned surgeries and the prioritization of surgical interventions only for emergency cases caused surgical residents to gain experience with fewer cases and on-the-job trainings were seriously affected.[1,2] However, methods such as teleconferences, webinars, online learning activities, social media sharing, virtual consultations, telemedicine, simulations and virtual reality have been used to reduce the negative impact of the pandemic on the training of resi-

Table 1. The categories (sub-themes), themes, and excerpts revealed from the interview contents.

Quotations	Categories	Themes
"We can listen in a more comfortable environment in online education. However, the number, duration and intensity of the training we received increased, it was very difficult to follow on the screen, it is debatable how useful and effective the online trainings are." K2 *"At the beginning of the pandemic, we felt a bit lonely, frankly, I can say that, during the epidemic, everyone actually knows nothing. We all tried to make a way by looking at the guidelines of the ministry of health. It was our guide. We were stunned at first, both in terms of stress management and crisis management, because we did not know anything." K3* *"The best part of the pandemic is that we were able to access a lot of magazine publications that we could not reach more easily in many ways. For example, the contents of the Turkish Clinics magazine are offered to us free of charge due to the pandemic. Apart from this, the online education frenzy that came with zoom enabled us to reach education and science more. In the past, it was possible to go to congresses by paying great amount of money. An academic year could be completed with attending only 2-3 congresses. However, at the moment, we can reach very good presentations by 5-10 very important and successful lecturers just in a week." K4*	-The continuation of educationbu using online education, -Equality of opportunity in education, - Interdisciplinary training activities, -New experiences of trainings in different context (intensive care, etc.), -Lack of interactions in online education, -Uncertainties in education, -The decrease of diversity of training methods, -Lac of on-the-job training and assessments, -The workload of compensation programs,	**Changes in education**
"We faced many troublesome processes such as waiting for the COVID-19 result, taking the surgery, a different operating room environment, and dressing in layers." K11 *"In this process, we tried not to postpone emergency and elective cases. However, our face-to-face trainings once a week were interrupted and we could not continue online." K12* *"I had friends assigned to COVID-19 services. As the number of our assistants has decreased, our workload has increased in the service, outpatient clinic and operating room." K13* *"I had a COVID-19intensive care experience. We also evaluated the patient approach from a different point of view. I have acquired a multidisciplinary approach by working in partnership with pulmunology, anesthesia or internal medicine. This has been a great advantage." K17*	-Opportunity to get to know other disciplines closely, -Working in different conditions during pandemic(crisis, emergengies, etc.) -Working in unfamiliar units without any orientations -Different roles defined for residents -Communication problems with trainers and peers -Mobbing	**Healthcare delivery climate**
"There is a practical influence, but I do not think that there is much influence in terms of accessing educational and scientific knowledge. Because we are presenting more articles than usual and discussing different topics." K2 *"There has been a positive effect due to the fact that many activities take place online, our time has increased, which we can devote to our own thesis." K4* *"But my laboratory experiments were disrupted, I had a lot of trouble with my thesis and paperwork" K9* *"We had to make an arrangement, get permission to attend face-to-face training. When this situation disappeared, online participation also increased. Frankly, we were able to attend more trainings, more symposiums and webinars." K13*	-Easy attendance to scientific meetings (congresses, conferences and symposiums) -The experiences on new treatment approach -Research-oriented studies -Problems in designed reseaches	**Scientific activities**

Table 1. Continued

Quotes	Codes	Theme
"Since we were working on guard duty, our shift continued after the shift. For this reason, we were experiencing difficulties and intensities in cases where its rotation continued." K29 *"At first, of course, there was more fear, now we feel psychologically tense. In this process, the approach to the patient has changed a lot. We started to protect ourselves and put social distance." K20* *"I worked in COVID-19intensive care for 6 months; This virus does not take into account the age factor or additional diseases. Actually, I'd say it doesn't take anything into account. I mean, we could have been each and every one of us in that bed…" K17* *"Giving some positive messages in favor of doctors in the public has had a positive impact on our communication with families….I have seen improvement in respect for the physician from my point of view." K8*	-Positive communication atmosphere with patients and their relatives, -Emotional flexibility, -The increase of supports from society to healt professions, -Developing individula coping strategies, - Fatigue, -Psychological problems, depression, - Concerns for the future, -Learned helplessness,	**Emotions/ Feelings**
"After the pandemic started, all of our rotations stopped. We also closed the clinic. Because we only worked in the COVID-19clinics at that time."K21 *"I had COVID-19 intensive care experience. We have also evaluated the patient by approaching him from a different point of view." K32* *"There is an order that goes by learning more from the senior to the novice. It is not possible to say the same thing for all instructors, but most of them remained more passive. This affects education negatively." K26* *"It would be great if trainings were organized within the standards on consents, pre-operative information, post-op patient care, communication with the patient" K12* *"The service burden on the residents completely outstrips the training activities." K20* *"To be honest, since I came here, I have been asking myself questions such as "Is there a program? What will I do now? How many times do I need to do which process so that I can be sufficient?" I was not offered a program where I could find answers to such questions.'' K22* *"We learn more if the senior residents shows or teaches something. Since I started, there is no program like the 1st year resident does this, the 2nd year resident does that." K10* *"We don't have teachers with us in the clinic, we look after patients on our own. We consult with our teachers over the phone when we are either stuck in the middle or we can't get out of the work.'' K6* *"Obviously, what is required of us in residency training is to carry out the work in a large department such as pediatrics, that is, to bring the end of the month and end it with less problems. Frankly, our instructors do not have a lot of time to spare for a resident for reasons such as emergency patients, clinic patients, their private patients, or their private issues." K19* *"We asked our instructors for the missing training during the pandemic process. I was really stressed about my shortcomings. We always wanted this in the process…. maybe there wasn't much effort in this period not to put us at risk." K6* *"Our academic advisor is announced at the end of one year. The advisors of some of my friends who have been working as residents for 13-14 months have just been announced. So I think 1-1.5 years is a huge time wasted. At least right now, I would like to talk with my teachers about what I plan to do,, my dreams, or the things I want to achieve academically." K20* *"I think we strive to get things done on time rather than training. The professors put pressure on them with sentences like "We have too many patients, we need to finish the patient procedures as soon as possible." K19*	- Problems related to training content and design, -Not defining/declaring the competencies aimed to be acquired through residency training, -Inadequate operation of evaluation and feedback processes, -The assistant's duties and responsibilities are not clearly defined	**Structural problems in education programs**

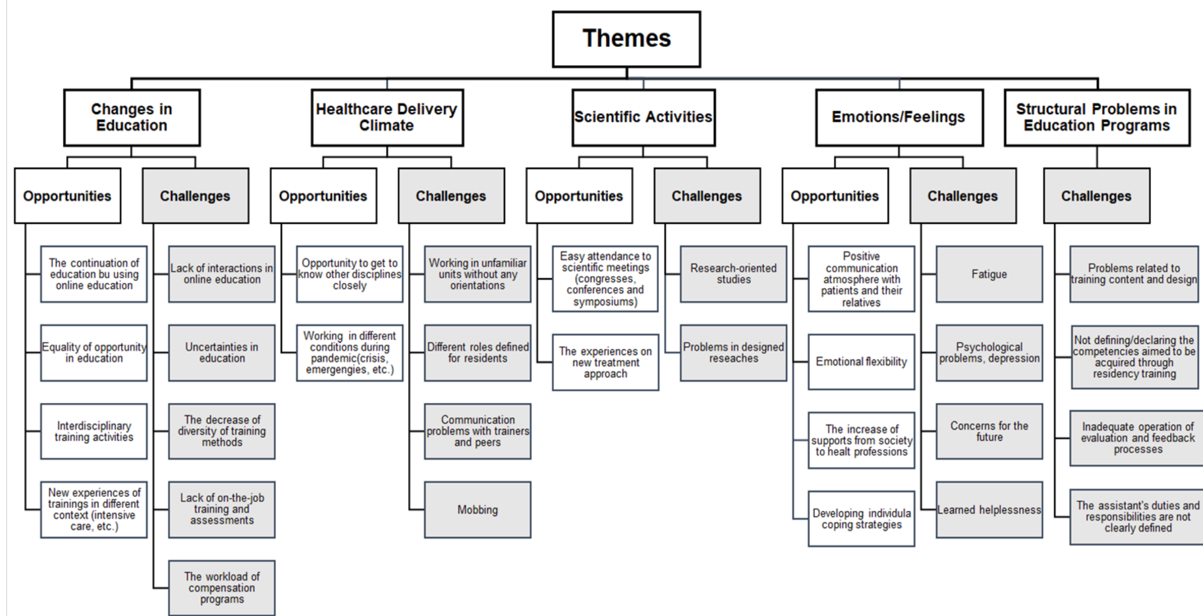

Figure 1. The challenges and opportunities regarding themes.

dents.[17] It is predicted that most of these methods will continue after the pandemic.[18] It has been determined that online theoretical training given during the pandemic period is as effective as face-to-face training.[3] In our study, the participation of resident physicians in various fields such as the intensive care unit, COVID-19 clinic, and PCR laboratory and their departure from educational environments were considered as factors that negatively affect education. The participants stated that, in parallel with the findings in the literature, the training activities with the intense online presentations of the trainers increased, but the frequency, number and duration of the online trainings were intense. For this reason, the participants stated that with the addition of screen fatigue, the online education climate increased the fatigue already caused by the pandemic and the workload it caused. As researchers, considering that some online training activities will continue after the pandemic and that the pandemic is expected to escalate again, we believe that it is necessary to design the frequency, duration and content intensity of online training activities by taking into account the fatigue, stress and anxiety states of the residents as well as their rest needs. The unexpected global crisis caused by the pandemic has caused COVID-19 to become the focus of scientific studies. Most of the studies not related to COVID-19 have been cancelled, making it difficult to find support for non-COVID-19 research.[19] The limitations of social distance, researchers' being at the risk of being affected by the epidemic, and the active involvement of researchers in the fight against the pandemic have caused problems in reaching sufficient manpower in scientific research.[20] Despite all these negativities, scientific congresses and symposiums were organized on online platforms and scientific activities were continued during the pandemic. Due to the removal of COVID-19 related restrictions and increased accessibility, it has been observed that participation in these activities is high during the pandemic.[21] It is foreseen that online or hybrid congresses and symposiums will be important platforms in the conduct of scientific activities in the future.[22] In the data revealed in our study, the positive effects of online tools and training opportunities on resident training and scientificness were more prominent, and the importance of continuing these training opportunities after the pandemic was emphasized. However, it has been revealed that activities such as scientific research and thesis studies have been adversely affected by the heavy workload caused by the pandemic, the change of priorities in health services, health concerns and restrictions. Although research activities were affected, participants stated that online symposiums and congresses eliminate travel and accommodation fees, and participation fees are at levels that a resident can pay. In addition, opinions emerged that the online scientific meetings provided during the pandemic were interiorized by the participant residents and seen as important scientific opportunities.

In recent years, there has been a rapid change and transformation in the field of health all over the world. Increasing financial constraints in the health system, new developments in the medical field and changing expectations regarding service delivery constitute the driving force behind this change.[23] In this process of change, the increase in workload, the work done beyond the duties and responsibilities of the professionals, the weakening of the quality of the education and the burnout of the residents have brought along many problems in the context of the resident education carried out in the medical faculties.[24] In the study conducted by Tan et al. (2012) in Türkiye, it was determined that one-fourth of the residents did not attend a scientific meeting, but mostly in the field of service. In today's world where information in medical sciences changes rapidly, resident physicians state that they can find the opportunity to update their knowledge thanks to continuous medical education hours.[25] It is suggested that residency training should include many academic activities such as evidence-based medicine practices, self-directed learning, activities to determine career choices, and other

academic inputs.[26] In addition, it is stated that the reflection approach of research residents on the experiences they have gained in their specialization training will positively support their development in their professional life.[27] Another issue that is thought to affect residency training is defined as 'implicit learning' in the literature. This concept includes unwritten observations and experiences that residents encounter in the learning and health care settings that affect their professional behavior and attitudes. Implicit learning can also cause negative effects on the professional development of residents, such as receiving undesired messages and observing unprofessional behavior.[28] In addition, implicit learning not only reveals how concepts of appropriate behavior are transferred, rewarded and punished, but also reveals how professional behavior is taught. Thus, it allows residents to express their opinion on what needs to be maintained and what needs to be changed.[29] In our study, data on the attitudes and behaviors exhibited by negative role models, especially in health service delivery and education processes, were obtained. As it can be understood from the opinions about the mobbing and negative communication experiences of the residents, we think that these problems experienced during training and service delivery are not specific to the pandemic period. Therefore, we think that trainings and incentives should be planned to increase the awareness of trainers about the attitudes and behaviors that a suitable role model should exhibit.

Accreditation activities specific to each specialty, whose number has been increasing in the world recently, are an important driving force for the development of residency training and the solution of structural problems in education.[30] Encouraging the relevant units to be included in the accreditation processes in the institutions providing residency training, effective follow-up and taking responsibility of the decision makers in providing consultancy services to these units will reduce the structural problems in education. Activities for the development, standardization and accreditation of specialization training programs have also increased the awareness of residents about the quality of their training.[31] The activities of the specialty associations and departments providing specialization training, which have gained a serious momentum in the direction of standardization and accreditation in recent years, have been adversely affected by the COVID-19 pandemic that emerged at the end of 2019.[1] The findings obtained from the opinions of the participants included in our study revealed that the training activities carried out during the pandemic were seriously interrupted, and especially on-the-job training and evaluation processes could not be carried out. In addition, it is revealed that health concerns and increased workload seen in trainers negatively affect their performance regarding their duties and responsibilities in residency training. Therefore, we recommend that collaborations on training programs be designed in addition to national strategies to fill the deficiencies of residents, and that the designed trainings should be offered to residents who are still continuing their education and to graduates who graduated during the pandemic but whose education was adversely affected.

The negative effects of the pandemic on the mental health of residents have been demonstrated, as well as in the general population. Fear, increase in anxiety level, increase in stress and depressive mood are the most common problems among residents.[32] While data similar to the literature emerged in our study, such as anxiety, helplessness and depression, there were also results that we did not encounter in the literature, such as 'feeling of decreased emotional resillience'. In the opinions of the participants, it was revealed that the positive developments in the attitudes and behaviors of the patients and their relatives towards the health professionals during the pandemic process contributed positively to the emotions of the residents.

We advocate the necessity of a holistic approach to the protection of not only the mental health of residents but also their well-being during the pandemic. It is a common misconception that well-being and psychological well-being are perceived as similar concepts. However, well-being is a concept that is directly affected by the physical and social environment of the individual, such as happiness, functionality, quality of life, and life satisfaction. It is emphasized that well-being is a way of life. It is thought that physical, social, psychological and cognitive indicators can mediate the prediction of a person's well-being.[33] It is predicted that the effects of the pandemic on the well-being of the society will continue for many years.[34]Therefore, we recommend that each institution establish units and organizations to support the residents for the parameters related to all these topics.

Since the study was conducted during the COVID-19 pandemic, a small number of residents (six in total) did not have experience in residency trainings before the pandemic. Therefore, it was observed that they had limitations in evaluating the education they received during the pandemic period because they did not experience the pre-pandemic period. This might be a limitation of the study.

CONCLUSIONS

As it is considering that some online training activities will continue after the pandemic, it is necessary to design the frequency, duration and content intensity of online training activities by taking into account the fatigue, stress and anxiety states of the residents as well as their rest needs. It has been revealed that activities such as scientific research and thesis studies have been adversely affected by the heavy workload caused by the pandemic, the change of priorities in health services, health concerns and restrictions. Although research activities were affected, participants stated that scientific opportunities such as online symposiums, congresses and scientific meetings eliminate travel and accommodation fees, and participation fees are at levels that a resident can pay. 'Feeling of decreased emotional resillience' is a new emerged emotional problem in this study. Finally, the researchers recommend that each institution establish units and organizations to support wellbeing of the residents.

Ethics Committe Approval: In order to carry out the study, the ethics committee approval of Karadeniz Technical University Scientific Research Ethics Committee with protocol number 24237859-289 and

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ASSESSMENT OF THE LEVEL OF PERSONAL HYGIENE KNOWLEDGE AND HEALTH PERCEPTION AMONG UNIVERSITY STUDENTS*

ÜNİVERSİTE ÖĞRENCİLERİNİN KİŞİSEL HİJYEN BİLGİ DÜZEYİ VE SAĞLIK ALGI DÜZEYLERİNİN DEĞERLENDİRİLMESİ

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ABSTRACT

The aim of this study was to determine the level of personal hygiene knowledge in university students and assess the level of health perception. This cross-sectional study was conducted with 946 students studying at a state university in Ankara. A questionnaire which included the Perception of Health Scale and questions to determine socio-demographic characteristics and level of personal hygiene knowledge of students was used to collect data. Data were collected by face-to-face survey method. The students ages ranged from 16 to 39 with years. Median score of the students obtained from the questions on personal hygiene knowledge and from the Perception of Health Scale was 24.0 (Min-Max= 0.0-30.0)and 48.5 (Min-Max=22.0-75.0), respectively. While the most accurately answered question on personal hygiene was "Hands should be washed with generous amounts of soap and water after using the toilet" (95%), the least accurately answered question was "It is beneficial to walk around barefoot at home" (37.2%). In this study, the level of personal hygiene knowledge was determined to be higher in students of medical faculty, women, non-smokers, non-drinkers and those who had previous information on personal hygiene before ($p< 0.05$). A weak positive relationship was determined between the level of personal hygiene level and health perception ($r=0.397$; $p=0.001$). It was determined in the study that the students had a good level of personal hygiene knowledge and medium level of health perception.

Keywords: Hygiene, healthy perception, university students

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ÖZ

Bu araştırmanın amacı, üniversite öğrencilerinin kişisel hijyen ile ilgili bilgi düzeyleri ve sağlık algı düzeylerinin değerlendirilmesidir. Kesitsel tipdeki bu çalışma Ankara'da bir devlet üniversitesinde öğrenim gören 946 öğrenci ile yapılmıştır. Verilerin toplanmasında, Sağlık Algısı Ölçeği, öğrencilerin sosyo-demografik özelliklerini ve kişisel hijyen bilgi düzeylerini belirlemeye yönelik soruların yer aldığı anket formu kullanılmıştır. Veriler yüzyüze görüşme yöntemi ile toplanmıştır. Öğrencilerin yaşları 16-39 arasında değişmektedir. Bu çalışmada öğrencilerin kişisel hijyen ile ilgili bilgi sorularından aldıkları ortanca değer 24.0 (Min-Max= 0.0-30.0), Sağlık Algısı Ölçeği ortanca değeri 48.5 (Min-Max=22.0-75.0) olarak saptanmıştır. Öğrencilerin kişisel hijyen ile ilgili en çok doğru bildikleri bilgi sorusu "Tuvaletten çıkınca eller bol sabunlu su ile yıkanmalıdır" (%95) iken, en çok yanlış bildikleri "Evde çıplak ayakla dolaşmak faydalıdır" (%37.2) bilgi sorusudur. Çalışmada tıp fakültesi öğrencilerinin, kadınların, sigara ve alkol alışkanlığı olmayanların ve önceden kişisel hijyen hakkında bilgi alanların kişisel hijyen bilgi düzeylerinin daha yüksek olduğu belirlenmiştir ($p<0.05$). Kişisel hijyen bilgi düzeyi ile sağlık algısı arasında pozitif yönde zayıf bir ilişki saptanmıştır ($r=0.397$; $p=0.001$). Bu çalışmada öğrencilerin kişisel hijyen ile ilgili bilgi düzeylerinin iyi ve sağlık algılarının orta düzeyde olduğu sonucuna ulaşılmıştır.

Anahtar kelimeler: Hijyen, sağlık algısı, üniversite öğrencileri

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INTRODUCTION

Health and its individual perception are affected from health behaviors, personal beliefs, experiences and factors with an impact on an individual's health. While beliefs, attitudes and perceptions play a role in development of health behaviors affecting an individual's health, health perception is defined as a medical approach that focuses on health rather than a disease, protects, maintains and promotes family and public health, and allows early diagnosis.[1] Perception of state of health affects health behaviors and health responsibility.[2,3]

Personal hygiene consists of washing and caring for hair, cleaning face, eyes and ears, cleaning mouth and teeth, cleaning feet, bathing habits, cleaning external genital organs and armpits, cleanliness during and after sexual intercourse, choosing healthy clothes and cleaning hands and nails.[4] Individuals learn hygiene practices from their parents in childhood and usually maintain these habits throughout their life. Social groups to which individuals belong have an impact on hygiene practices and health-promoting behaviors through social learning as well. Therefore, universities as public institutions where social interaction takes place are suitable environments to form the basis of healthy lifestyle behaviors. As a communal life environment, universities are also convenient to implement initiatives targeting health-promoting behaviors.[5] Considering the social and professional role to be taken by university students in the forthcoming years, personal hygiene and health perception have critical importance to lead a healthy life.[6]

In the research conducted to determine the opinions of university students about hand washing, it was determined that the majority of nursing students (71.9%) and all university students outside the health field had knowledge about hand washing. It was determined that although all university students studying outside the health field had knowledge about hand washing, they mostly wiped their hands with wet wipes (68.9%).[7] In a study conducted with university students in Hong Kong, it was found that 27% of the students had health responsibility awareness.[8]

It is therefore required to determine the level of personal hygiene knowledge and health perceptions of university students as a first step in the health promotion process aiming to encourage and maintain health-promoting behaviors in university students. Determining the level of personal hygiene knowledge and health perception in university students is also important to raise healthy generations as well as to protect and improve public health. The aim of the study was conducted to determine the level of personal hygiene knowledge in university students, review some variables that are believed to be associated and assess the level of health perception.

MATERIAL AND METHOD

Population and sample of the study

This is a cross-sectional study conducted on undergraduate students at a public university in Ankara, Türkiye. Population of the study consisted of 3.900 students studying at Engineering, Law, Medical and Dentistry faculties. It was aimed to reach out all students at Engineering, Law, Medical and Dentistry faculties from October 2018 to May 2019 without determining a specific sample. The study was conducted on 946 students (24.3%) who agreed to take part. Students who were not in the classroom and did not want to participate in the research did not participate in the research.

Data collection instruments

The questionnaire form prepared to collect data based on the literature contains the Perception of Health Scale and information questions on personal hygiene, some socio-demographic characteristics of the students, parent and family characteristics, and some variables that are believed to be associated with the level of personal hygiene level. Level of personal hygiene knowledge of the students was assessed with 30 information questions formulated based on literature. A score of 1 was assigned to each question which was answered correctly in the assessment of information questions on personal hygiene. The scores to be obtained ranged between 0 and 30. Higher scores obtained from the information questions denote a high level of personal hygiene knowledge. The Perception of Health Scale (PHS) developed by Diamond et al. in 2007, whose reliability and validity study in Türkiye was conducted by Kadioglu and Yildiz, was used to assess the health perception of the students in the study.[1,9] The PHS was a five-point Likert scale consisting of 15 items and 4 subfactors (center of control, self-awareness, certainty and importance of health). The highest and lowest scores that can be obtained from the scale are 75 and 15, respectively, with higher scores denoting a higher level of health perception.

Parents of the students were considered "employed" if they are actively engaged with a revenue-generating business. Family income was assessed by the students as low, average and high based on their own perceptions (least 1 cigarette a day=smoker and least 30 g of alcohol a week=drinker).[10,11] Students who perform activities equivalent to brisk walking for 30 minutes on a daily basis regularly were considered to perform "regular physical activity" (body mass index above 30 kg/m^2=obese).

Data collection

Permissions were taken from required authorities and approval of ethics committee (28.06.2018- number 30) Ankara Yıldırım Beyazıt University ethics committee was obtained to conduct the study. Verbal consent was obtained from the students who agreed to participate after informed about the study. International students were also included in the research and necessary explanations were made in the parts that were not understood. Data were collected by face-to-face survey method at the end of the course, with permission from the course instructor. Then, questionnaires were completed by the students under supervision. This procedure lasted approximately 15-20 minutes.

Data analysis

The data obtained was evaluated in IBM SPSS (version 20.0) statistical package program. The descriptive statistics were shown with number, percentage, median (min-max). Whether the data conformed to normal distribution was evaluated with the Kolmogorov Smirnov test. Since the data did not show normal distribution, differences between two groups were analyzed with the

Mann-Whitney U test, and differences between more than two groups were analyzed with the Kruskal-Wallis test. When significant differences emerged as a result of the Kruskal-Wallis test, the Dunn-Bonferroni test was used for multiple comparisons. Whether there was a relationship between two variables was evaluated with Spearman's correlation coefficient. $p<0.05$ was considered statistically significant.

RESULTS

Among the study participants 48.7% of the students were female and 51.3% were male. Their ages ranged from 16 to 39 with years. 11.3% of the students stated that they have a history of a physician-diagnosed disease requiring constant drug use and 68.1% stated that they have a good state of health (Table 1). Majority of students (83.5%) had a nucleus family and 69.1% had an average level of family income. Almost all students stated that their mother (97.3%) or father (95.7%) is alive. 85.3% of the students stated that they had previous information on personal hygiene (Table 2).

Median score of the students obtained from the information questions on personal hygiene was 24.0 (Min-Max=0.0-30.0). While the most accurately answered question on personal hygiene was "Hands should be washed with generous amounts of soap and water after using the toilet" (95.0%), the least accurately answered question was "It is beneficial to walk around barefoot at home" (37.2%) in this study (Table 3). The scores obtained from the Perception of Health Scale by the students in this study median score of 48.5 (Min-Max=22.0-75.0) (Table 4).

When personal and family characteristics of the participants and scores of personal hygiene knowledge were

Table 1. Distribution of the scores obtained by the students in study group from the information questions on personal hygiene by some socio-demographic characteristics

Socio-demographic characteristics	n(%)	Score of personal hygiene knowledge Median (Min-Max)	Test value Z/KW; p	Multiple comparison	p
Faculty					
Engineering (1)	444 (46.9)	23.0 (0.0-29.0)	**48.912; 0.001***	1-2	0.001
Law (2)	235 (24.8)	24.0 (0.0-29.0)		1-3	0.001
Medicine (3)	120 (12.7)	25.0 (0.0-30.0)		1-4	1.000
Dentistry (4)	147 (15.5)	23.0 (7.0-29.0)		2-3	0.040
				2-4	0.004
				3-4	0.001
Age					
20 and below (1)	249 (26.3)	24.0 (1.0-30.0)	3.407; 0.333	-	-
21 (2)	301 (31.8)	24.0 (0.0-29.0)		-	-
22 (3)	185 (19.6)	24.0 (4.0-29.0)		-	-
23 and above (4)	211 (22.3)	23.0 (0.0-29.0)		-	-
Sex					
Female	461 (48.7)	24.0 (0.0-30.0)	**5.664; 0.001***	-	-
Male	485 (51.3)	23.0 (0.0-29.0)		-	-
Smoking					
Non-smoker	719 (76.0)	24.0 (0.0-30.0)	**5.655; 0.001***	-	-
Smoker	227 (24.0)	22.0 (0.0-29.0)		-	-
Alcohol consumption					
No	849 (89.7)	24.0 (0.0-30.0)	**3.677; 0.001***	-	-
Yes	97 (10.3)	22.0 (0.0-29.0)		-	-
History of a physician-diagnosed disease requiring constant drug use					
Yes	107 (11.3)	23.0 (0.0-29.0)	**2.975, 0.003***	-	-
No	839 (88.7)	24.0 (0.0-30.0)		-	-
Self-declared state of health					
Good (1)	644 (68.1)	24.0 (0.0-30.0)	**55.212; 0.001***	1-2	0.005
Average (2)	246 (26.0)	23.0 (7.0-29.0)		1-3	0.001
Poor (3)	56 (5.9)	18.0 (0.0-28.0)		2-3	0.001
Regular physical activity					
Yes	418 (44.2)	24.0 (6.0-29.0)	0.921; 0.357	-	-
No	528 (55.8)	24.0 (0.0-30.0)		-	-
Obesity					
Yes	893 (94.4)	24.0 (0.0-30.0)	0.047; 0.962	-	-
No	53 (5.6)	24.0 (2.0-29.0)		-	-
Total	**946 (100.0)**	**24.0 (0.0-30.0)**	**-**	**-**	**-**

Z = Mann-Whitney U test; KW= Kruskal-Wallis test; Min = minimum; max = maximum; * =p<0.05; SD = standard deviation.

Table 2. Distribution of the scores obtained by the students from the information questions on personal hygiene by some parent

Some parent and family characteristics	n (%)	Score of personal hygiene knowledge Median (Min-Max)	Test value Z/KW; p	Multiple comparison	p
Family type					
Nucleus (1)	790 (83.5)	24.0 (0.0-30.0)	**64.939; 0.001***	1-2	0.001
Extended (2)	115 (12.2)	20.0 (7.0-28.0)		1-3	0.001
Fragmented (3)	41 (4.3)	22.0 (0.0-28.0)		2-3	1.000
Family income status					
Low (1)	104 (11.0)	21.0 (0.0-28.0)	**58.324; 0.001***	1-2	0.001
Average (2)	654 (69.1)	24.0 (0.0-30.0)		1-3	0.001
High (3)	188 (19.9)	24.0 (0.0-29.0)		2-3	1.000
Mother is alive					
Yes	920 (97.3)	24.0 (0.0-30.0)	**4.303; 0.001***	-	-
No	26 (2.7)	18.5 (4.0-27.0)		-	-
Father is alive					
Yes	905 (95.7)	24.0 (0.0-30.0)	1.394; 0.163	-	-
No	41 (4.3)	24.0 (4.0-28.0)		-	-
Education status of mother					
Primary school and lower	302 (31.9)	24.0 (0.0-29.0)	3.109; 0.211	-	-
Secondary/high school	403 (42.6)	24.0 (1.0-30.0)		-	-
University	241 (25.5)	24.0 (0.0-29.0)		-	-
Education status of father					
Primary school and lower	107 (11.3)	24.0 (4.0-28.0)	2.628; 0.269	-	-
Secondary/high school	366 (38.7)	23.0 (0.0-30.0)		-	-
University	473 (50.0)	24.0 (0.0-29.0)		-	-
Employment status of mother					
Employed	321 (33.9)	23.0 (0.0-30.0)	**4.021; 0.001***	-	-
Unemployed	625 (66.1)	24.0 (0.0-29.0)		-	-
Employment status of father					
Employed	791 (83.6)	24.0 (0.0-30.0)	1.310; 0.190	-	-
Unemployed	155 (16.4)	24.0 (0.0-28.0)		-	-
Living with parents					
Yes	492 (52.0)	24.0 (0.0-30.0)	**2.252; 0.024***	-	-
No	454 (48.0)	23.0 (0.0-29.0)		-	-
Healthcare professional in the family					
Yes	188 (19.9)	24.0 (0.0-29.0)	0.275; 0.783	-	-
No	758 (80.1)	24.0 (0.0-30.0)		-	-
Having previous information on personal hygiene					
Yes	807 (85.3)	24.0 (0.0-30.0)	**8.560; 0.001***	-	-
No	139 (14.7)	21.0 (0.0-28.0)		-	-
Total	**946 (100.0)**	**24.0 (0.0-30.0)**	**-**	**-**	**-**

Z= Mann-Whitney U test; KW= Kruskal-Wallis test; Min = minimum; Max = maximum; * =p<0.05.

compared, it was determined that the level of personal hygiene knowledge of medical faculty students, female students, non-smokers, non-drinkers, those who reported to have a good health and those with no history of disease was higher (p<0.05) (Table 1, Table 2).The comparison of socio-demographic characteristics of the participants and scores of health perception revealed that the level of health perception was higher in the medical faculty students, non-smokers, those performing regular physical activity, those who reported to have a good health and those with no history of disease (p<0.05) (Table 4).

A weak positive relationship was determined between the scores obtained from the information questions on personal hygiene and from the Perception of Health Scale in the study group (r=0.397; p=0.001). The distribution of the scores obtained from the information questions on personal hygiene and from the Perception of Health Scale is given in.

DISCUSSION

This study examined the level of personal hygiene knowledge and health perceptions of the university students. While the most accurately answered question on personal hygiene was “Hands should be washed with generous amounts of soap and water after using the toilet” (95.0%), the least accurately answered question was “It is beneficial to walk around barefoot at home” (37.2%) in this study. It was determined that the level of personal hygiene knowledge of the students was good, if not excellent. In their study, Simsek et al. determined that 97.7% of the high school students washed

Table 3. Distribution of answers for information questions on personal hygiene

Information questions on personal hygiene	Correct n (%)	Incorrect n (%)	No idea n (%)
Individual cleanliness is a self-care practice that should be maintained to stay healthy.	858 (90.7)	23 (2.4)	65 (6.9)
Personal hygiene means body cleaning.	754 (79.7)	142 (15.0)	50 (5.3)
*The main objective of personal hygiene is beautification of the body.	195 (20.6)	697 (73.7)	54 (5.7)
Each family member must have their own hand towel, bath towel, brush, nail clipper and toothbrush.	843 (89.1)	66 (7.0)	37 (3.9)
Shower should be taken at least twice a week.	871 (92.1)	47 (5.0)	28 (3.0)
*Ears should be cleaned thoroughly with cotton swabs after taking a shower.	596 (63.0)	259 (27.4)	91 (9.6)
The most important personal hygiene practice is hand washing.	802 (84.8)	68 (7.2)	76 (8.0)
Hands should be washed with generous amounts of soap and water after using the toilet.	**899 (95.0)**	**28 (3.0)**	**19 (2.0)**
Washing hands after using the toilet is very important to avoid contagious diseases.	861 (91.0)	43 (4.5)	42 (4.4)
Hands should be washed at least once every 2 hours under normal conditions, i.e. even if nothing is done with hands.	544 (57.5)	177 (18.7)	225 (23.8)
*Washing hair regularly and properly is not important in terms of having conditions such as lice and scabies.	247 (26.1)	618 (65.3)	81 (8.6)
A soft towel should be used to dry hair after taking a shower.	765 (80.9)	40 (4.2)	141 (14.9)
Nose should be cleaned with generous amount of water by blowing every morning and night before sleeping.	608 (64.3)	72 (7.6)	266 (28.1)
It is good to clean the ears with fingers while taking a shower.	508 (53.7)	255 (27.0)	183 (19.3)
The most effective way to protect dental health is regular tooth brushing.	884 (93.4)	34 (3.6)	28 (3.0)
*It is more beneficial to brush teeth before eating.	193 (20.4)	464 (49.0)	289 (30.5)
Avoiding harsh tooth brushing and over brushing is important to keep gums healthy.	853 (90.2)	65 (6.9)	28 (3.0)
Dental floss is a very effective tool to remove food stuck between teeth.	760 (80.3)	90 (9.5)	96 (10.1)
*There is no point in wearing sunglasses to protect eyes from the sun's rays.	116 (12.3)	715 (75.6)	115 (12.2)
Cotton and mercerized cotton socks should be preferred, if possible.	740 (78.2)	31 (3.3)	175 (18.5)
It is beneficial to walk around barefoot at home.	**292 (30.9)**	**352 (37.2)**	**302 (31.9)**
Feet up to knees should be washed with cold water and soap at the end of every day and dried with a foot towel or paper towel.	735 (77.7)	51 (5.4)	160 (16.9)
Cleaning and drying feet is important to avoid fungus diseases in particular.	872 (92.2)	44 (4.7)	30 (3.2)
While fingernails should be given a curve, toenails should be cut straight across.	666 (70.4)	80 (8.5)	200 (21.1)
*Fingernails and toenails should be clipped and groomed once a year.	128 (13.5)	734 (77.6)	84 (8.9)
Shaving underarm and pubic hair prevents bacteria from multiplying.	788 (83.3)	64 (6.8)	94 (9.9)
*Moisturizing creams provide no benefit for skin care.	148 (15.6)	644 (68.1)	154 (16.3)
Clean and ironed underwear and outerwear are important to protect skin health.	791 (83.6)	58 (6.1)	97 (10.3)
Especially underwear should be cotton and changed on a daily basis, if possible.	830 (87.7)	47 (5.0)	69 (7.3)
It is preferable to wear non-synthetic cloths which adjust body temperature, absorb sweat and keep warm in winter and cool in summer.	829 (87.6)	34 (3.6)	83 (8.8)

* =incorrect statement.

their hands after using the bathroom and 30.2% washed their hands when they got back home.[5] Arat concluded that almost all students washed their hands after using the toilet (96.5%) and when they felt the need (87.2%), but personal hygiene behaviors should be improved in boarding school students.[12] In their study on university students, Erbil and Asik found out that 51.1% of the students wash their hands after using the bathroom.[13] Timur determined that 7.6% of the students wash their hands before and after using the toilet.[14]

Table 4. Distribution of the scores of the students obtained from the Perception of Health Scale by some socio-demographic characteristics

Socio-demographic characteristics		n (%)	Score of the Perception of Health Scale Median (min-max)	Test value Z/KW; p	Multiple comparison	p
Engineering	(1)	444 (46.9)	47.5 (22.0-72.0)	**43.094; 0.001***	1-2	0.001
Law	(2)	235 (24.8)	50.0 (30.0-75.0)		1-3	0.001
Medicine	(3)	120 (12.7)	51.0 (34.0-70.0)		1-4	1.000
Dentistry	(4)	147 (15.5)	47.0 (36.0-70.0)		2-3	1.000
					2-4	0.001
					3-4	0.001
Age						
20 and below	(1)	249 (26.3)	48.0 (31.0-71.0)	4.679; 0.197	-	-
21	(2)	301 (31.8)	48.0 (22.0-69.0)		-	-
22	(3)	185 (19.6)	49.0 (32.0-75.0)		-	-
23 and above	(4)	211 (22.3)	49.0 (29.0-65.0)		-	-
Sex						
Female		461 (48.7)	49.0 (30.0-75.0)	1.865; 0.062	-	-
Male		485 (51.3)	48.0 (22.0-71.0)		-	-
Smoking						
Non-smoker		719 (76.0)	49.0 (22.0-75.0)	**4.332; 0.001***	-	-
Smoker		227 (24.0)	47.0 (29.0-70.0)		-	-
Alcohol consumption						
No		849 (89.7)	49.0 (22.0-75.0)	1.334; 0.182	-	-
Yes		97 (10.3)	47.0 (29.0-66.0)		-	-
History of a physician-diagnosed disease requiring constant drug use						
Yes		107 (11.3)	45.0 (29.0-75.0)	**4.041; 0.001***	-	-
No		839 (88.7)	49.0 (22.0-72.0)		-	-
Self-declared state of health						
Good	(1)	644 (68.1)	50.0 (22.0-75.0)	**47.116; 0.001***	1-2	0.001
Average	(2)	246 (26.0)	47.0 (30.0-62.0)		1-3	0.001
Poor	(3)	56 (5.9)	44.0 (29.0-61.0)		2-3	0.046
Regular physical activity						
Yes		418 (44.2)	50.0 (22.0-75.0)	**3.335; 0.001***	-	-
No		528 (55.8)	48.0 (29.0-70.0)		-	-
Obesity						
Yes		893 (94.4)	48.0 (22.0-75.0)	0.199; 0.842	-	-
No		53 (5.6)	49.0 (36.0-64.0)		-	-
Total		**946 (100.0)**	**48.5 (22.0-75.0)**	**-**	**-**	**-**

Z = Mann-Whitney U test;, KW= Kruskal-Wallis test; Min = minimum; Max = maximum; * =p<0.05.
= minimum; Max = maximum; * = p< 0.05.

Vivas at al found out that approximately 52% of the students with a mean age of 10-12 years had proper personal hygiene knowledge.[15] In their study, Singh and Gupta concluded that personal hygiene practices in adolescents were insufficient.[16] These findings suggest that students have correct information on personal hygiene mostly; however, their incorrect information in this regard should be corrected. Our findings are consistent with some rates specified in the literature regarding the personal hygiene knowledge of students. Better results obtained in our study in comparison to some studies in the literature suggest that differences in economic and awareness levels may affect personal hygiene knowledge.

It is explained in the literature that the perception of good health is important to encourage and maintain healthy lifestyle behaviors.[6,17]This study found out that the level of health perception is average in the students. Acikgoz et al. determined that a large majority of students perceived their health well.[18]

It was determined that students of medical faculty had a higher level of personal hygiene knowledge and health

perception in this study. Literature review also indicates that students studying health sciences had a higher level of hygiene knowledge.[7,19,20] Zaybak and Fadiloglu and de-Mateo-Silleras et al. found out that health perception was higher in university students studying health sciences compared to students in other fields.[6,21] This finding suggests that having courses addressing hygiene and health in the curriculum raises awareness towards personal hygiene and positive health perception.

In this study, female students had a higher level of personal hygiene knowledge than male students. Kadi and Salati and Arat et al. also determined that hygiene practices were more positive in female students than male students.[12,22] These findings suggest that female students are more sensitive about and show higher interest in personal hygiene.

This study determined that those with no history of a physician-diagnosed disease requiring constant drug use, those who reported to have a good health, non-smokers and non-drinkers had a higher level of personal hygiene knowledge. It was also found out that those with no history of disease, those who reported to have a good health, non-smokers and those performing regular physical activity had a higher health perception in this study. These findings support the hypothesis that students with a higher personal hygiene knowledge and health perception have awareness towards protection of health and are successful in adapting their knowledge and experiences in their lives. The higher health perception observed with a higher level of personal hygiene knowledge in this study also supports these findings. Similarly, some studies found out that students who care about their health more had positive health behaviors.[6,17] Szwarcwald et al. concluded that healthy lifestyle behaviors affect health perception in a more positive way.[23] In their study in university students, Emamvirdi et al. reported that health-related quality of life is lower in smokers and drinkers.[24]

It is noteworthy that the students who had previous knowledge on personal hygiene had a higher level of personal hygiene knowledge in this study. Dongre et al. determined that hygiene habits of the students improved after education.[25,26] This finding indicates that activities and trainings intended to provide information are important to improve personal hygiene knowledge of the students.

In this study, it was determined that the students with a good family income had a higher level of personal hygiene knowledge. It suggests that the opportunities provided by good income to protect and improve heath have a positive impact on personal hygiene knowledge of the students. A positive relationship between the high socioeconomic status and state of health in young people was reported in the literature.[3,27,28] Obtaining data without a standard measurement tool for participants' personal hygiene knowledge is a limitation of the study.

CONCLUSION

It was determined in our study that the students had a good level of personal hygiene knowledge and medium level of health perception. Personal hygiene and positive health perception are very important for personal and public health. It is recommended that university students should be informed about personal hygiene, importance of health and health perception and follow-up activities should be performed in this regard. Furthermore, it is also believed that observational studies should be performed to determine if correct personal hygiene habits have formed or not in the universities.

Ethics Committee Approval: The study was approwed by the Ankara Yıldırım Beyazıt University Ethics Committee, Türkiye (decision no:30, date:28.06.2018).

Informed Consent: Verbal consent was obtained from the students

Peer-review: Externally peer-reviewed.

Author Contributions: Concept-OS, SS, SSB, AU; Design -OS, SS, AU; Supervision-OS,SS,AU; Resources-OS, SS, SSB, AU; Materails-OS, SS, SSB, AU; Data Collection and/ or Processing –SSB; Analysis and/or Interpretation-AU; Literature Search– OS, SS, AU; Writing Manuscript– OS, SS, AU; Critical Review– OS, SS, AU

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ANTIPROLIFERATIVE AND ANTIOXIDANT EFFECTS OF CARNOSIC ACID ON HUMAN LIVER CANCER CELLS*
KARNOSİK ASİTİN İNSAN KARACİĞER KANSER HÜCRELERİNDEKİ ANTİPROLİFERATİF VE ANTİOKSİDAN ETKİLERİ

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ABSTRACT
The purpose of the study was to investigate the cytotoxic effects of carnosic acid alone and in combination with cisplatin on human liver cancer cells and their capacity to scavenge reactive oxygen species induced in the presence or absence of hydrogen peroxide. Cytotoxic effects of agents on human liver cancer cells for 24 and 48 hours were evaluated by methyl-thiazol tetrazolium-bromide assay. Mitochondrial membrane potential were detected via JC-1 kit. The intracellular reactive oxygen species levels were determined using 2'-7'dichlorofluorescin diacetate assay. According to our findings, both carnosic acid alone and in combination with cisplatin showed cytotoxic effects in human liver cancer cells at 24 and 48 hours of exposure. In particular, it was seen that the cell viability significantly decreased in a dose-dependent manner at 48 hours of exposure, and the combined treatment was found to have a more pronounced cytotoxic effect. In addition, all carnosic acid concentrations alone and in combination with cisplatin were identified to significantly reduce mitochondrial membrane potential. We observed that both carnosic acid alone and in combination with cisplatin lowered intracellular reactive oxygen species levels in the presence or absence of hydrogen peroxide. The results suggested that carnosic acid alone or in combination with cisplatin might be a promising agent in the treatment of liver cancer.

Keywords: Antioxidants, HepG2, carnosic acid, reactive oxygen species, cisplatin

ÖZ
Bu çalışmanın amacı, karnosik asitin tek başına ve sisplatin ile kombinasyonu insan karaciğer kanseri hücreleri üzerinde sitotoksik etkilerini ve bunların hidrojen peroksit varlığında veya yokluğunda indüklenen reaktif oksijen türlerini temizleme kapasitelerini araştırmaktır. Maddelerin insan karaciğer kanser hücreleri üzerindeki 24 ve 48 saatlik sitotoksik etkileri metil-tiyazol tetrazolyum-bromür testi ile değerlendirildi. Mitokondriyal membran potansiyeli JC-1 kiti ile tespit edildi. Hücre içi reaktif oksijen türlerinin düzeyleri 2'-7'dikloroferesin diasetat yöntemi kullanılarak belirlendi. Bulgularımıza göre, 24 ve 48 saatlik maruziyette karnosik asitin hem tek başına hem de sisplatin ile kombinasyonu insan karaciğer kanser hücrelerinde sitotoksik etkiler gösterdi. Özellikle, 48 saatlik maruziyette doza bağlı bir şekilde hücre canlılığını önemli ölçüde azalttığı görüldü ve kombine tedavinin daha belirgin bir sitotoksik etkiye sahip olduğu bulundu. Ayrıca, tüm karnosik asit konsantrasyonlarının tek başına ve sisplatin ile kombinasyonlarının mitokondriyal membran potansiyelini önemli ölçüde azalttığı belirlendi. Hem karnosik asitin tek başına hem de sisplatin ile kombinasyonu hidrojen peroksit varlığında veya yokluğunda hücre içi reaktif oksijen türlerinin düzeylerini düşürdüğünü gözlemledik. Sonuçlar, karnosik asitin tek başına veya sisplatin ile kombinasyon şeklinde karaciğer kanserinin tedavisinde umut verici bir ajan olabileceğini düşündürdü.

Anahtar kelimeler: Antioksidanlar, HepG2, karnosik asit, reaktif oksijen türleri, sisplatin

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INTRODUCTION

Cancer continues to be prominent health problem worldwide and the number of cases is expected to increase in the coming years, especially in developing countries.[1] Hepatocellular carcinoma (HCC), a malignant tumor, is seen as the most prevalent cause of cancer-associated mortality and has a high relapse rate,[2] and is resistant to chemotherapy, which makes it difficult the cure the disorder.[3] Due to the continuous increase in the incidence of HCC in recent years, it is very important to determine effective therapeutic agents for the treatment of HCC.[4] Natural products are an important source of bioactive compounds that have both chemopreventive and chemotherapeutic roles against several types of cancer.[5]

Carnosic acid (CA) is a bioactive phenolic diterpene primarily present in *Salvia officinalis* and *Rosmarinus officinalis*[6,7] and displays pharmacological and biological activities such as antioxidant, anticancer activities, antimicrobial, anti-apoptotic, anti-inflammatory, antiproliferative, and neuroprotective.[8-17] Studies on its antitumoral effect, which is among these properties, have focused on this feature of CA in many cancer cells.[15] Among these studies, in addition to inhibiting cell growth in human cervical cancer cells, CA has been stated to induce apoptosis in some cancer cell lines such as HCC, neuroblastoma, and human prostate cancer.[16,17]

Cisplatin (Cis) is one of the most effective and widely used chemotherapeutic drugs for the treatment of some carcinomas and is used in combination with other agents in the treatment of different types of cancer. The mechanism of the impress of Cis therapy is based on DNA damage by interfering with DNA repair mechanisms. This treatment is known to cause many toxic side effects.[18,19]

However, since liver cancer is resistant to chemotherapy, which complicates the treatment of the disease, adjuvant agents are needed to limit the side effects of Cis. It is important to develop new pharmaceutical products with less toxicity, especially products derived from natural sources.[17] Therefore, the purpose of our study was to assess the cytotoxic properties of CA alone and in combination with Cis on human liver cancer (HepG2) cells and their capacity to scavenge reactive oxygen species (ROS) induced in the presence or absence of hydrogen peroxide (H_2O_2).

MATERIALS AND METHODS

Chemicals

CA was purchased from Santa Cruz Biotechnology. Cis was obtained from Koçak Farma. H_2O_2 was supplied from Merck. DMEM culture medium, fetal bovine serum (FBS), penicillin-streptomycin, and trypsin-EDTA were supplied from Capricorn Scientific GmbH. Dimethyl sulfoxide (DMSO), methyl-thiazol tetrazolium-bromide (MTT), and dichlorodihydrofluorescein-diacetate (DCFH-DA) were obtained from Sigma Chemical. Cells supplemented with 0.1% DMSO alone were reflected as control. All substances were dissolved in DMSO with 99% purity and diluted with medium so that the final concentration of DMSO was 0.1%.

Cell culture

HepG2 cell was obtained from ATCC (USA) and grown in DMEM containing 10% FBS and supplemented with 1% penicillin-streptomycin. The cells incubated in a humid atmosphere including air (95%), CO_2 (5%), and at 37°C were routinely controlled and then treated with trypsin-EDTA followed by treatment with different concentrations of agents. Cells treated with DMSO (0.1%) alone were considered negative control.

Cell viability assay

The cytotoxicity properties of agents on the HepG2 cell were detected using the MTT test.[20] Firstly, cells were plated in 96-well plates to a final concentration of 10^4/well. To determine the cytotoxic concentrations and the values of IC_{50}, firstly CA (1-500 µM) and Cis (1-40 µM) were applied to the cell for 24 and 48 hours of exposure. The effective concentrations of CA and Cis were determined according to the IC_{50} values obtained. IC_{50} values were calculated using concentration–response curves to express the effects of test substances on cell viability. Cells were then exposed to CA (50, 100, and 150 µM), Cis (10 µM), and their combinations for 24 and 48 h. And then, the HepG2 cell was treated with a dose of 0.5 mg/mL MTT for 3 h and then the medium was removed. To dissolve the formazan-crystal, the DMSO solution (100 µL) was supplemented and the plates were shaken at room temperature for 15 min. The absorbance was read at 570 nm on a reader (Biotek Synergy HT, Gen5, Vermont, USA). The results were expressed as the mean percentage of cell growth.

Detection of MMP potential

The mitochondrial membrane potential (MMP) was determined in HepG2 cells after exposure to agents using the JC-1 assay kit (Cayman Chemical Company, USA), and the assay was carried out with the manufacturer's instructions. The fluorescence intensities were recorded by using a microplate reader (Biotek Synergy HT, Gen5, Vermont, USA). Monomeric JC-1 (green) was detected by excitation at 485 nm and emission at 535 nm. Aggregated JC-1 (red) was determined by excitation at 535 nm and emission at 595 nm. The ratios of red and green JC-1 fluorescence was calculated.

Measurement of intracellular ROS production in the presence or absence of H_2O_2

ROS levels in HepG2 cells was analyzed by the method of DCFH-DA.[21] Firstly, HepG2 cells (1x 10^4) were placed in 96-well black plates and held for 24 h. After changing the medium, cells were exposed to agents for 1 h and then exposed to H_2O_2 (100 µM) for 2 h. After washing twice with cold PBS, DCFH-D) (5 µM) was supplemented to the cell and held for 45 min at 37 °C in the dark. The fluorescence was read by a microplate reader (Biotek Synergy HT, Gen5, Vermont, USA). The wavelengths of excitation and emission were 485 and 550 nm, respectively.

Statistical analysis

SPSS 18.0 was applied for statistical evaluation. Data were assessed for normality assumption and homogeneity of variance. The compliance of the data for normal distribution was checked with the "Shapiro-Wilk" test and it was observed that it had a normal distribution ($p>0.05$). The significance was calculated using one-way analysis of variance (ANOVA) with an LSD post-hoc test and p values of <0.05 were regarded as statistically significant. Experiments were repeated three times at different time periods. Experiments were repeated triplicate and values were indicated as the mean ± standard

error.

RESULTS

CA and CA+Cis reduced cell viability in HepG2 cell

Firstly, we evaluated the cytotoxic effects of CA in a wide concentration range (1-500 µM) in HepG2 cells with the MTT test for 24 and 48-h incubation periods. IC_{50} values of CA were determined to be 144 µM (R^2=0.849) and 87 µM (R^2=0.977) for 24 h and 48 h, respectively. After determining the effective concentrations, considering the IC_{50} values; 50, 100, and 150 µM concentrations of CA and 10 µM concentration of Cis were selected for all experiments.

According to the cytotoxicity results of 24-hour exposure, we observed that of CA and their combinations with Cis decreased cell viability in a concentration-dependent manner. In particular, we determined that concentrations of 150 µM CA (p<0.001), Cis+100 µM CA (p=0.013), and Cis+150 µM CA (p=0.004) caused a substantial decrease in % cell viability in comparison to the control (Figure1A).

According to the cytotoxicity results of 48-hour exposure, the decrease in cell viability in a concentration-dependent manner was determined to be quite significant for all CA doses and their combinations with Cis compared to the control cells (p<0.001). In addition, when compared with the Cis, the Cis+50 µM CA (p=0.014) led to an important reduction in cell viability, while the Cis+100 µM CA (p<0.001) and Cis+150 µM CA (p<0.001) caused a notably significant decrease in the % cell viability (Figure1B).

CA and CA+Cis reduced MMP in HepG2 cell

A typical feature of the early stage of apoptosis involving changes in MMP is the disruption of mitochondria and the oxidation-reduction incidental to the mitochondria. JC-1 gathers in the matrix in healthy cells with high MMP and instantly makes up complexes in the form of J-aggregates with intense red fluorescence. In apoptotic or unsanitary cells with low MMP, JC-1 remains in monomeric form, showing green fluorescence. Hereby, the red-to-green reversion of JC-1 fluorescence shows a reduction in MMP.[2]

Our finding indicated that HepG2 cells were exposed to all CA concentrations and their combinations with Cis 24 h resulted in notable reductions in the ratio of red/green fluorescence when compared to the control as demonstrated in Figure2. In particular, we detected that concentrations of 50 µM CA (p=0.004), 100 µM CA (p=0.004), 150 µM CA (p<0.001), Cis+50 µM CA (p=0.010), Cis+100 µM CA (p<0.001), and Cis+150 µM

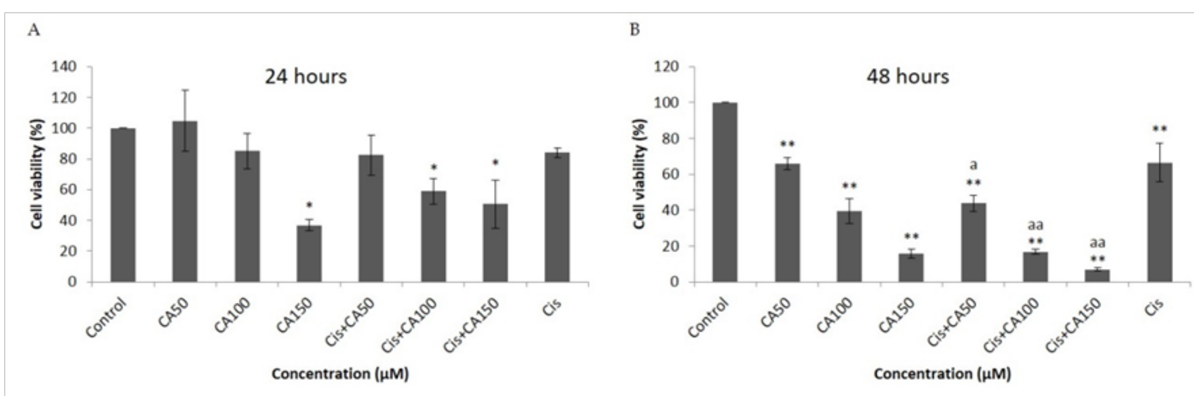

Figure1: Cytotoxic effects of CA alone and in combination with Cis on HepG2 cells viability for 24 h (A) and 48 h (B) using MTT assay. Cell viability was plotted as a percent of the control (assuming data obtained from untreated cells as 100%). Differences between the means of data were compared by the one-way analysis of variance (ANOVA) test and post hoc analysis of group differences by the least significant difference (LSD) test (n=8).$^{*}p$<0.05 compared to control;$^{**}p$<0.001 compared to control; ^{a}p<0.05 compared to Cis; ^{aa}p<0.001 compared to Cis.

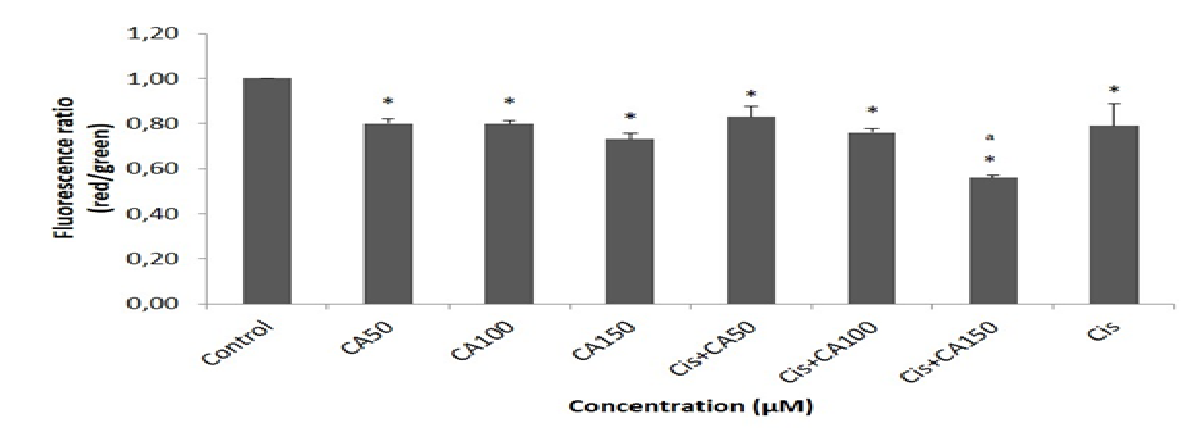

Figure 2: MMP changes in HepG2 cells treated with CA alone and in combination with Cis. Differences between the means of data were compared by the one-way analysis of variance (ANOVA) test and post hoc analysis of group differences by the least significant difference (LSD) test (n=8).$^{*}p$<0.05 compared to control; ^{a}p<0.05 compared to Cis.

CA (p<0.001) caused a substantial decrease in MMP in comparison to the control. Furthermore, a decrease in MMP in the Cis+150 µM CA group was found to be substantial in comparison to the Cis-treated cells (p=0.001).

CA and CA+Cis reduced significantly ROS generation in HepG2 cells

Based on the DCFH-DA assay, we determined that all CA concentrations and their combination with Cis significantly reduced intracellular ROS levels when compared to the control (p<0.001). When compared to Cis, the decrease in DCF fluorescence was found to be significant in the Cis+150 µM CA (p=0.17) as seen in Figure3A. In the presence of H_2O_2, we found that all CA concentrations and their combinations with Cis significantly reduced intracellular ROS levels (p<0.001) as shown in Figure3B.

Our data from cytotoxicity results showed that all concentrations of CA (50 µM, 100 µM, and 150 µM) and their combination with Cis decreased cell viability with 24 h exposure in HepG2 cells. In particular, we determined that concentrations of 150 µM CA, Cis+100 µM CA, and Cis+150 µM CA raised a substantial reduction in cell viability compared to the control. Moreover, all concentrations of CA (50, 100, and 150 µM) and their combination with Cis were found to significantly reduce cell viability in a dose-dependently with 48 hours of exposure in HepG2 cells. In addition, when compared with the Cis-treated cells, the Cis+50 µM CA caused a significant reduction in cell viability, while the Cis+100 µM CA and Cis+150 µM CA caused a highly significant decrease in cell viability.

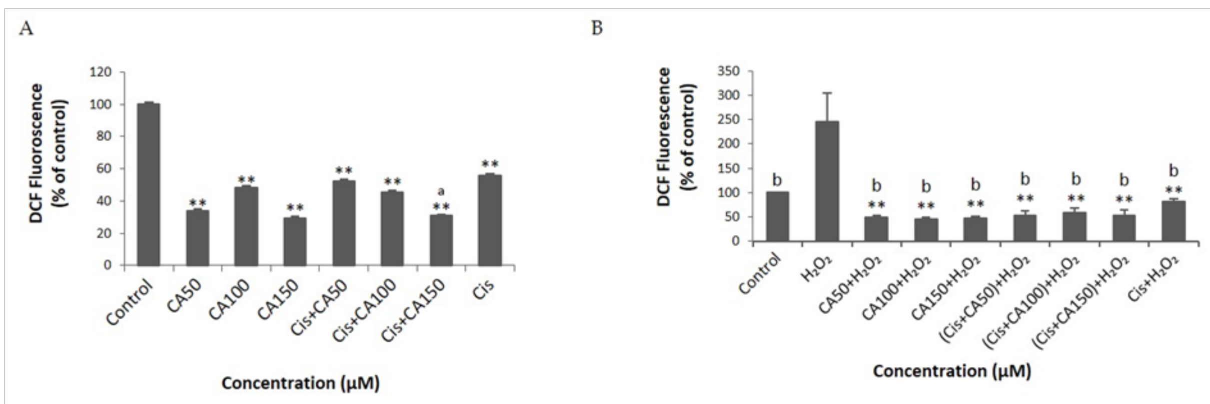

Figure3: ROS levels in HepG2 cells treated with CA alone and in combination with Cis in the absence of H_2O_2 (A) and the presence of H_2O_2 (B) by quantitative analysis of the fluorescent intensity of DCF. Differences between the means of data were compared by the one-way analysis of variance (ANOVA) test and post hoc analysis of group differences by least significant difference (LSD) test (n=8). [a]p<0.05 compared to Cis; **p<0.001 compared to control; [b]p<0.001 compared to the H_2O_2 group.

DISCUSSION

Today, the discovery of new natural products with high anticancer activity but no toxicity on healthy cells come to the fore as a substantial option in cancer therapy. The use of various herbal phenolic compounds with chemotherapeutic drugs is important in terms of increasing the anticancer efficacy of these agents and reducing their possible adverse effects. For this purpose, we investigated the potential cytotoxicity of CA administered at various concentrations alone or in combination with Cis in HepG2 cells.

The results obtained from this study showed that CA, alone or in combination with Cis, potently reduced cell viability in HepG2 cells, induced MMP changes, and significantly reduced intracellular ROS generation in the presence or absence of H_2O_2.

As a polyphenol, CA has been suggested to prevent the growth of several human cancer cells as a hopeful dietary supplement in the prevention and treatment of human diseases.[22,23] Cis is an excellent chemotherapy agent for various cancers, but it does cause some side effects. Therefore, the combined treatment of Cis with anticancer natural products may increase its therapeutic potential and reduce its adverse effects.[24] Since there is no data in the literature about the combined effects of CA and Cis on HCC, we evaluated this effect in our study and observed significant dose-dependent cytotoxic effects on HepG2 cells.

In other studies, cytotoxic effects of CA have been observed in various cancer cells. Xiang et al.[2] observed that according to the results of the MTT test, 50 and 100 µM CA reduced dose-dependently cell viability in HepG2 cells at 24 hours of exposure. Zhang et al.[12] have also demonstrated the destructive effects of CA on HCC *in vitro* and *in vivo* studies. *In vitro,* CA significantly reduced cell viability and inhibited cell growth in HepG2 and SMMC-7721 cells. Kaplan et al.[25] established that CA considerably prevents HepG2 cell growth in a dose and time-dependently. Yesil-Celiktas et al.[23] observed a decrease in cell viability of various cancer cell lines exposed to CA at doses of 6.25 to 50 µg/ml for 48 hours. In particular, they observed that CA at 6.25 µg/ml dose led to the least cell viability, resulting in a superior antiproliferative effect. Corveloni et al.[14] found that CA treatment inhibited cell proliferation in non-small-cell human lung carcinoma (NCI-H460) and was only seen at elevated doses (160-320 µM). Su et al.[26] reported that CA (5-100 mM) decreased the cell viability in cervical cancer CaSki and SiHa cells in a time and dose-dependently according to the MTT test results. Tsai et al.[9] stated that CA dose-dependently reduced the cell viability for 24 h and displayed vigorous cytotoxicity against human neuroblastoma IMR-32 cells at an IC_{50} value of about 30 µM. Bai et al.[27] found that CA showed strong antiproliferative effects on HL-60 cells at an IC_{50} value of 1.7 µM and on COLO 205 cells at an IC_{50} value of

32.8 μM.

Recent discoveries have shown that mitochondria, which are known to have a role in cancer development, are targeted by some plant polyphenols in cancer cells.[28] MMP, which reflects the functional state of mitochondria, is thought to be associated with cell differentiation status, malignancy, and tumorigenicity.[29] In our study, we observed that all concentrations of CA and their combinations with Cis significantly reduced MMP in HepG2 cells. Consistent with our result, Xiang et al.[2] observed CA-induced MMP changes in HepG2 cells. They found that exposure of HepG2 to CA (10, 25, and 50 μM) for 24 resulted in significant reductions in the ratio of red-green fluorescence in comparison to control, suggesting that CA may be a hopeful dietary polyphenol in the repress of cancer cell proliferation. Zhang et al.[12] also showed that exposure to 30 μM and 60 μM CA for 6 h led to a reduction in MMP in HepG2 and SMMC-7721 cells.

ROS are quite reactive radicals under the control of intracellular antioxidants and lead to many diseases, including cancer.[30] Excessive ROS production by mitochondria in cancer cells plays an important role in cancer development by leading to oxidative DNA damage.[30,31] H_2O_2 is a substantial product in oxidative stress-caused cell death, redox regulation, and signaling.[32,33]

In our study, H_2O_2 was used as an intracellular stimulant because it causes cell death through oxidative signaling. Our DCFH-DA assay results showed that intracellular ROS levels were reduced by all CA concentrations and their combination with Cis in the presence or absence of H_2O_2. This is because a decrease in the levels of ROS, which has a significant role in the promoter and progress of cancer, may have prevented the proliferation of cancer cells.[34] Having obtained similar results, Kim et al.[33] determined that turmeric leaf extract, which has antioxidant properties, inhibited intracellular ROS formation in Vero cells treated with 600 μM H_2O_2. Similarly, Hu et al.[35] examined the level of ROS in H_2O_2-treated HepG2 cells to examine whether CA confers protection against oxidative damage. After pretreatment with CA at a dose range of 2.5-10 μM for 2 h, cells were exposed to H_2O_2 (3 mM) for 4 h. They determined that cells exposed to H_2O_2 showed accumulation of ROS and pretreatment with CA significantly decreased ROS compared to the H_2O_2 treatment group. On the other hand, while Cis was expected to increase ROS levels in HepG2 cells, it was a striking result that it decreased ROS levels statistically and significantly in the presence of H_2O_2. This suggested that this was probably due to Cis triggering the intracellular antioxidant defense system or through other mechanisms. Therefore, this issue needs to be clarified with further studies.

CONCLUSION

In conclusion, the main finding of our study revealed that CA, alone or in combination with Cis, potently inhibits HepG2 cancer cell growth, induces changes in MMP, and significantly reduces intracellular ROS generation in HepG2 cells in the presence or absence of H_2O_2. Collectively, the results from this study suggested that CA alone or in combination with Cis might be a promising agent in the treatment of liver cancer.

The authors declare no conflict of interest.

Ethics Committe Approval: There is no need to obtain ethical approval.

Informed Consent: There is no need to obtain informed consent.

Peer-revlew: Externally peer-reviewed.

Author Contributions: Concept–AE; UNA; Design–AE, UNA.; Supervision–AE; Resources–AE; UNA; Materials–AE; Data collection and/or Processing–UNA, EB, AÖH; Analysis and/or Interpretation–AE, UNA, EB, AÖH; Literature Search–UNA, AE, EB, AÖH; Writing Manuscript–AE, EB, AÖH; Critical Review–AE, UNA.

Declaration of Interest: The authors declare no conflict of interest.

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PALYATİF BAKIM HASTALARININ VE HEMŞİRELERİNİN BİREYSELLEŞTİRİLMİŞ BAKIMA İLİŞKİN ALGILARI
PERCEPTIONS OF PALLIATIVE CARE PATIENTS AND NURSES ABOUT INDIVIDUALIZED CARE

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ÖZ

Palyatif bakım süreci hasta ve hemşireler için zor, yıpratıcı ve travmatik bir süreçtir. Dolayısıyla hem palyatif bakım alan hastalar hem de onlara bakım veren hemşirelerin bireyselleştirilmiş bakıma ilişkin algısını ortaya koymak, istendik düzeyde nitelikli bakım hizmeti sunma, gereksinimlerin karşılanması ve memnuniyetin değerlendirilmesi açısından önemlidir. Bu nedenle, bu çalışmada palyatif bakım hemşirelerinin ve hastalarının bireyselleştirilmiş bakım algısının değerlendirilmesi amaçlanmıştır. Bu kapsamda araştırmaya dahil edilen 164 palyatif bakım hasta ve hemşiresine Hasta ve Hemşire Bilgi Formu, Bireyselleştirilmiş Bakım Skalası-B Hasta ve Hemşire Versiyonu uygulanmıştır. Araştırma verilerinin değerlendirilmesinde sayı, yüzde, ortalama ve standart sapma değerleri ile Bağımsız Örneklem T-Testi kullanılmıştır. Araştırmada hasta ve hemşirelerin Bireyselleştirilmiş Bakım Skalası-B toplam puanı sırasıyla 3.26±0.60, 4.04±0.58, klinik durum 2.88±0.67, 3.97±0.62, kişisel yaşam 3.28±0.65, 4.04±0.79 ve karar verme kontrolü 3.68±0.88, 4.11±0.72 olarak hesaplanmıştır. Hasta ve Hemşirelerin Bireyselleştirilmiş Bakım Skalası-B puan ortalamaları arasında istatistiksel olarak anlamlı fark olduğu belirlenmiştir ($p<0.05$). Araştırma sonuçları, bireyselleştirilmiş bakıma ilişkin hemşirelerin algısının yüksek hastaların algısının ise ortalamanın üzerinde olduğunu ortaya koymuştur. Hastaların bireyselleştirilmiş bakım algılarının hemşirelere göre anlamlı düzeyde daha düşük olduğu tespit edilmiştir. Buna göre, hastanın gereksinimlerini karşılayacak şekilde bireyselleştirilmiş bakımın yapılandırılması, bakımın hasta ile birlikte planlanması ve hemşirelerin konunun önemine ilişkin farkındalıklarının artırılması yönünde planlamaların yapılması önerilebilir.

Anahtar kelimeler: Bireyselleştirilmiş bakım, hasta, hemşire, palyatif bakım

ABSTRACT

The palliative care process is a difficult, wearing, and traumatic process for patients and nurses. Therefore, revealing the perception of individualized care of both patients receiving palliative care and the nurses caring for them is important in terms of providing qualified care services at the desired level, meeting their needs, and evaluating satisfaction. Therefore, this study aimed to evaluate the perception of individualized care of palliative care nurses and their patients. In this context, the Patient and Nurse Information Form, and Individualized Care Scale-B Patient and Nurse Version were applied to 164 palliative care patients and nurses included in the study. In the evaluation of the research data, number, percentage, mean and standard deviation values and Independent Sample T-Test were used. In the study, the Individualized Care Scale-B total score of patients and nurses were calculated as 3.26±0.60, 4.04±0.58, clinical status 2.88±0.67, 3.97±0.62, personal life 3.28±0.65, 4.04±0.79 and decision-making control 3.68±0.88, 4.11±0.72, respectively. It was determined that there was a statistically significant difference between the Individualized Care Scale-B mean scores of patients and nurses ($p<0.05$). The results of the study revealed that nurses' perception of individualized care was high, while patients' perception was above average. It was found that patients' perceptions of individualized care were significantly lower than nurses'. Accordingly, it may be recommended to structure individualized care to meet the patient's needs, plan the care together with the patient, and make plans to increase nurses' awareness of the issue's importance.

Keywords: Individualized care, patient, nurse, palliative care

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GİRİŞ

Bakım, yaşamda ihtiyaç duyulan ilişkisel, öznel ve etik yönleri olan çok boyutlu bir olgudur.[1] Bakımı profesyonel kimliği ile bütünleştiren meslek hemşireliktir. Hemşirelik için bakım; özgün ve vazgeçilmez bir kavramdır.[2] Hemşirelik bakımının temel amacı, karşılıklı güvene dayalı bir iletişim ve etkileşim içinde hizmet verilen bireyi tanımak, bakım gereksinimlerini belirlemek ve sonuçta bireyin sorunları ile daha etkin baş edebilir, gereksinimlerini karşılayabilir hale gelmesini sağlamaktır.[3] Bu açıdan hemşire bireye/hastaya bakım vermeden önce hastasıyla birlikte onun gereksinimlerini saptar ve bakıma yönelik eylemlerini planlar.[4] Hemşireler planladıkları bu eylemleri gerçekleştirirken profesyonel bilgi, beceri ve deneyimleri ile mesleki etik ilkeleri birleştirir, bireylerin kültürü, inançları ve değerlerini gözeterek bakımı bireyselleştirirler.[5–7] Dolayısıyla bireyselleştirilmiş bakım; bireylerin biyo-psiko-sosyal bakım gereksinimlerine odaklanmayı, hastaya bağımsızlığını kazandırma ve sürdürmeyi ve bakımı hasta ile beraber planlamayı gerektirir.[5] Bu bağlamda hemşirelerin bakım verdiği bireylerin biricikliğine saygı göstermesi ve bireyselleştirilmiş bakım almanın her hastanın hakkı olduğunu bilerek hizmet sunması önemlidir.[8,9]

Bakımın bireyselleştirilmesi her hasta için önemli olmakla birlikte özellikle palyatif bakım alan, ağrı ve diğer fiziksel, psikososyal ve manevi problemler nedeniyle acı ve ızdırap çeken hastalar için daha değerlidir.[9,10] Çünkü palyatif bakım süreci hem bakım veren hem de bakım alan bireyler için zor, yıpratıcı ve travmatik bir süreçtir. Hasta prognozundaki belirsizlik, sosyal destek yetersizliği, umutsuzluk, hastalık tanısının net olmaması, uygun bakım hedeflerinin belirlenememesi ve bakım sürecinin sonunda çoğunlukla ölümün gerçekleşmesi bu süreci daha travmatik hale getirebilmektedir.[11] Dolayısıyla sürecin etkin yönetilebilmesinde kaliteli, güvenli ve bütüncül bakım ışığında hemşirenin palyatif bakım alan hasta ve ailesi ile dinamik, şefkatli bir ilişki kurması, bireye özgü gereksinimleri göz önünde bulundurarak bakımı planlaması, bireyselleştirmesi[10,12,13] ve hastaların da bu yaklaşımın farkında olması önemlidir.[14]

Literatürde hasta ve hemşirelerin bakım algıları arasında farklılık olduğu, hemşirelerin bakımın psikolojik, duygusal yönlerini ve klinik yeterliliği daha önemli buldukları, hasta bireylerin ise bakımda fiziksel ve tıbbi yönleri daha fazla önemsedikleri yer almaktadır.[14,15] Hasta ve hemşirelerin farklılaşan bakım algıları nedeniyle bireyselleştirilmiş bakıma ilişkin görüşlerini ortaya koymak önemlidir. Çünkü hasta ve hemşirelerin görüşleri arasındaki farklılıklar istenilen çıktılara ulaşmada önemli engellerden biridir.[16] Kanıtların, hasta bakımında bireyselleştirilmiş bakım uygulamasını desteklemesine rağmen, hastalar ve hemşireler arasında standardizasyon sağlanamamıştır.[17] Oysaki hem hizmeti sunan hem de hizmeti alan bireyler açısında standardizasyonun sağlanması bireyselleştirilmiş bakımın amacına ulaşması, yapılandırılması ve karşılıklı memnuniyetin sağlanması açısından önemlidir.

Bu bağlamda bireyselleştirilmiş bakımın hastalar ve onlara bakım veren hemşireler tarafından değerlendirilmesi gerekliliği ortaya çıkmaktadır. Palyatif bakıma ilişkin karmaşık ve zorlu süreçler göz önüne alındığında hemşirelerin, farklı bireysel ihtiyaçlara cevap verecek şekilde bakımı bireyselleştirmesi ve bakım alan hastaların da bunun farkına varması istenmektedir.[12,13,18] Bu doğrultuda bu çalışmada palyatif bakım hemşirelerinin ve hastalarının bireyselleştirilmiş bakım algısının değerlendirilmesi amaçlanmıştır.

Araştırma Soruları

Hasta ve hemşirelerin bireyselleştirilmiş bakıma ilişkin algısı nedir?

Hasta ve hemşirelerin bireyselleştirilmiş bakım algısı arasında fark var mıdır?

GEREÇ VE YÖNTEM

Bu çalışma tanımlayıcı ve kesitsel desende yapılmıştır. Çalışmanın evrenini bir devlet hastanesinin iki farklı ünitesindeki palyatif bakım kliniklerinde tedavi gören hastalar ve bu hastalara bakım veren hemşireler oluşturmuştur. Çalışmada örneklemde yer alacak birey sayısını belirlemek amacıyla G*Power 3.1.9.4.[19] yazılımı kullanılarak güç analizi yapılmıştır. Bunun için hasta ve hemşirelerin bireyselleştirilmiş bakım algısının değerlendirildiği bir çalışmada[20] yer alan katılımcıların bireyselleştirilmiş bakım algısına ilişkin ortalama ve standart sapma puanları (Hemşire=3.88±0.90, Hasta=4.35±0.67) göz önünde bulundurulduğunda, hasta/hemşire sayısının 3/1 oranında alınması hedeflenerek 0.59 etki büyüklüğü, 0.05 anlamlılık düzeyi ve %90 güç ile 123 hasta ve 41 hemşire olmak üzere örneklem büyüklüğü 164 olarak belirlenmiştir.

Araştırmaya Dahil Edilme Kriterleri

Çalışmada yer alan hastaların bakımına katılan hemşireler ve palyatif bakım kliniğinde en az üç gün tedavi gören, okur-yazar, 18 yaş ve üzerinde olan, soruları bağımsız yanıtlayabilen, iletişim kurabilen, psikiyatrik tanı almamış ve veri toplama formlarının doldurulduğu gün taburcu olan hastalar araştırmaya dahil edilmiştir.

Veri Toplama

Araştırma verileri 01.11.2022-31.12.2022 tarihleri arasında toplanmıştır. Hasta verileri en az üç gün hastanede kaldıktan sonra taburcu oldukları günde hastalarla yüz yüze görüşme yapılarak toplanmıştır. Hemşireler için veri toplama işlemi de hastalarla eşzamanlı olarak yürütülmüştür.

Veri Toplama Araçları

Araştırma verileri Hemşire Bilgi Formu, Hasta Bilgi Formu, Bireyselleştirilmiş Bakım Skalası-Hasta-B ve Bireyselleştirilmiş Bakım Skalası-Hemşire-B ile toplanmıştır.

Hemşire Bilgi Formu: Araştırmacılar tarafından literatür taranarak[8,14,21] oluşturulmuş, hemşirelerin yaş, cinsiyet, eğitim durumu, palyatif bakım kliniğinde çalışma süresi, mesleki deneyimi, vardiya şekli, haftalık ortalama çalışma süresi ve bakmakla yükümlü oldukları hasta sayısı bilgilerini içeren, sekiz sorudan oluşan bir formdur.

Hasta Bilgi Formu: Araştırmacılar tarafından literatür taranarak[8,14,21] oluşturulmuş, hastaların yaş, cinsiyet, eğitim durumu, medeni durum, meslek, yatış tanısı, hastanede yatış süresi, eşlik eden kronik hastalık varlığı, kliniğe geliş şekli, refakatçı varlığı ve kendi kendine yeterlilik durumunu sorgulayan, 11 sorudan oluşan bir formdur.

Bireyselleştirilmiş Bakım Skalası-Hasta-B (Hasta-BBS-B): Hasta-BBS-B, Suhonen ve arkadaşları (2000) tarafından 2000 yılında geliştirilmiş ve 2005 yılında tekrar gözden geçirilerek madde sayısı azaltılmıştır. Acaroğlu ve arkadaşları (2010) tarafından Türkçe ge-

çerlilik güvenirliliği yapılmıştır. Hasta-BBS-B; hastanın kendi bakımına yönelik bireyselliği algılamasını değerlendiren ve 17 soru içeren bir formdur. Hasta-BBS-B "Klinik Durum (B1-B7)", "Kişisel Yaşam Durumu (B8-B11)" ve "Karar Verme Kontrolü (B12-B17)" olmak üzere üç alt boyut içermektedir. Skalanın toplamından ve alt boyutlardan en az 1 ve en fazla 5 puan alınabilmektedir. Puanın yüksek olması hastaların, kendi bakımlarına ilişkin bireysellik algısının yüksek olduğunu göstermektedir. Türkçe geçerlilik ve güvenilirliği yapılan çalışmada ölçeğin Cronbach alfa güvenilirlik katsayısının 0.93 olduğu bildirilmiştir.[21] Bu çalışmada ise Cronbach alfa 0.88 olarak hesaplanmıştır.

Bireyselleştirilmiş Bakım Skalası-Hemşire-B (Hemşire-BBS-B): Hemşire-BBS-B; Suhonen ve arkadaşları (2010) tarafından 2007 yılında geliştirilmiş ve Türkçe geçerlilik ve güvenirlik çalışması Şendir ve arkadaşları (2010) tarafından yapılmıştır. Hemşirelerin hastanın bakımını bireyselleştirme algılarını değerlendiren Hemşire-BBS-B, 17 soru ve "Klinik Durum (B1-B7)", "Kişisel Yaşam Durumu (B8-B11)" ve "Karar Verme Kontrolü (B12-B17) olmak üzere üç alt boyuttan oluşmaktadır. Skalanın toplamından ve alt boyutlardan en az 1 ve en fazla 5 puan alınabilmektedir. Puanın yüksek olması hemşirelerin, hastanın bakımını bireyselleştirmeye ilişkin algısının yüksek olduğunu göstermektedir.[21] Türkçe geçerlik ve güvenirlik çalışmasında Cronbach alfa değeri 0.88 saptanmıştır.[22] Bu çalışmada ise Cronbach alfa 0.89 olarak hesaplanmıştır.

Bireyselleştirilmiş Bakım Hasta ve Hemşire Skalalarının maddeleri benzer ifadelerden oluşmakta ve skalalar amaç ve kapsam olarak birbirlerine benzemektedir. Dolayısıyla bu durum hemşire ve hastaların bireyselleştirilmiş bakım algılarının karşılaştırılmasına imkân sağlamaktadır.[23]

İstatistiksel Analiz

Verilerin istatistiksel analizi Statistical Package for Social Sciences (SPSS 25) paket programı ile yapılmıştır. Verilerin değerlendirilmesinde hasta ve hemşirelerin tanımlayıcı özellikleri için sayı, yüzde, ortalama ve standart sapma değerleri kullanılmıştır. Çalışmada kullanılacak istatistiklerin belirlenebilmesi için verilerin normal dağılım gösterip göstermediği Çarpıklık ve Basıklık değerleri ile belirlenmiştir. Alan yazında verilerin normal dağılım gösterebilmesi için Çarpıklık ve Basıklık değerlerinin -2 ile +2 arasında değişmesi gerektiği yer almaktadır.[24] Buna göre, BBS-B'den elde edilen puanların normallik şartını sağladığı belirlenmiştir (Hasta=BBS-B çarpıklık: +0.63, basıklık: -1.23; hemşire=BBS-B çarpıklık: -1.36, basıklık: -0.002). Bu sonuçlara dayalı olarak hasta ve hemşirelerin bireyselleştirilmiş bakım algısı arasında fark olup olmadığını değerlendirmek için Bağımsız Örneklem T-Testi kullanılmıştır. Anlamlılık düzeyi 0.05 olarak kabul edilmiştir.

Araştırmanın Etik Yönü

Bu çalışmanın yapılabilmesi için araştırmanın yapıldığı kurumdan resmi yazılı izin, Bolu Abant İzzet Baysal Üniversitesi Klinik Araştırmalar Etik Kurulundan 2022/234 sayılı etik onay, hastalardan ve hemşirelerden yazılı ve sözlü aydınlatılmış onam ve araştırmada kullanılan skalalar için yazardan e-mail yolu ile izin alınmıştır.

Araştırmanın Sınırlılıkları

Bu çalışma araştırmanın yapıldığı zaman dilimi ile araştırmanın yapıldığı kurumun palyatif bakım kliniklerinde çalışan ve çalışmaya katılmaya gönüllü olan hemşireler ve bakım alan hastalar ile sınırlıdır. Araştırma sonuçları tüm hasta ve hemşirelere genellenemez.

BULGULAR

Hemşire ve hastalara ait demografik veriler ve hastaların hastalık özellikleri Tablo I'de gösterilmiştir.

Tablo I'e göre hastaların yaş ortalamasının 71.53±12.6 (min-max: 32-98), %51.2'sinin kadın, %66.7'sinin evli, %36.5'inin ilköğretim mezunu ve %43.1'inin ev hanımı olduğu görülmektedir. Hastaların %22.8'inin göğüs hastalıkları nedeniyle yattığı, % 13.0'ünün kanser tanısı aldığı, %52.0'ının dokuz gün ve üzerinde hastanede yattığı, %66.7'sinin eşlik eden bir kronik hastalığının olduğu belirlenmiştir. Hastaların %47.2'sinin acil servis üzerinden yatışının yapıldığı, %94.3'ünün refakatçısının olduğu ve %47.7'sinin günlük yaşamında kısmen yardıma gereksinim duyduğu ve %22.0'ının da tamamen bağımlı olduğu tespit edilmiştir.

Hemşirelerin demografik özellikleri için Tablo I incelendiğinde, yaş ortalamalarının 32.0±7.19 (min-max: 22-51) olduğu, %97.6'sının kadın, %75.6'sının lisans mezunu, % 61.0'ının dokuz yıl ve daha altında mesleki deneyime sahip olduğu (ortalama: 8.36±7.02), %63.4'ünün üç yıl ve daha az süre palyatif bakım kliniğinde çalıştığı (ortalama: 3.19±1.97), %87.8'inin gece-gündüz dönüşümlü vardiyalarda çalıştığı, %56.1'inin haftada 48 saat ve altı süre çalıştığı (ortalama: 52.0±8.09) ve bakmakla yükümlü oldukları hasta sayısının ortalama 15.97±1.02 olduğu görülmektedir.

Tablo II'de hasta ve hemşirelerin BBS-B toplam ve alt boyutlarına ait puan ortalamalarının karşılaştırılması yer almaktadır. Tablo II'ye göre, hastaların BBS-B toplam puan ortalaması 3.26±0.61 (min-max:1.71-4.41) hemşirelerin ise, 4.04±0.58 (min-max:2.41-5.00) belirlenmiştir. Skala alt boyutları incelendiğinde, hasta ve hemşirelerin en yüksek puanı karar verme kontrolü (sırasıyla 3.69±0.89, 4.11±0.73) alt boyutundan aldıkları, benzer şekilde en düşük puanı ise, klinik durum (sırasıyla 2.89±0.68, 3.98±0.62) alt boyutundan aldıkları saptanmıştır. BBS-B skalası toplam ve tüm alt boyutlarda hemşirelerin puan ortalamalarının hastalara göre anlamlı düzeyde daha yüksek olduğu tespit edilmiştir (BBS-B Toplam t:-7.222, p.0.001; Klinik Durum: t=-9.065, p=0.001; Kişisel Yaşam Durumu: t=-6.136, p= 0.001; Karar Verme Kontrolü: t=-2.792, p= 0.006).

TARTIŞMA

Bireyselleştirilmiş bakımda, bireyin benzersiz gereksinimlerinin belirlenmesi ve bunların dikkate alınarak hemşirelik bakımının planlanması önemlidir. Palyatif bakım alan hastaların yaşadığı acı ve ızdırabın yanı sıra bu sürecin ne kadar zor, yıpratıcı ve travmatik olduğu dikkate alındığında, bireyselleştirilmiş bakımın önemi daha da belirgin hale gelmektedir. Dolayısıyla bu farkındalıkla palyatif bakım kliniğinde çalışan hemşirelerin, hastalarının fiziksel, psiko-sosyal, duygusal ve ruhsal yönden benzersiz olan ihtiyaçlarını, semptom yönetimi ve konforla birleştirerek onlara bireyselleştirilmiş bakım sunması gereklidir. Bakımın bireyselleştirilmesinde, hemşireler eylemlerini hastaya özgü biçimde uyarlarken hastaların da bu bireysel bakım yaklaşımının farkında olması beklenmektedir.[6,10,25] Bu çalışma-

Tablo I. Hemşire ve hastalara ait demografik veriler ve hastaların hastalık özellikleri

Hastaların özellikleri	n	%	Hemşirelerin özellikleri	n	%
Yaş			**Yaş**		
70 yaş ve altı	56	44.5	30 yaş ve altı	22	53.7
71 yaş ve üstü	67	54.5	31 yaş ve üstü	19	46.3
Yaş ortalaması: 71.53±12.6			Yaş ortalaması: 32.0±7.19		
Cinsiyet			**Cinsiyet**		
Kadın	63	51.2	Kadın	40	97.6
Erkek	60	48.8	Erkek	1	2.4
Medeni durum			**Eğitim durumu**		
Evli	82	66.7	Lise-Ön lisans	4	9.8
Bekar	41	33.3	Lisans	31	75.6
Eğitim durumu			Lisansüstü	6	14.6
Okur-yazar değil	27	22.0	**Mesleki deneyim yılı**		
Okur-yazar	17	13.8	9 yıl ve altı	25	61.0
İlköğretim	45	36.5	10 yıl ve üstü	16	39.0
Lise	27	22.0	**Klinikte çalışma yılı**		
Lisans ve üstü	7	5.7	3 yıl ve altı	26	63.4
Meslek			4 yıl ve üstü	15	36.6
Ev hanımı	53	43.1	**Vardiya şekli**		
Emekli	38	30.9	Sürekli gündüz	5	12.2
Serbest meslek	23	18.7	Gece-gündüz dönüşümlü	36	87.8
İşçi-Memur	9	7.3	**Haftalık çalışma süresi**		
Yatış tanısı			48 saat ve altı	23	56.1
Kanser	16	13.0	56 saat ve üstü	18	43.9
Genel durum bozukluğu	21	17.0	**Bakım verilen hasta ortalaması:** 15.97±1.02		
Nörolojik hastalıklar	27	22.0	**Toplam**	**41**	**100.0**
Göğüs hastalıkları	28	22.8			
Diğer	31	25.2			
Hastane yatış süresi					
8 gün ve altı	59	48.0			
9 gün ve üstü	64	52.0			
Eşlik eden Kronik Hastalık Durumu					
Yok	41	33.3			
Diyabet	15	12.2			
Hipertansiyon	38	30.9			
Diyabet ve hipertansiyon	20	16.3			
Diğer	9	7.3			
Hastaneye geliş şekli					
Acil servis	58	47.2			
Poliklinik	13	10.6			
Yataklı klinik	30	24.4			
Yoğun bakım	22	17.9			
Refakatçı varlığı					
Var	116	94.3			
Yok	7	5.7			
Hastanın durumu					
Yardıma gereksinimi yok	41	33.3			
Kısmen yardıma gereksinimi var	55	44.7			
Tamamen bağımlı	27	22.0			
Toplam	**123**	**100.0**			

Tablo II. Hasta ve hemşirelerin BBS-B skalası alt boyut ve toplam puan ortalamalarının karşılaştırılması

BBS-B Ölçeği	Hasta (n:123) Ort±SS	Hemşire (n: 41) Ort±SS	t**	p
BBS-B Toplam	3.26±0.61	4.04±0.58	-7.222	0.001*
Klinik Durum	2.89±0.68	3.98±0.62	-9.065	0.001*
Kişisel Yaşam Durumu	3.28±0.66	4.05±0.79	-6.136	0.001*
Karar Verme Kontrolü	3.69±0.89	4.11±0.73	-2.792	0.006*

**p<0.05, **Bağımsız Örneklem T-Testi, Ort; Ortalama, SS; Standart sapma*

da palyatif bakım kliniğindeki hastaların kendi bakımlarındaki bireysellik algısının ortalamanın üzerinde, hemşirelerin ise bu hastaların bakımını bireyselleştirdiklerine ilişkin algısının yüksek düzeyde olduğu saptanmış ve iki grup arasındaki fark istatistiksel açıdan anlamlı bulunmuştur. Hasta ve hemşireler arasındaki bu farkın, hizmeti sunan ile hizmeti alan bireylerin algılarındaki farklılıktan kaynaklandığı söylenebilir. Konuya ilişkin farklı kliniklerde yapılmış çalışmalar incelendiğinde bazı çalışmalarda, hastaların bireyselleştirilmiş bakım algılarının hemşirelere göre daha yüksek olduğu[20,23,26,27], bazı çalışmalarda da bu çalışmadakine benzer şekilde, hemşirelerin hastalara göre daha yüksek bireyselleştirilmiş bakım algısına sahip olduğu[28–30] tespit edilmiştir. Hasta ve hemşirelerin bireyselleştirilmiş bakıma ilişkin algılarında farklılıkların olması, bakımın niteliğine, hasta memnuniyetine ve hizmetin kalitesine doğrudan etki edebilir. Bu bağlamda, hemşirelik bakımının rutinleştirilmesinden kaçınmak ve hemşirelik bakım felsefesinin özüne dönmek amacıyla ortaya çıkmış olan bireyselleştirilmiş bakım anlayışı[31], her hastanın biricik, değerli ve farklı gereksinimleri olduğunun dikkate alınması ve bu doğrultuda bakımın planlanması ve hastaya özgü uyarlanmasını gerektirir. Bu çalışmada palyatif bakım kliniğindeki hasta ve hemşirelerin bireyselleştirilmiş bakıma ilişkin olumlu algıya sahip olması, palyatif bakım sürecinde hastanın yaşam kalitesini geliştirme, semptomlarını hafifletme, kaygılarını azaltma, otonomisini göz önünde bulundurarak insan onuruna yakışan bir hizmet sunulduğunu düşündürmektedir. Bununla birlikte hastaların hemşirelere göre daha düşük algıya sahip olması, hastaların kendi bakımında bireyselliğinin dikkate alınmasına ilişkin yetersizlikler algıladığı ve bazı beklentilerinin istendik düzeyde karşılanamadığını gösterebilir.

Bu çalışmada hasta ve hemşirelerin bireyselleştirilmiş bakımın karar verme kontrolü alt boyutunda en olumlu algıya sahip oldukları daha sonra sırasıyla kişisel yaşam durumu ve klinik durumun geldiği belirlenmiştir. Bu alt boyutların tamamında hemşirelerin hastalara göre anlamlı düzeyde daha yüksek düzeyde olumlu algıya sahip olduğu tespit edilmiştir. Konuya ilişkin yapılan çalışmalar incelendiğinde, Pauline (2016) ve Altınışık (2019)'ın çalışmalarında hasta ve hemşirelerin en olumlu algıya sahip oldukları alt boyutun bu çalışmadakine benzer şekilde karar verme kontrolü olduğu daha sonra ise bu çalışmadan farklı olarak sırasıyla klinik durum ve kişisel yaşam durumunun geldiği görülmektedir.[28,29] Hasta ve hemşirelerin bireyselleştirilmiş bakım algılarının karşılaştırıldığı diğer çalışmalar incelendiğinde, en yüksek düzeyde olumlu algıya sahip oldukları alt boyutların farklılık gösterdiği tespit edilmiştir. Özakgül ve ark (2022) ve Bekmezci (2019)'nin çalışmalarında hemşirelerde klinik durum hastalarda ise karar verme kontrolü alt boyutlarında diğer boyutlara göre daha olumlu algılarının olduğu, kişisel yaşam durumu alt boyutunda bakımın bireyselleştirilmesine ilişkin algının ise her iki grupta en düşük düzeyde olduğu ortaya çıkmıştır.[20,23] Çalışmalarda farklı bulgulara ulaşılmasının yapıldığı kliniklerin ve hasta gruplarının tanılarının farklılık göstermesinden kaynaklı olabileceği söylenebilir.

Karar verme kontrolü hasta bireylerin kendi bakımlarında söz sahibi olması, durumuna ilişkin yeterli düzeyde ve anlaşılır şekilde bilgilendirme, bakımlarıyla ilgili kararlara katılmaları ve bakımda isteklerinin dikkate alınması gibi durumlarda bireyselliklerinin desteklendiği bir boyuttur. Bu boyutta hasta ve hemşirelerin en yüksek düzeyde olumlu algıya sahip olması bakım uygulamalarında hasta haklarının gözetildiği, hastanın özerkliğine saygı gösterildiği ve bakıma katılımının desteklendiğini göstermesi ve hastaların da bunu hissetmesi açısından önemlidir. Bununla birlikte çalışmada hemşirelerin hastalara göre daha olumlu algıya sahip olduğu dikkate alındığında, karar verme kontrolüne ilişkin hastalar bazı konularda otonomilerinin kısıtlandığını hissederken hemşirelerin bunun farkında olmadan bakımı planladığı ve gerçekleştirdiğini düşündürmektedir. Yapılan bir çalışma hastanın karar verme sürecine ilişkin algısının bireyselleştirilmiş bakım algısına doğrudan yansıdığını göstermektedir.[32] Dolayısıyla palyatif bakım hastasına yaklaşımda kalan yaşamını anlamlı ve değerli kılmak için hastanın bireyselliğine duyarlı olarak bakımın sunulması, bu değerin hastaya hissettirilmesi ve hastanın umudunu sürdürmesi ve kontrol duygusunu kaybetmemesi için özenli yaklaşım sergilenmesi önemlidir.[33]

Hasta ve hemşirelerin bireyselleştirilmiş bakıma ilişkin karar verme kontrolünden sonra olumlu algıya sahip oldukları bir diğer boyut olarak, hastanın günlük yaşam aktivitelerinin, alışkanlıklarının ve ailesinin bakıma katılımının desteklendiği kişisel yaşam durumunun izlediği belirlenmiştir. Palyatif bakım hastanın fiziksel, psikolojik, sosyal ve manevi gereksinimlerinin karşılanmasına, yaşam kalitesinin artırılmasına odaklı, aile iş birliğini içeren ve aynı zamanda ailenin de desteklendiği travmatik bir süreçtir.[34] Bu süreçte hastanın bireyselliğini destekleyerek, hasta ve ailesinin özelliklerini merkeze yerleştirerek bakımın planlanması ve bunun hastaya hissettirilmesi önemlidir. Literatürde hizmeti sunan ve alan grupların beklentilerin karşılanması noktasında ortak algıya sahip olmasının, hizmetten sağlanan yararı artırdığı ve hizmetin niteliğine doğrudan yansıdığı yer almaktadır.[15,16] Yapılan bir çalışmada da hastaların bireyselleştirilmiş bakım algıları ile hemşirelik bakımından memnuniyetleri arasında pozitif ilişki olduğu belirlenmiştir.[35] Bakımdan memnuniyetin sağlanmasında hastaların kişisel durumlarının, özelliklerinin bilinmesi, bakıma ailenin katılımı ve insan onuruna yakışır ahlaki ve etik değerler çerçevesinde saygın bir hemşirelik yaklaşımı sergilemek önemlidir. Bu çalışmada hemşirelerin bakım verirken hastaların kişisel durumlarını göz önünde bulundurduklarına ilişkin algıları hastalara göre anlamlı düzeyde yüksek bulunmuştur. Bakımın bireyselleştirilmesinde önemli bir bileşen olarak kişisel durumların dikkate alındığının aynı düzeyde hastalara da hissettirilmesinin istendik hasta sonuçlarına ulaşabilmede önemli olduğu söylenebilir.

Bu çalışmada hasta bireylerin hastalığa yanıtı, gereksinimleri, bakıma katılımı, duyguları ve hastalığın onlar için ne anlam ifade ettiği konusunda bireyselliğini destekleyen klinik durum alt boyutunda hasta ve hemşirelerin diğer boyutlara göre daha düşük düzeyde olumlu algıya sahip olduğu belirlenmiştir. Palyatif bakım bireyin ihtiyaçlarına bağlı olarak gelişen, planlanan ve yapılandırılan bir süreci kapsar.[34] Uzun soluklu ve yoğun bakım gereksinimlerinin olduğu bu dönemde hastaların otonomisini, hastalık sürecine uyumunu, saygınlığını ve iyilik halini sürdürmede klinik durumlarını göz önünde

bulundurmak önemlidir. Ancak yapılan çalışmalarda hemşirelerin benzer müdahaleler yapılan ve dolayısıyla benzer bakım gereksinimi olan hastaları homojen hasta grupları olarak değerlendirebildiği, hastanın bireyselliğini göz ardı ederek tüm hastalara standart bir bakım sunulabildiğine vurgu yapılmaktadır.[17,36] Oysaki tüm hastalar bir birey olarak kendisiyle ilgilenilmesini, değer verilmesini, aynı sorunları yaşayan diğer hastalardan farklı gereksinimlerinin olabileceğinin, hastalık süreçlerine ilişkin duygularının ve algılarının farkına varılmasını ve hemşirelik bakımına yansıtılmasını beklerler. Bu bağlamda bu çalışmada klinik durum alt boyutunda hastaların hemşirelere göre anlamlı düzeyde daha düşük algıya sahip olması, bu beklentilerin karşılanmasına ilişkin hasta ve hemşirelerin ortak algıya sahip olmadığını, bakımın bir parçası olarak hastanın kendini değerli hissetmesi ve beklentilerinin karşılanması açısından bireyselliğinin yeterince desteklenmemiş olduğunu düşündürmektedir.

SONUÇ

Bu çalışmada, palyatif bakım kliniğinde çalışan hemşirelerin, hastalarına bireyselleştirilmiş bakım sunduklarına ilişkin algılarının yüksek ve bu bakımı alan hastaların, bireyselleştirilmiş hemşirelik bakımı aldıklarına ilişkin algılarının ortalamanın üzerinde olumlu olduğu belirlenmiştir. Bununla birlikte bireyselleştirilmiş bakım toplam ve alt boyutlarında hemşirelerin hastalara göre anlamlı düzeyde daha olumlu algıya sahip olduğu belirlenmiştir. Bu sonuçlara dayalı olarak, hemşirelik bakımında birey merkezli yaklaşımın benimsenmesi, hastaların saygınlığı, aileleri, değerleri, inançları, kültürleri, alışkanlıkları, tercihleri ve duygularını dikkate alarak ve özerkliğini sürdürecek şekilde bakımın hasta ile birlikte planlanmasının önemli olduğu ifade edilebilir. Dolayısıyla bakımın niteliğini artırma ve istendik hasta çıktılarına ulaşmada hemşirenin hasta bakımını bireyselleştirmesi ve hastanın da kendi bakımına yönelik bireyselliği hissetmesi noktasında benzer algıya sahip olması gereklidir. Hizmeti sunan ve alan bireylerde bireyselleştirilmiş bakım algısının belirli aralıklarla değerlendirilmesi, sonuçların hizmetin niteliğini geliştirecek şekilde bakıma yansıtılması, palyatif bakım birimleri dışında bakım alan hasta ve çalışan hemşire gruplarında çalışmanın tekrarlanması önerilmektedir.

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COVID-19 PANDEMİ DÖNEMİNDE OKUL ÖNCESİ ÇOCUĞU OLAN EBEVEYNLERİN ÇOCUK İHMAL VE İSTİSMARINA YÖNELİK FARKINDALIKLARININ DEĞERLENDİRİLMESİ

EVALUATION OF AWARENESS RELATION TO CHILD NEGLECT AND ABUSE AMONG PARENTS OF PRESCHOOL CHILDREN DURING THE COVID-19 PANDEMIC

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ÖZ

Bu çalışma Covid-19 pandemi döneminde okul öncesi çocuğu olan ebeveynlerin çocuk ihmal ve istismarına yönelik farkındalıklarını değerlendirmek amacıyla yapılmıştır. Tanımlayıcı nitelikte yapılan çalışma, okul öncesi (3-6 yaş) dönemde çocuğu olan ebeveynlerle yürütülmüştür (n=260). Etik kurul ve ebeveynlerin onamı alınan çalışmada veriler, Google Formlar aracılığıyla oluşturulan Anket Formu ve 'Ebeveynlerin Çocuk İhmal ve İstismarı Farkındalığı Ölçeği' (EFİÇÖ) ile çevrimiçi (online) olarak toplanmıştır. Çalışmaya katılan ebeveynlerin%66.2'sinin anne, % 33.8'inin babalardan oluştuğu belirlenmiştir. Ebeveynlerin %32.3'ünün pandemi döneminde çocuklarına karşı tahammülünün azaldığı, % 38.1'inin çalışma süresinin arttığı tespit edilmiştir. Ebeveynlerin EFİÇÖ'dan aldıkları toplam puan ortalamasına (165.91±18.50) göre farkındalık düzeylerinin 'iyi' olduğu saptanmıştır. Babaların, ilköğretim mezunu ve altında eğitimi olanların, genç yaş (20-25 yaş), tek ebeveyn olanların, ilçede ikamet edenlerin, gelir durumu orta-düşük olanların, EFİÇO toplam puan ortalamalarının daha düşük olduğu saptanmıştır (p<0.05). Bu çalışmada babaların, eğitim ve gelir düzeyi düşük, yaşı genç, tek ebeveyn olan, ilçede yaşayan ebeveynlerin çocuklarına yönelik ihmal ve istismar farkındalıklarının daha az olduğu tespit edilmiştir. Sağlık profesyonellerinin, riskli aile ve çocukları belirleyerek gözlemlemesi ayrıca ebeveynlerin çocuk ihmal ve istismarı farkındalıklarını arttırmaya ve çocuklarıyla etkin iletişime geçebilmelerine yönelik eğitim ve danışmalık vermesi önerilebilir.

Anahtar kelimeler: COVID 19, çocuk ihmali, çocuk istismarı, ebeveyn çocuk ilişkileri

ABSTRACT

This study was conducted to evaluate the awareness of parents have preschool children regarding child neglect and abuse during the Covid-19 pandemic period. The analytical study was conducted with parents who have children in the preschool period (3-6 years old) (n=260). In the study, ethics committee and parents' approval was obtained, data were collected as online with the Survey Form created via Google Forms and the 'Parent's Awareness of Child Neglect and Abuse Scale' (CNAASP). Of the parents in the study; 66.20% were mothers and 33.80% were fathers. It is determined that 32.30% of parents' tolerance decreased towards their children and 38.10% of their working hours increased during the pandemic period. According to the parents' mean total score of CNAASP (165.91±18.50), their awareness level was 'good'. Fathers, those with primary school education or less, young age (20-25 years), single parents, those residing in the district, those with medium-low income had lower CNAASP mean total score (p<0.05). It is determined that fathers, parents with low education and income levels, young age, single parents, and living in the district were less aware of neglect and abuse towards their children. It is suggested that health professionals should identify and observe risky families and children and provide training and consultancy to increase parents' awareness of child neglect and abuse and enable them to communicate effectively with their children.

Keywords: COVID 19, child abuse, child neglect, parent-child relations

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GİRİŞ

Çocuk istismarı, güçlü ya da güvenilir bir kişi tarafından çocuğa fiziksel veya duygusal olarak kötü muamelede bulunulması; çocuğun sağlığına, yaşamına, gelişimine veya onuruna zarar verme olasılığının bulunduğu eylemlerdir.[1] Bu eylemler çocukların bedensel, zihinsel ve duygusal sağlıklarını ciddi şekilde etkileyebilir ve uzun süreli hasarlara neden olabilir.[2] Çocuk ihmali ise, ebeveynlerin çocuklarını yetiştirebilmeleri için yapması gereken iyi şeyleri yapmadığı pasif eylemler olarak nitelendirilmektedir.[3] Ebeveynlerin, çocuklarını her açıdan sağlıklı büyütebilmeleri, çocuklarının gelişimlerini etkin takip edebilmeleri için sahip olması gereken sorumluluklar ve farkındalıklar bulunmaktadır.[4] İhmal-istismar farkındalığı, ebeveynlerin çocuk ihmal ve istismarına yönelik fikirleri ve bilgi birikimleri olarak bilinmektedir.[5]Bu farkındalığın artırılması olası çocuk ihmal ve istismar risklerinin önlenmesi açısından oldukça önemlidir.[6]Çocuk ihmal ve istismar oranlarının yüksek olduğu bilinmekle birlikte, yapılan çalışmalarla elde edilen verilerin sadece tespit edilebilen ve görülebilen veriler olduğu, gözden kaçan ve nicel verilere yansımayan ihmal-istismar vakalarının da olduğu bildirilmektedir.[7] Tar ve Çetintaş (2022)'ın çalışmasında da belirttiği gibi dünyada 2-4 yaş arası her 4 çocuktan 3'ü ebeveynleri ya da bakım vericileri tarafından psikolojik ya da fiziksel olarak istismar edilmektedir.[7] Türkiye İstatistik Kurumu (TÜİK) 2019 yılı verileri, ülkemizde 250 bin çocuğun istismara uğradığını, son 10 yılda çocuk istismarı ile ilgili davaların 3 kat arttığını, şiddete maruz kalan 206 bin 498 çocuğun %15,2'inin cinsel suçlardan mağdur olduğunu göstermektedir.[8] Şiddeti Önleme ve Rehabilitasyon Derneği (İMDAT) raporlarında ise, 2006 yılında %42,5 olan istismar mağduru çocuk oranları, 2016 yılında %58,8'e yükselmiştir.[9] Çocuk ihmal ve istismarına maruz kalan çocuk sayısı 2014 yılından 2016 yılına kadar %33.0 artış göstermiştir.[10] Birleşmiş Milletler Çocuklara Yardım Fonu (UNICEF) 2019 yılı raporunda, Türkiye'de 18 yaş altı çocukların yaklaşık %38'inin şiddet, istismar, ihmal veya farklı şekillerde kötü muamele gördüğü belirtilmiştir. Dünya genelinde, UNICEF'in 2019 yılında yayımladığı bir diğer raporda, 18 yaş altı çocukların yaklaşık dörtte birinin (yaklaşık 690 milyon çocuk) fiziksel, duygusal veya cinsel istismara maruz kaldığı veya ihmal edildiği belirtilmiştir. Bu rakamlar Covid-19 pandemi dönemi öncesi çocuk ihmal ve istismarının ne kadar yaygın olduğunu göstermektedir.[11]Covid-19 salgını ile başlayan pandemi döneminde de bu artışın devam ettiği belirtilmektedir.[12] Pandemi öncesinde, dünya genelinde çocuk istismarı ve ihmali yaygın bir sorunken; pandemi nedeniyle evde kalan ailelerin stresi ve endişesi artmış, ekonomik zorluklar yaşanmış, çocukların okullarından ve sosyal ortamlarından uzak kalmış olması nedeniyle korunmasız kaldığı durumlar ortaya çıkmıştır. UNICEF raporlarına göre, Covid-19 sürecinin getirmiş olduğu olağanüstü haller ve kısıtlamalarla çocuklara yönelik ihmal, istismar ve şiddet riskinin yükseldiği bildirilmiştir.[13] Aslan'ın çalışmasında da Türkiye'de çocuk istismarı vakalarının arttığına dair veriler incelenmiş ve pandemi döneminde bu artışın daha da belirgin hale geldiği vurgulanmıştır.[14]Öyle ki artan aile içi şiddet raporları da bunu göstermektedir.[15,16] Covid-19 süreci çocuk ihmal ve istismar riskini artırabilen eşitsizlikler ve sosyo-ekonomik stres faktörlerini de beraberinde getirmiştir.[17,18] Bazı ülkeler olası kısıtlamalarla, çocuk ihmal ve istismarı ile aile içi şiddette artış yaşanabileceğini ön görerek ilkokul ve çocuk bakım evlerinin kapatılmaması kararını almışlardır.[19] Pandemi sürecinde kaygı ve stresle birlikte ev içi şiddet olgularında da artış olduğu gözlemlenmiş,[20-22] boşanma oranlarında da artış olduğu bildirilmiştir.[23] Yapılan çalışmalar, ev içi şiddetin yaşandığı evlerdeki çocukların normal nüfusa göre daha fazla istismar ve ihmal riski taşıdığını göstermiştir.[22] Çocuk ihmal ve istismarına neden olan risk etmenleri arasında aile, kültür, yaşanılan çevre ve çocuğa ait faktörler yer almaktadır. Çocuğa ait faktörler arasında, çocuğun erken doğumu, sürekli nedensiz ağlaması, kronik hastalığının olması, fiziksel ve gelişimsel geriliklerin olması gibi etmenler bulunmaktadır.[24] Bir toplumun geleceğini sağlam zeminler üzerinde kurabilmesi ve ilerleme gösterebilmesi için çocukların bedensel, ruhsal ve fiziksel olarak sağlıklı bir şekilde büyümesi ve gelişmesi gerekmektedir.[7] Çocukların büyüme, gelişme, olgunlaşma ve kişilik gelişiminin önemli bir evresini teşkil eden okul öncesi dönemin sağlıklı ve verimli bir şekilde geçirilebilmesi önemlidir.[25] Toplum sağlığını koruma ve geliştirmede hemşirelik mesleğinin önemi yadsınamaz bir gerçektir.[26] Ebeveynlerin çocuk ihmal ve istismarına yönelik farkındalıklarının değerlendirilmesi; geleceğin yetişkinleri olan günümüz çocuklarının sağlıklı birer birey olarak yetişmeleri, onların ihmal ve istismar riskinden korunmaları açısından oldukça önemlidir.[27]O nedenle bu çalışma, pandemi döneminde okul öncesi çocuğu olan ebeveynlerin çocuk ihmal ve istismarına yönelik farkındalığını değerlendirmek amacıyla planlanmış, çalışma sonuçlarının literatüre katkı sağlayacağı düşünülmüştür.

Çalışmada aşağıdaki sorulara cevap aranmıştır.

-Covid-19 pandemi döneminde okul öncesi (3-6 yaş grubu) çocuğu olan ebeveynlerin çocuk ihmal ve istismarına yönelik farkındalığı ne düzeydedir?

-Covid-19 pandemi döneminde okul öncesi (3-6 yaş grubu) çocuğu olan ebeveynlerin çocuk ihmal ve istismarına yönelik farkındalığını etkileyen faktörler nelerdir?

GEREÇ VE YÖNTEM

Araştırmanın türü

Çalışma analitik türde olup, Şubat-Haziran 2021 tarihleri arasında 3-6 yaş grubu en az 1 çocuğu olan ebeveynlerle yürütülmüştür.

Araştırmanın örneklemi

Çalışmada örneklem hesabına gidilmeyip, belirtilen tarihler arasında araştırmaya dâhil edilme koşullarını karşılayan tüm ebeveynler çalışmaya alınmıştır (n=260)

Araştırmaya alınma kriterleri

Araştırmaya alınma kriterleri arasında; ebeveynlerin 3-6 yaş grubunda en az bir çocuğunun olması, çalışmanın yapılması için onam vermesi, çalışmaya katılmayı gönüllü olarak kabul etmesi yer almaktadır.

Verilerin toplanması

Araştırmada, pandemi koşulları nedeniyle 3-6 yaş grubu çocuğu olan ebeveynlerle yüz-yüze görüşme imkânı olmadığından sosyal medya ve diğer iletişim platformlarından duyurular yapılmış, kartopu örnekleme ile çalışma grubuna ulaşılması hedeflenmiştir. Kartopu örneklemde, 3-6 yaş grubu çocuğu olan ve araştırmaya katıl-

mayı kabul eden ebeveynler üzerinden bireylere ulaşılmıştır. Veriler, Google Formlar aracılığıyla çevrimiçi web tabanlı oluşturulan 'Anket Formu' ve 'Ebeveynlerin Çocuk İhmal ve İstismarı Farkındalığı Ölçeği' (EFİÇÖ) kullanılarak toplanmıştır. Ebeveynler, gönderilen bağlantıda ilk olarak çalışmanın bilgilendirilmiş onam formunu görmüşlerdir. Onam formunda araştırmanın amacı ve yöntemi kısaca anlatılmış, verilerin gizli tutulacağı yalnızca bilimsel amaçlı kullanılacağı açıklanmıştır. Gönüllülük ilkesine dayanılarak, ebeveynlerin araştırmaya katılıp katılmamakta özgür oldukları belirtilmiştir. Çalışmaya katılmayı onaylayan ebeveynler elektronik ortamda gönüllü olduklarını teyit ettikten sonra anket formu ve ölçeği doldurma aşamasına geçmişlerdir. Anket formu ve ölçeği toplam 301 ebeveyn doldurmuştur, çalışma sonrasında formlar incelendiğinde 41 form eksik veri nedeniyle değerlendirilememiştir. Sonuç olarak 260 ebeveyn ile veri toplama süreci tamamlanmıştır.

Veri Toplama Araçları

Veriler, Google Formlar aracılığıyla çevrimiçi web tabanlı oluşturulan 'Anket Formu' ve 'Ebeveynlerin Çocuk İhmal ve İstismarı Farkındalığı Ölçeği' (EFİÇÖ) kullanılarak toplanmıştır.

Anket Formu

İlgili literatür doğrultusunda[7,10,28,29] oluşturulan anket formunda, ebeveynlerin ve çocukların sosyodemografik özellikleri ile ebeveynlerin çocukları ile ilişkilerini, pandemi sürecinde ebeveynlerin çocuklarına karşı tahammül durumlarını değerlendirmeye yönelik soruları içeren toplam 27 soru yer almaktadır.

Ebeveynlerin Çocuk İhmal ve İstismarı Farkındalığı Ölçeği' (EFİÇÖ)

Ebeveynlerin çocuk ihmal ve istismarı farkındalığını ölçmeye yarayan ölçek, Ünal ve Boz tarafından geliştirilmiştir.[30] Ölçek, "1 (Kesinlikle Katılmıyorum), 2 (Katılmıyorum), 3 (Kararsızım), 4 (Katılıyorum), 5 (Kesinlikle Katılıyorum)" şeklinde 5'li likert tiptedir. Ölçekte 45 madde ve 5 alt boyut; Genel Bilgi (12 madde), Fiziksel İstismar (6 madde), Duygusal İstismar (15 madde), Cinsel İstismar (8 madde) ve İhmal (4 madde) bulunmaktadır. Ölçekten en az 45, en fazla 225 puan alınabilmektedir (Cronbach alfa 0.80). Puanın yükselmesi ebeveynin çocuk ihmal ve istismar farkındalığının yüksek olduğu anlamına gelmektedir.[5] Bu çalışmada ölçeğin Cronbach alfa değeri 0.817 olarak bulunmuştur.

Verilerin Değerlendirilmesi

Araştırma verilerinin değerlendirilmesinde IBM SPSS (Statistical Package for Social Sciences) 22.00 paket programından yararlanılmıştır. Verilerin tanımlayıcı istatistikleri olarak yüzde değerler, aritmetik ortalama, standart sapma, minimum ve maksimum değerleri verilmiştir. Verilerin normal dağılıma uygunluğu Shapiro-Wilk testi ve Q-Q grafikleri ile değerlendirilmiş, veriler normal dağılım gösterdiğinden parametrik testler kullanılmıştır. Bağımsız iki grup karşılaştırmalarında, bağımsız gruplarda t-testi (Independent Samples t test), ikiden fazla bağımsız grup karşılaştırmalarında tek yönlü varyans analizi (one way ANOVA) kullanılmıştır. Varyans homojenliği Levene testi ile değerlendirilmiştir. Varyansların homojen olduğu görüldüğünden çoklu karşılaştırmalarda anlamlı farkın çıktığı durumlarda, bu farkın hangi gruptan kaynaklandığını belirlemek için Tukey testinden yararlanılmıştır. İstatistiksel önemlilik düzeyi $p<0.05$ olarak kabul edilmiştir.

Araştırmanın Etik Yönü

Bu çalışma, Helsinki Deklarasyonu Prensiplerine uygun olarak yürütülmüştür. Araştırmanın yürütülebilmesi için Nevşehir Hacı Bektaş Veli Üniversitesi Girişimsel Olmayan Araştırmalar Etik Kurul'undan (12.02.2021 tarih ve 2100006059 sayılı) ve araştırmaya katılmayı gönüllü olarak kabul eden ebeveynlerden elektronik ortamda onam alınmıştır. Ayrıca çalışmada kullanılan ''Ebeveynlerin Çocuk İhmal ve İstismarı Farkındalığı Ölçeği'' için yazarlardan gerekli izin e-posta yoluyla alınmıştır.

BULGULAR

Çalışmaya katılan ebeveynlerin %49.2'si tek çocuk sahibi olup çocukların %10.0'ında kronik hastalık bulunmaktadır. Ebeveynlerin, %66.2'si çocuğun annesi, % 35.4'ü 26-31 yaş arasındadır ve %31.5'i lisans düzeyinde eğitim almıştır. Ayrıca katılımcıların %12.3'ü tek ebeveyn olup, %36.9'u ilçede yaşamakta, %85.8'i çekirdek aileye sahiptir. Ebeveynlerin %12.7'si gelirlerini az olarak algıladıklarını, %38.1'i pandemi sürecinde çalışma sürelerinin arttığını ifade etmiştir. Ebeveynlerin % 32.3'ü pandemi döneminde çocuklarına karşı tahammüllerinin azaldığını belirtmiştir. Ebeveynlerin çocuklarına sinirlendikleri zaman, %11.50'i fiziksel, %37.7'si sözel tepki verdiğini ifade etmiştir. Ayrıca, ebeveynlerin %82.3'ü çocuklarını cezalandırma yönteminin sözel olduğunu, %25.'i ise çocuklara karşı aşırı koruyucu bir tavır sergilediğini belirtmiştir (Tablo 1).

Ebeveynlerin Çocuk İhmali ve İstismarı Farkındalık Ölçeği alt boyut ve toplam ölçek puanları Tablo 2 'de verilmiştir. Ebeveynlerin Genel Bilgi puan ortalamalarının 40.70±5.19, Fiziksel İstismar puan ortalamalarının 22.62±3.38, Duygusal İstismar puan ortalamalarının 57.82±7.74, Cinsel İstismar puan ortalamalarının 30.37±4.30, İhmal puan ortalamalarının 14.40±2.61 olduğu saptanmıştır. Ebeveynlerin EFİÇÖ toplam puan ortalamalarının 165.91±18.50 olduğu belirlenmiştir (Tablo 2).

Tablo 3'e göre; babaların, ilköğretim mezunu ve altında eğitimi olanların, 20-25 yaş arasında, tek ebeveyn olanların, ilçede ikamet edenlerin, gelir durumu orta-düşük olanların, EFİÇO toplam puan ortalamalarının daha düşük ve gruplar arasındaki farkın istatistiksel olarak önemli olduğu belirlenmiştir (sırasıyla; $p<0.001$, $p=0.003$, $p<0.001$, $p=0.001$, $p=0.017$, $p<0.001$). Çocuğunda kronik bir hastalık olan ebeveynlerin EFİÇÖ toplam puan ortalamalarının daha yüksek olduğu ($p<0.05$), ailedeki çocuk sayısının EFİÇÖ toplam puanı üzerinde etkisinin olmadığı ($p>0.05$) saptanmıştır (Tablo 3).

TARTIŞMA

Ebeveynlerin çocuk ihmal ve istismarına yönelik farkındalıklarının değerlendirilmesi; geleceğin yetişkinleri olan günümüz çocuklarının sağlıklı birer birey olarak yetişmeleri, onları olası risk etmenlerinden korunması ve var olan olumsuz şartların iyileştirilmesi için önem arz etmektedir. Bu çalışmada, pandemi döneminde okul öncesi çocuğu olan ebeveynlerin çocuk ihmal ve istismarına yönelik farkındalıklarını değerlendirmek amaçlanmıştır.

Pandemi dönemi, ebeveynleri ve çocukları pek çok yönüyle etkileyen krizli bir dönemdir. Pandemi döneminin getirdiği bazı yenilikler ve olumsuz durumlar, ebeveyn-

Tablo 1. Çocuğun ve ebeveynlerinin tanıtıcı özellikleri ile pandemi döneminde ebeveynlerin çocuklarına yönelik tutumları (n: 260)

Özellikler		n	%
Aile Bilgileri			
Ailedeki çocuk sayısı	1 çocuk	128	49.2
	2 çocuk	97	37.3
	3 ve üzeri sayıda	35	13.5
Çocuklarda kronik hastalık varlığı	Evet	26	10.0
	Hayır	234	90.0
Ebeveyn	Anne	172	66.2
	Baba	88	33.8
Yaş	20-25 yaş	57	21.9
	26-31 yaş	92	35.4
	32-37 yaş	82	31.5
	38 yaş ve üzeri	29	11.2
Eğitim Durumu	İlköğretim ve altı	29	11.2
	Lise	72	27.7
	Ön lisans	30	11.5
	Lisans	82	31.5
	Lisansüstü	47	18.1
Medeni durum	Evli	228	87.7
	Tek ebeveyn	32	12.3
Yaşadığı yer	İlçe	96	36.9
	İl	164	63.1
Aile tipi	Çekirdek	223	85.8
	Geniş	31	11.9
	Parçalanmış	6	2.3
Algılanan gelir durumu	Az	33	12.7
	Orta	103	39.6
	İyi	104	40.0
	Çok iyi	20	7.7
Çalışma durumu	Çalışan	204	78.5
	Çalışmayan	56	21.5
Pandemide çalışma süresi (n=204)	Arttı	77	38.1
	Azaldı	58	28.1
	Değişmedi	69	33.8
Pandemide ebeveynlerin çocuklarına tahammülü	Arttı	70	26.9
	Değişmedi	106	40.8
	Azaldı	84	32.3
Ebeveynlerin çocuklarına sinirlendikleri zaman verdikleri tepkiler			
Çocuklara fiziksel tepki	Evet	30	11.5
	Hayır	230	88.5
Çocuklara sözel tepki	Evet	98	37.7
	Hayır	162	62.3
Çocukları cezalandırma yöntemi	Fiziksel	10	3.8
	Sözel	214	82.3
	İhmal	12	4.6
	Cezalandırmıyor	24	9.2
Ebeveynlerin çocuklarına tavrı	Sevecen	148	56.9
	Aşırı koruyucu	65	25.0
	Biraz ilgisiz	3	1.2
	Bazen iyi bazen kötü	44	16.9
Toplam		260	100.0

Tablo 2. Ebeveynlerin çocuk ihmali ve istismarı farkındalık ölçeği alt boyut ve toplam ölçek puanları

Çocuk İhmali ve İstismarı Farkındalık Ölçeği	$\overline{X}$ ±Sd
Genel Bilgi	40.70±5.19
Fiziksel İstismar	22.62±3.38
Duygusal İstismar	57.82±7.74
Cinsel İstismar	30.37±4.30
İhmal	14.40±2.61
EFİÇO Toplam	165.91±18.50

$\overline{X}$ **: ortalama, Sd: Standart sapma,**

Tablo 3. Ebeveynlerin ve çocukların tanıtıcı özellikleri ile EFİÇÖ alt boyut ve toplam ölçek puanları(n:260)

Özellikler	n	*Genel Bilgi* $\bar{X}$ ±Sd	*Fiziksel İstismar* $\bar{X}$ ±Sd	*Duygusal İstismar* $\bar{X}$ ±Sd	*Cinsel İstismar* $\bar{X}$ ±Sd	*İhmal* $\bar{X}$ ±Sd	*EFİÇO Toplam* $\bar{X}$ ±Sd
Ebeveyn							
Anne	172	41.81±5.08	22.99±3.29	59.45±7.23	31.05±4.08	14.51±2.59	169.81±17.62
Baba	88	38.51±4.71	21.91±3.44	54.63±7.75	29.03±4.42	14.19±2.65	158.27±17.88
t; p		**5.084; <0.001**	**2.462; 0.014**	**4.970; <0.001**	**3.667; <0.001**	0.932; 0.352	**4.974; <0.001**
Çocuk sayısı							
1 çocuk	128	40.23±4.89ab	22.98±3.50	58.04±7.40	30.53±4.32	14.55±2.52	166.32±17.88
2 çocuk	97	41.84±5.46^{a}	22.21±3.54	57.71±8.35	30.74±4.18	14.27±2.67	166.76±20.32
3 ve üzeri sayıda çocuk	35	39.26±5.00b	22.49±2.20	57.29±7.35	28.74±4.32	14.26±2.79	162.03±15.15
F; p		**4.315; 0.014**	1.475; 0.231	0.143; 0.867	3.007; 0.051	0.378; 0.686	0.904; 0.406
Çocuklarda kronik bir hastalık varlığı							
Evet	26	42.31±5.71	23.73±3.29	61.04±7.33	31.15±4.99	15.46±2.73	173.69±20.21
Hayır	234	40.52±5.11	22.50±3.37	57.46±7.71	30.28±4.22	14.29±2.57	165.04±18.14
t; p		1.675; 0.095	1.770; 0.078	**2.257; 0.025**	0.981; 0.398	**2.196; 0.029**	**2.280; 0.023**
Yaş							
20-25 yaş	57	38.09±4.41^{a}	22.04±3.69	54.23±8.16^{a}	29.19±4.39	14.46±2.55	158.00±17.82^{a}
26-31 yaş	92	41.10±5.30^{b}	22.91±3.41	58.90±7.26^{b}	30.42±4.69	14.70±2.52	168.03±18.69^{b}
32-37 yaş	82	41.82±5.16^{c}	22.63±3.33	59.28±7.54^{b}	30.91±4.08	14.17±2.81	168.82±18.53^{b}
38 yaş ve üzeri	29	41.38±4.83^{c}	22.83±2.73	57.28±6.91^{b}	30.97±2.93	14.03±2.41	166.48±15.33^{b}
F; p		**6.865; <0.001**	0.836; 0.475	**6.053; 0.001**	2.079; 0.103	0.802; 0.493	**4.761; 0.003**
Eğitim durumu							
İlköğretim ve altı	29	38.28±4.57^{a}	21.21±2.66^{a}	53.24±7.77^{a}	27.45±3.88^{a}	14.24±2.55	154.41±15.26^{a}
Lise	72	38.63±4.77^{a}	21.88±3.58^{a}	55.58±8.72^{b}	28.92±4.05^{b}	14.33±2.71	159.33±18.47^{b}
Ön lisans	30	41.77±4.44^{b}	23.73±3.47^{b}	60.87±5.36^{c}	30.73±4.14^{c}	14.30±2.79	171.40±16.52^{c}
Lisans	82	42.35±5.24^{b}	23.09±3.23^{b}	59.50±7.15^{c}	31.62±4.04^{c}	14.46±2.49	171.02±18.19^{c}
Lisansüstü	47	41.79±5.07^{b}	23.13±3.24^{b}	59.17±6.37^{c}	31.98±3.99^{c}	14.57±2.66	170.64±16.24^{c}
F; p		**8.196; <0.001**	**3.771; 0.005**	**7.154; <0.001**	**10.084; <0.001**	0.113; 0.978	**9.078; <0.001**
Medeni durum							
Evli	228	41.14±5.13	22.71±3.33	58.43±7.36	30.63±4.30	14.40±2.58	167.32±18.16
Tek ebeveyn	32	37.56±4.59	21.97±3.68	53.44±8.99	28.50±3.84	14.41±2.84	155.88±18.02
t; *p*		**3.739; <0.001**	1.171; 0.243	**3.492; 0.001**	**2.657; 0.008**	-0.006; 0.996	**3.340; 0.001**
Yaşadığı yer							
İlçe	96	39.22±5.06	22.51±3.43	56.6±8.68	29.47±4.49	14.53±2.40	162.33±18.83
İl	164	41.56±5.08	22.69±3.35	58.52±7.06	30.90±4.11	14.33±2.73	168.00±18.03
t; *p*		**-3.593; <0.001**	-0.411; 0.681	-1.932; 0.067	**-2.613; 0.010**	0.602; 0.534	**-2.406; 0.017**
Gelir durumu algısı							
Az	33	38.73±4.30^{a}	22.91±3.31^{ab}	56.70±7.42^{ab}	29.70±4.75^{ab}	14.58±2.88	162.61±17.57^{a}
Orta	103	40.10±5.25^{a}	21.93±3.57^{a}	56.12±8.58^{a}	29.11±4.25^{a}	14.11±2.66	161.36±19.59^{a}
İyi	104	41.36±4.86^{b}	22.97±3.17^{ab}	58.92±6.67^{b}	31.42±3.84^{b}	14.57±2.45	169.24±16.20^{b}
Çok iyi	20	43.60±6.35^{b}	23.90±2.95^{b}	62.65±6.11^{c}	32.50±4.06^{c}	14.80±2.75	177.45±18.12^{c}
F; p		**4.902; 0.002**	**2.901; 0.036**	**5.470; 0.001**	**7.472; <0.001**	0.782; 0.505	**6.542; <0.001**

****a,b,c üst simgeleri her bir grupta grup içi farklılığı göstermekte olup aynı harflerin yer aldığı ölçümler benzerdir.Bağımsız gruplarda t-testi ve tek yönlü Varyans analizi kullanılmıştır.*

lerin çocuk ihmal ve istismar riskini arttırmaktadır. Bu çalışmada, ebeveynlerin %38.1'i pandemi döneminde çalışma saatlerinin arttığını, %32.3'ü de bu süreçte çocuklarına karşı tahammülünün azaldığını ifade etmişlerdir (Tablo 1). Pandemi döneminde, ebeveynlerin çalışma sürelerinin artması, evdeki stres düzeyini arttırmış,[31] bu durum ebeveynlerin çocuklarının bakımı ve eğitimi için yeterli zaman, enerji ve kaynakları ayıramamalarına neden olmuş olabilir. Ayrıca pandemi döneminde ebeveynlerin stres, kaygı ve depresyon gibi duygusal zorluklar yaşamaları onların tahammüllerinin azalmasına sebep olabilir.[7] Bu nedenle, ebeveynlerin çocuklarına karşı sabırsız, öfkeli veya kontrol edilemeyen davranışlar sergilemelerine neden olmuş olabilir. Bu yüzden pandemi gibi olağanüstü durumlar dâhil tüm krizli süreçlerde ebeveyn tahammülü, çocuk istismarı ve ihmali yönünden dikkat edilmesi gereken bir durum olarak karşımıza çıkmaktadır.

Ebeveynlerin çocuklarını yetiştirirken öğrendikleri/gördükleri, kullandıkları farklı disiplin yöntemleri ebeveynleri çocuk ihmal ve istismarına yönelik riskli hale getirebilir. Bu çalışmada, ebeveynlerin %11.5'i çocuklarına sinirlendikleri zaman fiziksel olarak tepki verdiklerini, %82.3'ü çocuklarını sözel, %3.8'i fiziksel olarak cezalandırma yöntemi kullandıklarını, çocuklarına bazen iyi bazen kötü (%16.9), biraz ilgisiz (%1.2) tavır sergilediklerini ilettikleri belirlenmiştir (Tablo 1). Bu durum, çocuk yetiştirirken ebeveynlerin kendi ailelerinden görmüş oldukları çocuk yetiştirme tutumları ve disiplin yöntemlerinin kendi çocuklarını yetiştirirken de kullandıklarını düşündürmektedir. Ayrıca bu çalışmanın verilerinin pandemi sürecinde toplanmış olması da bu durumda etkili olmuş olabilir. Ebeveynlerin çocuklarını yetiştirirken disiplin yöntemleri hakkında farkındalıklarını arttırmada danışmanlığa gereksinim duydukları söylenebilir.

Bu çalışmada, ebeveynlerin EFİÇÖ toplam ölçek puan ortalamasının (165.91±18.50), ölçekten alınabilecek en yüksek puana göre 'iyi' düzeyde olduğu, başka bir deyişle çocuk ihmal ve istismar farkındalıklarının yüksek olduğunu göstermektedir (Tablo 2). Çocukların her yönden sağlıklı şekilde büyümeleri, ebeveynlerinin farkındalıklarının yüksek olmasıyla ilişkili olmakla birlikte tek başına yeterli olmadığı düşünülmektedir. Ebeveynlerin çocuk yetiştirmede doğru davranışlar sergilemesi de çocukların sağlıklı büyümesinde oldukça önemlidir. Yapılan çalışmalarda, annelerin çocuk ihmal ve istismarına yönelik farkındalıklarının daha yüksek olduğu görülmektedir.[5,32,33] Bu çalışmada da, literatürle benzer şekilde annelerin EFİÇÖ toplam ölçek puan ortalamasının, babalara göre daha yüksek olduğu ($p<0.001$, Tablo 3) belirlenmiştir. Çalışmalarda kadınların lehine anlamlı farklılık olması, annelerin çocuk bakımıyla daha fazla ilgileniyor olmasından, çocuklarına daha fazla zaman ayırmasından kaynaklanıyor olabilir. Ayrıca, kadınların genellikle çocukların bakımı ve eğitimiyle ilgilenmekten sorumlu olduğu sosyal normlar da bu durumu etkileyebilir. Annelerin, çocuklarının sağlığı ve güvenliği konusunda daha endişeli olmaları, daha fazla duygusal bağ kurmaları ve çocuklarının davranışlarını daha fazla gözlemlemeleri de bu durumu desteklemektedir. Sonuç olarak, her iki ebeveynin de çocuklarının sağlığı ve güvenliği konusunda eşit derecede farkındalığa sahip olmaları ve çocuk istismarına yönelik eşit derecede sorumluluk almaları istendik olandır. Babaların, çocuk ihmal ve istismar farkındalığı konusunda eğitim ve danışmanlık desteğine ihtiyaç duydukları söylenebilir.

Ebeveynlerin, çocuk ihmal ve istismar farkındalığını etkileyen bir başka faktör onların yaşlarıdır. Bu çalışmada genç yaş (20-25 yaş) ebeveynlerin, EFİÇÖ toplam ölçek puan ortalamalarının diğer yaş gruplarındaki ebeveynlere göre daha düşük olduğu saptanmıştır ($p=0.003$, Tablo 3). Yapılan çalışmalarda ebeveynlerin yaşlarının azalmasıyla ihmal ve istismara yönelik farkındalıklarının da azaldığı,[5] çocuk ihmali ve istismarına yönelik olumsuz görüşlerinin olduğu,[34] ve istismar potansiyellerinin arttığı görülmektedir.[35] Bunun sebebi, genç ebeveynlerin daha az sabırlı ve daha stresli olmaları, bu nedenle de çocuklarına karşı daha agresif davranmaları olabilir. Ayrıca, bu konuda farkındalıklarının ve bilgi birikimlerinin az olması da bu durumda rol oynayabilir. Erken yaşta evliliklerin önüne geçmek, sağlık profesyonellerince küçük yaştaki ebeveynleri çocuk ihmal ve istismar yönünden gözlemlemek, doğru davranışlar konusunda genç ebeveynleri desteklemek ve onlara danışmanlık hizmeti vermek, çocuk ihmal ve istismar farkındalığını artırmak konusunda önemlidir.

Ebeveynlerin eğitim durumları da çocuk ihmal ve istismarı farkındalığı üzerinde etkilidir. Bu çalışmada, ilköğretim ve altı eğitim düzeyine sahip ebeveynlerin, EFİÇÖ toplam ölçek puan ortalamalarının diğer eğitim düzeylerine sahip ebeveynlere göre daha düşük olduğu saptanmıştır ($p<0.001$, Tablo 3). Çalışkan'ın çalışmasında da eğitim seviyesi düşük ebeveynlerin ihmal ve istismar açısından riskli grup olduğu belirlenmiştir.[6]Benzer şekilde literatürdeki diğer çalışmalarda, eğitim seviyesinin artmasının çocuk ihmal ve istismar farkındalığını arttırdığı gösterilmektedir.[35,36] Yüksek eğitim düzeyine sahip ebeveynlerin daha fazla bilgi ve kaynaklara sahip olması, çocuklarının sağlık, gelişim ve refahı hakkında daha bilinçli olmalarına neden olmuş olabilir.

Ebeveynlerin medeni durumları, onların çocuk ihmal ve istismar farkındalıklarını etkilemektedir. Bu çalışmada, tek ebeveynlerin EFİÇÖ toplam ölçek puan ortalamalarının, evli ebeveynlere göre daha düşük olduğu saptanmıştır ($p=0.001$, Tablo 3). Yapılan çalışmalarda, tek ebeveynlerin, çocuk ihmali ve istismarı için risk faktörü oluşturduğunu, evli ebeveynlerin çocuk ihmali ve istismarı konusunda daha bilinçli olduğunu göstermektedir.[37,38] Bu bulgu evli olan ebeveynlerin birbirlerine yardımcı olma ve sorumluluk paylaşımı yapma fırsatları olmasından kaynaklanıyor olabilir.

Ebeveynlerin yaşadıkları yerin sosyoekonomik durumu ve kültürel özellikleri, onların çocuk ihmal ve istismar farkındalığını etkileyebilir. Bu çalışmada, ilçede yaşayan ebeveynlerin EFİÇÖ toplam ölçek puan ortalamalarının, il merkezinde yaşayan ebeveynlere göre daha düşük olduğu saptanmıştır ($p= 0.017$, Tablo 3). İlde ikamet eden ebeveynlerin ilçede ikamet eden ebeveynlere göre çocuk ihmali ve istismarı konusunda daha fazla bilgi edinme fırsatlarının olması sebebiyle çocuklarını daha bilinçli yetiştirdikleri ve çocuk ihmal ve istismarına yönelik farkındalıklarının daha fazla olduğu düşünülmektedir. İlçede yaşayan ailelerin çeşitli imkânlara ulaşabilmesi, ilde ikamet eden ailelere göre daha kısıtlıdır. Bu kısıtlılığa bağlı farkındalıkların daha az olabileceği düşünülmektedir. Çocuk istismarı ve ihmalinin önlenebilmesi için, öncelikle ebeveynlerin bu konuda

farkındalıklarının olması önemlidir.
Yapılan çalışmalar, düşük sosyoekonomik düzeydeki ebeveynlerin, çocuk ihmal ve istismarı açısından riskli grupta olduğunu, ebeveynlerin çocuk istismar ve ihmal belirtilerini fark etme ve çocuklarına yeterince özen gösterme konusunda daha az hassas olduklarını göstermektedir.[6,16] Bu çalışmada, gelir durumunu iyi ve çok iyi olarak algılayan ebeveynlerin diğer ebeveynlere göre EFİÇÖ toplam ölçek puan ortalamalarının daha yüksek olduğu saptanmıştır (p<0.001, Tablo 3). Daha yüksek gelirli ebeveynlerin çocuklarına daha iyi bakabilmeleri için daha fazla kaynakları olduğu ve bu kaynakları olası stresörlerin önüne geçmek ve daha fazla imkân ve bilgiye erişmek için kullandıkları düşünülmektedir. Bunun yanı sıra, yüksek gelirli ebeveynlerin daha yüksek eğitim düzeyleri olabileceği düşünüldüğünden, bu durum çocuk istismarı ve ihmali konusunda daha bilinçli olmalarına neden olabilir.
Ebeveynlerin, çocuk ihmal ve istismar farkındalıklarının az olması, olası çocuk ihmal ve istismar riskini arttırabilir. Bu çalışmada, okul öncesi çocukların %10.0'ı kronik bir hastalığa sahiptir (Tablo 1). Çocuklarda kronik bir hastalığın varlığı çocuk ihmal ve istismarı açısından risk oluştursa da[39] bu çalışmada, çocuklarında kronik bir hastalık olan ebeveynlerin, EFİÇÖ toplam ölçek puan ortalamalarının daha yüksek olduğu tespit edilmiştir (p=0.023, Tablo 3). Kronik hastalığı olan çocuğa sahip ebeveynlerin çocuklarını kaybetme korkusu ve hastane deneyimleri, çocuk bakımı konusunda daha hassas ve araştırmacı olmalarına, daha fazla bilgi sahibi olmalarına ve çocuklarına daha çok dikkat etmelerine neden olabilir. Bu durum, ebeveynlerin çocuk ihmal ve istismar konusunda farkındalıklarının daha yüksek olmasına neden olmuş olabilir.
Okul öncesi dönem gibi çocuk gelişiminin önemli bir evresinde, çocuk tarafından yaşanabilecek her türlü ihmal ve istismar, etkileri bakımından hem çocuğa hem de topluma büyük zararlar verecektir. Olası ihmal ve istismar vakalarının önüne geçmek için ebeveynlerin, çocuk ihmal ve istismarına yönelik farkındalıklarını arttırmak önem arz etmektedir. Hemşirelerin, olası ihmal ve istismar açısından riskli olabilecek çocuk ve aileleri öngörebilmesi, erken dönemde tanılaması ve olası olumsuzlukların giderilmesinde farkındalıklarının arttırılmasında önemli bir konumda olduğu düşünülmektedir. Hemşirelerin de içinde yer aldığı multidisipliner ekip anlayışıyla alınacak önlemler, önemli bir halk sağlığı sorunu olan çocuk ihmal ve istismar oranlarını azaltmada kritik bir öneme sahiptir.
Bu çalışma, 3-6 yaş çocuğu olan ebeveynlerle sınırlıdır. Çalışma ebeveynlerin kişisel değerlendirmelerine bağlı anket ve ölçek sorularına verdikleri yanıtlarla sınırlı olup, verilerin pandemi sürecinde online olarak toplanması araştırmanın diğer sınırlılıkları arasında yer almaktadır.

SONUÇ

Bu çalışmada babaların, eğitim ve gelir düzeyi düşük, genç yaş (20-25 yaş), tek ebeveyn, ilçede yaşayan ebeveynlerin çocuklarına yönelik ihmal ve istismar farkındalıklarının daha az olduğu tespit edilmiştir. Pandemi döneminin getirmiş olduğu yeni şartlar ebeveynlerin çocuklarına karşı tahammülünü azaltmıştır. Bu nedenle pandemi gibi olağanüstü durumlar dâhil tüm krizli süreçlerde ebeveyn tahammülü, çocuk istismarı ve ihmali yönünden dikkat edilmesi gereken bir durum olarak karşımıza çıkmaktadır. Sağlık profesyonellerinin, ebeveynlerin çocuk ihmal ve istismarı farkındalıklarını arttırmaya ve çocuklarıyla etkin iletişime geçebilmelerine yönelik eğitim ve danışmalık vermesi önerilebilir.

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LİSE ÖĞRENCİLERİNDE BİREYSEL FAKTÖRLERİN İNTERNET BAĞIMLILIKLARI ÜZERİNE ETKİSİ
THE EFFECT OF INDIVIDUAL FACTORS ON INTERNET ADDICTIONS IN HIGH SCHOOL STUDENTS

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ÖZ

Bu çalışmada adolesanlarda internet bağımlılığı düzeylerinin ve ilişkili faktörlerin belirlenmesi amaçlanmıştır. Araştırma 2018-2019 eğitim öğretim döneminde Bursa Osmangazi ilçesinde eğitim gören lise birinci sınıf öğrencilerinde gerçekleştirilmiştir. Araştırmada 10639 öğrenciye anket uygulanmıştır. Anketler sağlık personelleri tarafından okullarda yüz yüze görüşme tekniği kullanılarak gerçekleştirilmiştir. Yapılan logistik regresyon analizine göre internet bağımlılığı; kızlarda erkeklerden 1.27 kat, günlük ortalama üç saat ve üzerinde internet kullananlarda üç saatten az kullananlara göre 2.71 kat, üç saat ve üzerinde online oyun oynayanlarda üç saatten az oynayanlara göre 1.86 kat, üç saat ve üzeri sosyal medyada vakit geçirenlerde üç saatten az vakit geçirenlere göre 2.31 kat, düzenli kitap okuma alışkanlığı olmayanlarda olanlardan 1.40 kat ve düzenli spor yapmayanlarda yapanlardan 1.21 kat daha yüksek bulunmuştur. Yaşadığımız yüzyılda hayatımızın her aşamasında söz sahibi olan internet bankacılık işlemlerinden alışverişe kurs eğitim gibi faaliyetlerden günlük arkadaş görüşmelerimize kadar birçok aktivitemizin içine yerleşmiştir. Güzel yanlarının yanında insanı insan yapan birçok özellikten bireyi uzaklaştırması da söz konusu olduğunda aslında fazla kullanılan her şey gibi internet de bağımlılık yapabilmekte ve biyolojik, psikolojik ve sosyal hayatımızı etkilemektedir.

Anahtar kelimeler: Halk sağlığı, internet bağımlılığı, koruyucu hekimlik, sağlık eğitimi

ABSTRACT

This study aimed to determine the levels of internet addiction and associated factors among adolescents. The research was conducted on first-grade high school students studying in the Bursa Osmangazi district during the 2018-2019 academic year. A total of 10,639 students were surveyed. The surveys were administered by healthcare personnel using face-to-face interviews in schools. According to the logistic regression analysis conducted, internet addiction was found to be 1.27 times higher in girls compared to boys, 2.71 times higher in those who use the internet for an average of three hours or more daily compared to those who use it for less than three hours, 1.86 times higher in those who play online games for three hours or more compared to those who play for less than three hours, 2.31 times higher in those who spend time on social media for three hours or more compared to those who spend less than three hours, 1.40 times higher in those who do not have a regular habit of reading books, and 1.21 times higher in those who do not engage in regular sports activities. In the century we live in, the internet, which has a say in every aspect of our lives, from online banking transactions to activities such as shopping, taking courses, and daily social interactions, has become integrated into many of our activities. However, just like any other excessively used entity, the internet can lead to addiction and affect our biological, psychological, and social lives when it distances individuals from many qualities that make us human.

Keywords: Public health, internet addiction, preventive medicine, health education.

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GİRİŞ

Son yıllarda teknoloji alanında yaşanan hızlı gelişmeler teknolojiyi insan hayatının vazgeçilmez parçalarından biri haline getirmiştir. Teknolojide yaşanan gelişmelere paralel olarak internet, cep telefonu ve bilgisayar gibi ürünlerin kullanımı ve yaygınlığı artış göstermektedir.[1] Türkiye İstatistik Kurumu (TÜİK) 2013 yılı verilerine göre Türkiye'de bilgisayar kullanma yaşı ortalama sekiz, cep telefonu kullanma yaşı 10 olarak belirtilmekte ayrıca Türkiye'de 6-15 yaş arası çocukların yüzde 60.5'i bilgisayar, yüzde 50.8'i internet, yüzde 24.3'ü cep telefonu kullanmakta olduğu TÜİK raporlarında yer almaktadır.[2] TÜİK'in 2018'de yayınlamış olduğu raporda ise 16-74 yaş aralığında bilgisayar ve internet kullanım oranının %72.9 olduğu (erkek %80.4, kadın %65.5) belirtilmektedir. Hane halkı bilişim teknolojileri kullanım araştırması sonuçlarına göre 2018 yılında hanelerin %83.8'i evden internete erişim imkanına sahip olduğu belirtilmektedir. 16-74 yaş aralığındaki bireylerin 2004 yılında %53.7'si cep telefonuna sahipken bu oran 2018 yılında 98.7'ye yükselmiştir.[3] Teknoloji ve en önemli ürünlerinden biri olan internetin hayatımıza pek çok kolaylık getirmesiyle birlikte aşırı ve bilinçsiz kullanımıyla da problemli internet kullanımı, internet bağımlılığı gibi kavramlar ortaya çıkmıştır. İnternetin ücretsiz, kolay erişilebilir, ebeveynler tarafından müdahalesinin kısıtlı olması, bireyin gerçek hayatta olduğu kişilikten farklı bir kişiliğe bürünüp yaptıklarını gizleyebilmesi gibi nedenlerle gençlerde internetin kötüye kullanımı söz konusu olabilmektedir.[4,5] İnternetin kullanım amacı, süresi ve psikososyal nedenler internet bağımlılığı ile ilişkili olabilmektedir.[6,7] Adolesanların bilişsel, duygusal ve sosyal gelişiminin devam ediyor olması internet bağımlılığı açısından bu bireyleri potansiyel bir risk grubu haline getirmektedir.[7]

Bu çalışmanın amacı adolesanlarda internet bağımlılığı düzeylerinin ve ilişkili faktörlerin belirlenmesidir.

GEREÇ ve YÖNTEM

Araştırma 2018-2019 eğitim öğretim döneminde Bursa Osmangazi ilçesinde eğitim gören lise birinci sınıf öğrencilerinde gerçekleştirilmiştir. Araştırmada 10639 öğrenciye anket uygulanmıştır. Anketler sağlık personelleri tarafından okullarda yüz yüze görüşme tekniği kullanılarak gerçekleştirilmiştir. Çalışmada veri toplama aracı olarak 2 bölümden oluşan anket formu kullanılmıştır. Birinci bölüm sosyo-demografik değişkenlerden, ikinci bölüm geçerlilik ve güvenilirlik çalışması Kayri ve ark. tarafından yapılan "İnternet Bağımlılık Ölçeği'' kullanılmıştır.[8] Ölçeğin Türkçe uyarlaması 30 sorudan oluşmakta olup likert formundaki tutumlar "1- Asla 2- Nadiren 3-Bazen 4-Sıklıkla ve 5- Her zaman" şeklinde derecelendirilmiştir. Ölçekteki maddelerin toplam puanı 30-150 arasındadır. Hesaplama yapılırken ölçekten 90 puan ve üzeri alanlar internet bağımlısı olarak kabul edilmektedir.

Araştırmaya katılan adolesanların kilo durumları değerlendirilirken yaşa ve cinsiyete özgü persentil tabloları kullanılmış; 3 persentil-97 persentil arası ''normal kilolu'', 3 persentil altı ''düşük kilolu'', 97 persentil üstü ''fazla kilolu'' olarak değerlendirilmiştir. Karşılaştırma yapılırken persentil değeri 3-97 arasında olanlar ''normal'', 3 persentil altı ve 97 persentil üzerinde olanlar ise ''beslenme bozukluğu'' olarak gruplandırılmıştır.

Karşılaştırma yapılırken katılımcıların düzenli spor yapma ve düzenli kitap okuma durumlarına verdikleri ''Asla, Nadiren, Bazen, Sıklıkla, Her zaman'' cevaplarından ''Asla, nadiren ve bazen'' cevabını verenler ''düzenli spor yapmıyor/düzenli kitap okumuyor'', ''Sıklıkla ve her zaman'' cevabını verenler ''düzenli spor yapıyor/ düzenli kitap okuyor'' olarak kabul edilmişlerdir.

Analizlerde tanımlayıcı ölçütlerde frekans ve yüzde kullanılmıştır. Kategorik verilerin karşılaştırılmasında Ki-kare testi kullanılmış $p<0.05$ değeri istatiksel olarak anlamlı kabul edilmiştir. Logistik regresyon analizinde; cinsiyet, persentil, günlük ortalama inertent kullanım süresi, günlük ortalama online oyunda geçirilen süre, günlük ortalama sosyal medyada kullanımı, haftalık harçlık miktarı, kitap okuma alışkanlığı ve düzenli spor yapma alışkanlıkları modellemeye dahil edilmişlerdir. Veriler SPSS 20.0 programı ile değerlendirilmiştir.

Araştırma için Sağlık Bilimleri Üniversitesi Bursa Yüksek İhtisas Eğitim ve Araştırma Hastanesi Klinik Araştırmalar Etik Kurulu'ndan etik onay alınmıştır(2011-KAEK -25 2018/03-15).

BULGULAR

Araştırmaya katılan 10639 öğrencinin %52.3'ü erkek, % 47.7'si kızlardan oluşmakta olup yaş ortalamaları 14.36 ± 0.56'dır. Araştırmaya katılan erkeklerin %4'ü düşük kilolu, %7.7'si fazla kiloludur. Kızların ise %6'sı düşük kiloya sahip iken, %10.4'ünün fazla kilolu olduğu tespit edilmiştir. Katılımcıların kilolarının yaş ve cinsiyete göre persentil aralıkları Tablo 1'de gösterilmiştir.

Katılımcıların %47'si'i Anadolu Lisesi'nde, %0.8'i de Spor Lisesi'nde eğitim görmektedir. Katılımcıların eğitim gördüğü okullara ait bilgiler Tablo 2'de gösterilmiştir.

Araştırmaya katılan adolesanlardan %90.1'inin kendine ait cep telefonu, %62.8'inin kişisel bilgisayarı bulunmaktadır. Katılımcıların kişisel sahip oldukları ürünler Tablo 3'de gösterilmiştir.

Araştırma grubundaki erkek öğrencilerin %45.8'i, kız öğrencilerin %48.2'si günlük ortalama 1-3 saat arasında internette vakit geçirdiklerini belirtmişlerdir. Katılımcıların günlük ortalama internet kullanımları Tablo 4'de

Tablo1. Katılımcıların kilolarının yaş ve cinsiyete göre persentil aralıkları

Cinsiyet	Persentil aralıkları					
	<3 persentil		3-97 persentil		>97 persentil	
	Sayı	Yüzde	Sayı	Yüzde	Sayı	Yüzde
Erkek	221	4.0	4919	88.4	427	7.7
Kız	304	6.0	4238	83.6	530	10.4
Toplam	**525**	**4.9**	**9157**	**86.1**	**957**	**9.0**

Tablo 2. Eğitim görülen okullara göre katılımcıların dağılımı

Okul	Sayı	Yüzde
Anadolu Lisesi	5006	47.0
Meslek Lisesi	4107	38.6
İmam Hatip Lisesi	1235	11.6
Temel Lise	125	1.2
Spor Lisesi	85	0.8
Fen Lisesi	81	0.8

Tablo 3. Katılımcıların sahip oldukları kişisel ürünler ve çalışma odası

	Var		Yok	
	Sayı	**Yüzde**	**Sayı**	**Yüzde**
Cep telefonu	9890	90.1	1049	9.9
Sabit internet	9148	86.0	1491	14.0
Çalışma odası	8093	76.1	2546	23.9
Kişisel bilgisayar	6685	62.8	3954	37.2

gösterilmiştir. Araştırma grubundaki erkek öğrencilerin %38.3'ü günde ortalama 1-3 saat online oyun oynadıklarını, kız öğrencilerin %81.2'si günlük ortalama 1 saatten az online oyun oynadıklarını belirtmişlerdir. Katılımcıların günlük ortalama online oyun süreleri Tablo 4'de gösterilmiştir. Araştırma grubundaki erkek öğrencilerin %47.4'ü son bir yıl içerisinde günde ortalama 1 saatten az, kız öğrencilerin %45.2'si günlük ortalama 1-3 saat sosyal medyada vakit geçirdiklerini belirtmişlerdir. Katılımcıların günlük ortalama sosyal medya kullanım süreleri Tablo 4'de gösterilmiştir.

Araştırma grubunda internet bağımlılığı %15.5 olarak bulunmuş olup kızlardaki internet bağımlılık oranı erkeklerden daha yüksektir ($p<0.05$) (Tablo 5). Çalışmaya kapsamında internet bağımlılığı Anadolu Lisesi öğrencilerinde %18.8, spor lisesi öğrencilerinde %5.5 olarak bulunmuştur. Katılımcıların eğitim gördükleri okullara göre internet bağımlılık oranları Tablo 5'de gösterilmiştir. Araştırmaya katılan öğrencilerin persentil değerlerine göre internet bağımlılığı durumları incelendiğinde normal persentil değerlerine sahip olan bireylerde internet bağımlılığı oranı %15.4 olarak, beslenme bozukluğu olanlarda ise %16.3 olarak bulunmuştur ($p>0.05$). (Tablo 5) Araştırma grubundaki adolesanların son bir yılda günlük ortalama internet kullanım süreleri ile internet bağımlılığı durumu karşılaştırıldığında günde 1

Tablo 4. Günlük ortalama internet, oyun ve sosyal medya kullanımı

Günlük ortalama internet kullanım süresi	Erkek		Kız	
	Sayı	**Yüzde**	**Sayı**	**Yüzde**
1 saatten az	695	12.5	693	13.7
1 saatten fazla. 3 saatten az	2552	45.8	2444	48.2
3 saatten fazla. 6 saatten az	1669	30	1440	28.4
6 saatten fazla. 9 saatten az	409	7.4	355	7.0
9 saatten fazla	242	4.3	140	2.7
Toplam	**5567**	**100.0**	**5072**	**100.0**
Günlük ortalama online oyun süresi				
1 saatten az	2124	38.2	4121	81.2
1 saatten fazla. 3 saatten az	2134	38.3	736	14.5
3 saatten fazla. 6 saatten az	927	16.7	175	3.5
6 saatten fazla. 9 saatten az	219	3.9	29	0.6
9 saatten fazla	163	2.9	11	0.2
Toplam	**5567**	**100.0**	**5072**	**100.0**
Günlük ortalama sosyal medya kullanım süresi				
1 saatten az	2637	47.4	1389	27.4
1 saatten fazla. 3 saatten az	1995	35.8	2292	45.2
3 saatten fazla. 6 saatten az	664	11.9	996	19.6
6 saatten fazla. 9 saatten az	174	3.1	282	5.6
9 saatten fazla	97	1.8	113	2.2
Toplam	**5567**	**100.0**	**5072**	**100.0**

saatten az internet kullananlarda (n=1388) internet bağımlılığı %3.5 iken bu oran günlük 9 saatten fazla internet kullananlarda (n=382) %53.7'ye yükselmektedir.

Günde 3 saatten az internet kullananlarda internet bağımlılığı %7.5 iken, 3 saatten fazla internet kullananlarda %27.6 olarak bulunmuştur ($p<0.05$). (Tablo 5) Araştırma kapsamında öğrencilerin son bir yıl içerisinde günlük ortalama online oyun oynama süreleri ile internet bağımlılığı durumu karşılaştırıldığında günlük 1 saatten az online oyun oynayanlarda (n=6245) internet bağımlılığı %11.8 iken bu oran günlük 9 saatten fazla online oyun oynayanlarda (n=174) %54.0'e çıkmaktadır. 3 saatten az online oyun oynayanlarda internet bağımlılığı oranı %13.0 iken bu oran 3 saatten fazla online oyun oynayanlarda %30.4 olarak bulunmuştur ($p<0.05$). (Tablo 5) Çalışma kapsamındaki öğrencilerin son bir yıl içerisinde günlük ortalama sosyal medya kullanım süreleri ile internet bağımlılığı durumu karşılaştırıldığında günlük 1 saatten az sosyal medyada vakit geçirenlerde (n=4026) internet bağımlılığı %7.5 iken bu oran günlük 9 saatten fazla online oyun oynayanlarda (n=210) %56.7'ye çıkmaktadır. 3 saatten az sosyal medyada vakit geçirenlerde internet bağımlılığı oranı %10.6 iken bu oran 3 saatten fazla sosyal medyada vakit geçirenlerde %33.3'e çıkmaktadır ($p<0.05$). (Tablo 5) Kişisel bilgisayarı olan adolesanlarda internet bağımlılığı oranı %16.2; kişisel bilgisayarı olmayanlarda bu oran % 14.4 olarak bulunmuştur ($p<0.05$). (Tablo 5) Çalışma grubundaki öğrencilerden cep telefonu olanlarda internet bağımlılığı oranı %16.0; cep telefonu olmayanlarda %11.6'dır ($p<0.05$). (Tablo 5) Çalışma kapsamında öğrencilerin spor yapma durumları ile internet bağımlılığı karşılaştırıldığında spor yaptıklarını belirtenlerde bağımlılık oranı % 13.9 iken bu oran spor yapmayanlarda %16.4 olarak bulunmuştur ($p<0.05$). (Tablo 5) Çalışma grubundaki öğrencilerden haftalık ortalama 50₺ ve altında harçlık alanlarda internet bağımlılığı % 14.5 görülmekte olup, 50 ₺ üzeri haftalık harçlık alanlarda % 18.4 oranında bulunmuştur ($p<0.05$). (Tablo 5) Düzenli olarak ders kitabı haricinde de kitap okuduğunu belirten öğrencilerde internet bağımlılığı %12.2 bulunmuş olup bu oran düzenli kitap okumayanlarda %17.1 bulunmuştur ($p<0.05$). (Tablo 5)

Araştırma kapsamında ölçek uygulanan 10639 öğrencide internet bağımlılığı %15.5 olarak bulunmuştur. Ki

Tablo 5. İnternet bağımlılığı ile ilişkili faktörler

Cinsiyet	İnternet bağımlılığı						X^2	p
	Var		Yok		Toplam			
	Sayı	Yüzde	Sayı	Yüzde	Sayı	Yüzde		
Erkek	823	14.8	4744	85.2	5567	100.0	**4.931**	**0.028**
Kız	829	16.3	4243	83.7	5072	100.0		
Okul								
Fen Lisesi	16	19.8	65	80.2	81	100.0		
Meslek Lisesi	696	16.9	3411	83.1	4107	100.0		
Temel Lise	21	16.8	104	83.2	125	100.0		
İmam Hatip Lisesi	194	15.7	1041	84.3	1235	100.0		
Anadolu Lisesi	714	14.3	4292	85.7	5006	100.0		
Spor Lisesi	11	12.9	74	87.1	85	100.0		
Persentil grup								
Normal	1411	15.4	7746	84.6	9157	100.0	0.707	0.396
Beslenme bozukluğu	241	16.3	1241	83.7	1482	100.0		
Günlük internet kullanım süresi								
3 saate kadar	476	7.5	5908	92.5	6384	100.0	**792.855**	**0.001**
3 saatten fazla	1176	27.6	3079	72.4	4255	100.0		
Günlük online oyun oynama süresi								
3 saate kadar	1189	13	7926	87	9115	100.0	**299.173**	**0.001**
3 saatten fazla	463	30.4	1061	69.6	1524	100.0		
Günlük sosyal medya kullanım süresi								
3 saate kadar	878	10.6	7435	89.4	8313	100.0	**714.891**	**0.001**
3 saatten fazla	774	33.3	1552	66.7	2326	100.0		
Kişisel bilgisayar								
Var	1083	16.2	5602	83.8	6685	100.0		
Yok	569	14.4	3385	85.6	3954	100.0		
Cep telefonu								
Var	1530	16	8060	84	9590	100.0	**13.478**	**0.001**
Yok	122	11.6	927	88.4	1049	100.0		
Spor yapma								
Evet	516	13.9	3208	86.1	3724	100.0	**12.207**	**0.001**
Hayır	1136	16.4	5779	83.6	6915	100.0		
Haftalık ortalama harçlık								
50₺ ve altı	1149	14.5	6757	85.5	7906	100.0	**23.207**	**0.001**
50₺ üzeri	503	18.4	2230	81.6	2733	100.0		
Düzenli kitap okuma								
Evet	430	12.2	3083	87.8	3513	100.0	**43.216**	**0.001**
Hayır	1222	17.1	5904	82.9	7126	100.0		

kare testi sonucunda internet bağımlılığı açısından normal persentil değerlerine sahip olanlar ile beslenme bozukluğu olanlar arasında anlamlı bir fark bulunmamıştır. Bununla birlikte kızlarda, günlük 3 saatten fazla; internet kullanan, online oyun oynayan ve sosyal medyada vakit geçirenlerde, kişisel bilgisayara ya da cep telefonuna sahip olanlarda, düzenli spor yapmayanlarda, düzenli kitap okumayanlarda ve haftalık 50 ₺üzeri harçlık alanlarda internet bağımlılığı daha yüksek oranlarda bulunmuştur. Yapılan logistik regresyon analizine göre internet bağımlılığı; kızlarda erkeklerden 1.27 kat, günlük ortalama 3 saat ve üzerinde internet kullananlarda 3 saatten az kullananlara göre 2.71 kat, 3 saat ve üzerinde online oyun oynayanlarda 3 saatten az oynayanlara göre 1.86 kat, 3 saat ve üzeri sosyal medyada vakit geçirenlerde 3 saatten az vakit geçirenlere göre 2.31 kat, düzenli kitap okuma alışkanlığı olmayanlarda olanlardan 1.40 kat ve düzenli spor yapmayanlarda yapanlardan 1.21 kat daha yüksek bulunmuştur. Ki kare testinde anlamlı bulunan haftalık harçlık miktarı ile internet bağımlılığı ilişkisi logistik regresyon analizinde anlamsız bulunmuştur. İnternet bağımlılığı durumunu etkilediği düşünülen bazı faktörler çoklu analize alınmış ve yapılan binarylogistik regresyon analizi sonuçları Tablo 6'da gösterilmiştir.

TARTIŞMA

Rönesansı takiben başlayan Sanayi devrimi ile yükselen ve son yüzyılda zirveye ulaşan bilimsel ve teknolojik gelişmeler iletişim ağının küresel çapta yayılması ve hızlı iletişimin sağlanması ile ülkeleri aşmıştır. Hayatımızın her alanında kullandığımız teknolojik gelişmeler her geçen gün bizi kendine daha da bağımlı kılmıştır. Sigara, alkol, uyuşturucu gibi dışarıdan madde alımı söz konusu olmasa bile internet ve teknolojinin kişinin ihtiyacından fazla kullandığı ve onu kullanamadığında hayatını idamede zorlandığı diğer maddeler gibi bağımlılığı mümkündür.

Çalışmamızda internet bağımlılığı adolesanlarda %15.5 bulunmuştur. Daha önce 2013 yılında internet bağımlılığının yaygınlığının tespiti için ülkemizde yapılan bir çalışmada internet bağımlılığı %12.6 olarak bildirilmiştir.[9] Geçen on yıllık sürede değişen teknolojik imkanlar neticesinde bu oranın yükselmesini doğal karşılıyoruz. İtalya da lise öğrencileri üzerinde yapılan çalışma da % 5.4, Amerika'dan bildirilen lise öğrencilerinin internet bağımlılığı düzeyi %8.1, Tayvan da yapılan bir diğer çalışma da internet bağımlılığı %17.9 olarak bildirilmiştir.[10-12] Dünya literatürünün geniş aralıkta değişim göstermesi kullanılan ölçeklerin standart olmaması, çalışma yapılan toplumun sosyokültürel ve ekonomik olarak farklı özellikler göstermeleri gibi nedenlerden kaynaklanıyor olabilir.

İnternet kullanımı ile ilişkili bulduğumuz faktörlerden biri kadın cinsiyet sahibi olmadır. Literatür tarandığında aksini söyleyen çalışmalar da bildirilmiştir.[13,14] Cinsiyetin internet bağımlılığı üzerinde etkisi olmadığını söyleyen çalışmalarda mevcuttur.[15,16] Çalışmamız ile benzer bulguyu bildiren çalışmalar mevcuttur.[17,18] Literatür tarandığında ilişki bulunmayan, erkekte fazla olan, kızlarda fazla olan yani üç seçeneğin de değişik toplumlarda farklı çalışmalar da bulunabilmesi, toplum-

Tablo 6. Araştırma grubunda katılımcılarda internet bağımlılığı durumunu etkilediği düşünülen faktörlerin logistik regresyon analizi

Faktörler	Odds Oranı	%95 Cl	p
Cinsiyet			
Erkek	1	**1.11-1.45**	**0.001**
Kız	1.27		
Persentil			
Normal	1	0.91-1.25	0.409
Beslenme bozukluğu	1.06		
Günlük ortalama internet kullanımı			
3 saate kadar	1	**2.36-3.11**	**0.001**
3 saat ve üzeri	2.71		
Günlük ortalama online oyun süresi			
3 saate kadar	1	**1.60-2.16**	**0.001**
3 saat ve üzeri	1.86		
Günlük ortalama sosyal medya kullanımı			
3 saate kadar	1	**2.02-2.63**	**0.001**
3 saat ve üzeri	2.31		
Haftalık harçlık miktarı			
50 TL ve altı	1	0.97-1.25	0.114
50 TL üzeri	1.1		
Kitap okuma alışkanlığı			
Var	1	**1.23-1.60**	**0.004**
Yok	1.4		
Düzenli spor yapma			
Yapıyor	1	**1.07-1.37**	**0.002**
Yapmıyor	1.21		

sal farklılığın ait olduğu toplumda cinsiyete yüklenen anlamın ve cinsiyetler arasında farklı imkana sahip olmanın etkili olabileceğini düşündürmüştür.
Günlük ortalama 3 saat ve üzerinde internet kullananlarda 3 saatten az kullananlara göre 2.71 kat, 3 saat üzerinde online oyun oynayanlarda 3 saatten az online oyun oynayanlara göre 1.86 kat, 3 saat ve üzeri sosyal medyada vakit geçirenlerde 3 saatten az vakit geçirenlere göre 2.31 kat internet bağımlılığı yüksek bulunmuştur. İster sosyal medya amaçlı ister online oyun oynama amaçlı isterse de amaçsız internet gezisi amacıyla olsun geçen vakit internet bağımlılığının artışı ile ilişkili olduğu bildirilmiştir.[12,19-23] Bu yönüyle çalışmamız literatür ile benzerlik göstermektedir. Eğitim öğretim faaliyetlerinde, alışverişte, devlet dairelerine başvuruda, fatura ödeme dahil günlük hayatımızdaki birçok ödevimizin yerine getirilmesinde rutininin yerini alan teknoloji ve internet kullanımı teknolojik gelişmelerin hız kesmeden ilerlemesi teknolojik cihazların taşınabilir, hızlı oluşu gibi birçok faktör nedeniyle rutinin yerini almıştır. Birçok alanda hayatımızın tam olarak içine girmiş internet kullanımın gittikçe artacağı düşünüldüğünde bağımlılığında artacağını beklemek tesadüf olmayacaktır. Doğru internet kullanımı ve bağımlılık arasındaki ince çizginin daralacağı beklendiğinde halk sağlığı aile hekimliği gibi koruyucu tıbbi temel alan branşlara internetin kolaylıktan çıkıp bağımlılığının halk sağlığı sorunu haline gelmeden önlem alması, bu sorun üzerine düşünmesi ve daha büyük popülasyonlarda daha geniş çaplı çalışmalar yapıp sonuçlarıyla politika uygulayıcılarına yön vermesi gerekmektedir.
Düzenli kitap okuma alışkanlığı olmayanlarda olanlardan 1.40 kat fazla internet bağımlılığı bulduk. Literatürde benzer şekilde kitap okuma alışkanlığı, hobi, el işleri gibi faaliyetlerin internet bağımlılığına engel olduğu yönündedir.[24,25] Bu haliyle çalışmamız literatür ile benzerlik göstermektedir. İnternet ile ne kadar süre vakit geçirildiği, internet dışındaki faaliyetlerimizin ne kadarının yerini aldığı ile alakalı olan bu durum en basiti sıradan bir el örmesi örmek müzik aleti çalmak kitap okumak gibi faaliyetlerle önüne geçilebilir olması sevindirici ve yol göstericidir.
Düzenli spor yapmayanlarda yapanlardan 1.21 kat internet bağımlılığı daha yüksek bulunmuştur. Literatüre bakıldığında benzer şekilde spor aktivitelerini düzenli yapanlarda internet bağımlılığının daha az olduğuna dairdir.[24,26] İnternet bağımlılığını etkileyen her faktörde olduğu gibi sporun internet bağımlılığına etkisi hayatımızın ne kadarlık bölümünü kapsadığı ile alakalıdır. İnternetin yerine yaptığımız her düzenli aktivite bağımlılıktan bir adım daha insanlığı uzaklaştırmaktadır.

SONUÇ

Yaşadığımız yüzyılda hayatımızın her aşamasında söz sahibi olan internet bankacılık işlemlerinden alışverişe kurs eğitim gibi faaliyetlerden günlük arkadaş görüşmelerimize kadar birçok aktivitemizin içine yerleşmiştir. Güzel yanlarının yanında insanı insan yapan birçok özellikten bireyi uzaklaştırması da söz konusu olduğunda aslında fazla kullanılan her şey gibi internet de bağımlılık yapabilmekte ve biyolojik, psikolojik ve sosyal hayatımızı etkilemektedir. İnternetin doğru kullanımı aileden başlasa da birinci basamak hekimleri olan aile hekimlerine ve halk sağlığı hekimlerine çok büyük görev düşmektedir. İnternet kullanımının gittikçe artacağı düşünüldüğünde politika uygulayıcılarına sağlık hizmet sunumlarına ve küçük yaşta eğitime önem vermeleri yönünde bizlere ışık tutacak bu ve benzeri çalışmaları dikkate alması önem arz etmektedir.

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HASTALARIN HEMŞİRELİK BAKIMINI ALGILAYIŞI İLE YALNIZLIK DÜZEYLERİ ARASINDAKİ İLİŞKİNİN İNCELENMESİ*
INVESTİGATİON OF THE RELATİONSHİP BETWEEN PATİENTS' PERCEPTİONS OF NURSİNG CARE AND LONELİNESS LEVELS

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ÖZ

Bakım algısı, hastaların aldığı hizmete ve tedavinin sonuçlarına bakışını ifade etmektedir. Yalnızlık durumunda olan hastalar, sosyal ilişkiden yoksun olma, değersiz hissetme, kaygılı, keyifsiz, isteksiz, huzursuz olabilmektedir. Bu araştırma hastanede yatan hastaların hemşirelik bakımını algılayışı ile yalnızlık düzeyleri arasındaki ilişkinin incelenmesi amacıyla yapıldı. Dahili ve cerrahi servislerinde araştırmaya dâhil edilme kriterlerine uyan hastalar belirlendi. Belirlenen hastalara araştırma hakkında bilgi verildi. Araştırmaya katılmayı kabul eden hastalara hastaların hemşirelik bakım algılayışı ölçeği, Yalnızlık ölçeği ve sosyo-demografik bilgiler içeren form uygulandı. Hastaların hemşirelik bakım algılayışı ölçeği puan ortalaması 52.17±12.14 (orta düzeyin üstü), Yalnızlık ölçeği puan ortalaması 59.53±18.36 (orta düzeyin üstü) olduğu saptandı. Hastaların hemşirelik bakım algılayışı ölçeği puan ortalaması ile Yalnızlık ölçeği puan ortalaması arasında negatif yönde orta düzeyde anlamlı bir ilişki olduğu belirlendi. Hastaların hemşirelik bakım algılayışı ölçeği puan ortalaması ile Duygusal Yalnızlık alt boyutu arasında zayıf düzeyde anlamlı bir ilişki olduğu saptandı. Hastaların hemşirelik bakım algılayışı ölçeği puan ortalaması ile Sosyal Yalnızlık alt boyutu arasında negatif yönde orta düzeyde anlamlı bir ilişki olduğu bulundu. Hastaların hemşirelik bakım algılayışı ölçeği puan ortalaması ile Romantik Duygusal Yalnızlık alt boyutu puan ortalaması arasında negatif yönde çok zayıf düzeyde anlamlı ilişki olduğu saptandı. Hastaların hemşirelik bakım algılayışı ölçeği puan ortalaması ile Ailesel Duygusal Yalnızlık alt boyutu puan ortalaması arasında negatif yönde orta düzeyde anlamlı bir ilişki olduğu bulundu. Bu araştırmanın sonucunda; Hastanın hemşirelik bakım algılayışı ile yalnızlık arasında negatif yönde orta düzeyde anlamlı bir ilişki olduğu belirlendi.

Anahtar kelimeler: Bakım algısı, hemşirelik, hemşirelik bakımı, yalnızlık

ABSTRACT

Perception of care refers to the way patients view the service they receive and the results of the treatment. Patients in a state of loneliness may be deprived of social relations, feel worthless, anxious, unhappy, reluctant and restless. This study was conducted to examine the relationship between hospitalized patients' perception of nursing care and their loneliness levels. Patients who met the inclusion criteria in internal and surgical services were identified. The identified patients were informed about the study. The patients who agreed to participate in the study were administered the patients' perception of nursing care scale, Loneliness Scale and a form containing socio-demographic information. It was determined that the mean score of perception of nursing care scalewas 52.17±12.14 (above the intermediate level), and the mean Loneliness Scale score was 59.53±18.36 (above the intermediate level). It was determined that there was a moderate negative correlation between the mean score of perception of nursing care scaleand the mean score of Loneliness Scale. It was determined that there was a weak negative correlation between the mean score of perception of nursing care scaleand the Emotional Loneliness sub-dimension. It was found that there was a moderate negative correlation between the mean score of perception of nursing care scaleand the Social Loneliness sub-dimension. It was found that there was a too weak negative correlation between the mean score of the perception of nursing care scaleand the mean score of the Romantic Emotional Loneliness sub-dimension. It was found that there was a moderate negative correlation between the mean score of perception of nursing care scaleand the mean score of Familial Emotional Loneliness sub-dimension.As a result of this study; It was determined that there was a moderate negative correlation between the patient's perception of nursing care and loneliness.

Keywords: Perception of care, nursing, nursing care, loneliness

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GİRİŞ

Hemşirelik; birey, aile ve toplumda, sağlık/hastalık durumunda ihtiyaç duyduğu yardımı sağlayan, teorik bilgi ve beceriyi barındıran uygulamalı bir sağlık disiplinidir. Topluma ve bireylere karşı çok yönlü rolü ve görevi olan hemşirelik mesleği, bireyi doğumundan başlayarak ölümüne kadar geçen zamanda sağlık ve hastalıktaki konumu ile anlamayı esas almıştır.[1] Hemşireliğin özünde olan hemşirelik bakımı; hastayı savunma, yardım etme, sevgi gösterme, besleme, ihtiyaçlarını karşılama, hastayı düşünme, itina ile özen gösterip ve empati duyma gibi anlamları taşımaktadır.[2]Hemşirelik biliminin kurucularından olan Florence Nightingale bakımı, hemşirelik mesleğinin esas değeri olarak belirtip, bakım sürecinin ise hasta ile hemşire arasında yaşanan etkileşime dayalı temellendiğini vurgulamıştır.[2] Bakım sürecindeki bu etkileşim hastanın bakım algısıyla doğrudan ilişkilidir.

Bakım algısı, hastaların aldığı hizmetlere ve tedavinin sonuçlarına bakışını ifade eder. Literatür verilen bakımın hastanın bakış açısı ile değerlendirilmesi gerekliliği vurgulanmaktadır.[3] Hemşire, hastanın varsa sorunlarını tarafsız olarak değerlendirmeli ve hasta bakım algısını düzenli olarak değerlendirmelidir.[4] Hasta bakım algısı, hemşirelik bakımında rehber konumundadır. Hastaların bakış açılarına göre şekillenen algılar, nerede eksikliklerin olduğu konusunda fikir verir ve bu eksiklerin düzeltilmesini sağlar. Hemşirelik bakım hizmetleri kurumu bakım ve kalite standartlarını bu veriler doğrultusunda yükseltir. Hastalardan geri bildirim alınması hemşirelik hizmetleriyle ilgili kalitenin arttırılmasının yanı sıra tüm sağlık kuruluşu için olumlu sonuçlar ortaya çıkarır.[5] Literatürdeki araştırmalarda hastaların hemşirelik bakımını algılayışları ile cinsiyet, yaş, medeni durum, eğitim düzeyi, sosyal hayat, kültür ve etnik yapı gibi değişkenler arasında ilişki olduğu belirtmektedir.[6-8]

Hasta fiziksel, kültürel, ruhsal, sosyal ve aile çevresi ile bir bütündür. Sorunlar hemşirenin genel olarak hastayla ilgilenmesi, hastayı iyi değerlendirmesi ve yönetmesi ile çözülebilir. Bu sorunlardan biri yalnızlık duygusudur ki, bu duyguyla baş edebilmek için bireyin yalnızlığa ilişkin davranışlarının ve tepkilerinin iyi değerlendirilmesi gerekir.[9] Bireyin beklenti ve ihtiyaçlarının toplum tarafından karşılanmaması ve toplum tarafından sağlanan desteğin azalması veya sona ermesi ile bireyde yalnızlık duygusu ortaya çıkmaktadır.[10] Literatüre baktığımızda yaş, cinsiyet, medeni durum, öğrenim düzeyi, yalnız ya da ailesiyle birlikte yaşama, sağlık durumu, genetik ve kişisel yatkınlık gibi bazı durumlar yalnızlık durumu yaşamayı yakından etkilemektedir.[11]

Yalnızlık, çoğu ülkede değişen derecelerde yaşandığı için küresel bir sosyal sorundur.[12] Yalnızlık durumu olan hastaların hastalıkla baş edebilecekleri sosyal desteğin olmaması hemşirelerden beklentilerini arttırmakta ve bunun sonucunda kendilerini hemşirelere daha bağımlı hissetmekte[13] ve bu durum hastanın hemşirelik bakım algılarının etkilenmesiyle sonuçlanabilir. Ancak literatür incelendiğinde hastaların hemşirelik bakım algısını etkileyen faktörlerin belirlenmesine yönelik araştırmalar[13-15] tanımlanmasına rağmen, bakım algısı ile yalnızlık durumu arasındaki ilişkiyi irdeleyen bir araştırmaya rastlanmamıştır. Bu noktadan hareketle bu araştırma hastaların bakım algılayışı ile yalnızlık düzeyleri üzerinde durulup aralarındaki ilişki incelendi.

Araştırmanın Amacı: Bu araştırma hastaların bakım algılayışı ile yalnızlık düzeyleri arasında ilişkiyi incelemek amacıyla yapıldı.

Araştırma soruları:

1. Hastaların hemşirelik bakımını algılayışı ne düzeydedir?
2. Hastaların yalnızlık durumları ne düzeydedir?
3. Hastaların hemşirelik bakımını algılayışı ile yalnızlık düzeyleri arasında ilişki var mıdır?
4. Hastaların hemşirelik bakımını algılayışı ve yalnızlık düzeyleri ile sosyo-demografik özellikleri arasında ilişki var mıdır?

GEREÇ VE YÖNTEM

Araştırmanın Şekli

Bu araştırma tanımlayıcı ve ilişki arayıcı türünde yapıldı.

Araştırmanın Yapılacağı Yer ve Özellikleri

Araştırma Doğu Anadolu bölgesinde yer alan bir Araştırma hastanesinin Dahili ve Cerrahi servislerinde yatan hastalara yapıldı. Araştırma Hastanesi toplamda 1.450 yatak kapasitesine sahiptir. Hastanen yaklaşık olarak yılda 1 milyon insanın üzerinde ayakta, 71.640 hasta da yatarak hizmet almaktadır.

Araştırmanın Evreni- Örneklemi

Araştırmanın evrenini Kasım 2021-Ocak 2022tarihleri arasında Atatürk Üniversitesi Araştırma Hastanesi Dâhili ve Cerrahi kliniklerinde yatan hastalar oluşturdu (Göğüs Hastalıkları, Üroloji, Göz Hastalıkları, Ortopedi, Nöroloji, Onkoloji, Endokrinoloji ve Nefroloji servisleri). Atatürk Üniversitesi Araştırma Hastanesi Performans Program Yıllığı 2021 verilerine göre bir yılda yatarak tedavi gören hastaların tümü araştırmanın evrenini oluşturdu. Araştırmanın örneklemini belirlemek için evren bilinen durumlarda örnekleme alınacak kişi sayısını belirlemek için kullanılan evreni bilinen örneklem formülü kullanılarak örneklem sayısı 382 olarak belirlendi. Örnekleme dâhil edilecek hastalar, örnekleme dâhil edilme kriterlerine göre belirlendi. Veri kaybı olacağı düşünülerek veri toplama süreci 395 hasta ile başlandı. 388 hasta ile araştırma tamamlandı.

Araştırmaya Dahil Edilme Ölçütleri

- Yoğun bakım, enfeksiyon hastalıkları, psikiyatri servisleri haricinde dâhili ve cerrahi servislerinde yatan hastalar,
- 18 yaş ve üzerinde olan,
- İşitme, görme ile ilgili problemleri olmayan,
- Hastane yatış süresi en az üç gün veya üzerinde olan,
- İletişim zorluğu yaşamayan,
- Bilinçli ve oryantasyonu tam olan hastalar.

Araştırmada Veri Toplama Formları

Verilerin toplanmasında araştırmacılar tarafından oluşturulan hasta tanıtıcı bilgi formu ile Hastanın Hemşirelik Bakımını Algılayışı Ölçeği ve Yalnızlık Ölçeği kullanıldı.

Hasta Tanıtıcı Bilgi Formu

Araştırmacılar tarafından literatür taranarak hazırlanan formda hastaların sosyo-demografik özelliklerini, hastanede yatış süreleri ve durumlarına ilişkin soruları içeren 15 madde içermektedir.

Hastaların Hemşirelik Bakımını Algılayışı Ölçeği

Ölçek hastaların hemşirelik bakımı algılayışını ve aldıkları bakımdan duyulan memnuniyet düzeyini ölçmek

amacıyla Dozier ve ark.[16] tarafından 2001 yılında geliştirilmiştir. Likert tipi ölçekte hemşirelik bakımının kalitesine ilişkin 15 ifade yer almaktadır. Ölçeği oluşturan soruların cevaplarına göre katılıyorum=5, biraz katılıyorum=4, kararsızım=3, katılmıyorum=2, kesinlikle katılmıyorum=1 ve yanıtsız=0 seçeneklerden kendisine uygun olan birisinin işaretlenmesi beklenmektedir. Ölçekten minimum 15, maximum 75 puan alınmaktadır. Ölçeğin kesme puanı 45 tir. Kesme puanın üzerinde olan puanlar pozitif tutumu ifade eder. Ölçekten alınan toplam puandaki yükselme hastanın hemşirelik bakımından memnuniyet düzeyinin arttığını göstermektedir. Hastaların hemşirelik bakım algılayışı ölçeği (HHBAÖ)'nin Çoban[17] tarafından geçerlilik ve güvenirliği yapılmıştır. Geçerlilik güvenirlilik çalışmasında Cronbach α güvenilirlik katsayısı 0.94 olarak belirlenmiştir.[17] Bu araştırmada ise Cronbach α güvenilirlik katsayısı 0.92 olarak bulunmuştur.

Yalnızlık Ölçeği (SELSA-S)

SELSA Yalnızlık duygusunu belirlemek amacıyla DiTommaso ve Spinner[18] tarafından duygusal yalnızlık ile sosyal yalnızlık teorisine dayalı çok boyutlu olarak geliştirilmiştir. SELSA-S ise; Orijinal SELSA alt ölçeklerinden: Sosyal yalnızlık (SY) ve duygusal yalnızlık (DY) alt boyutlarından romantik duygusal yalnızlık (RDY) ve ailesel duygusal yalnızlık (ADY) sorularını ayrıştırarak toplam 15 maddeden oluşturuldu.[18] SELSA-S'in yetişkinler için geçerlilik ve güvenirliğini 2004 yılında yine DiTommaso, Brannen, ve Best tarafından yapılmıştır.[19] Türk kültürüne uyarlanması geçerlilik ve güvenirlilik çalışması Akgül tarafından yapılmıştır.[20] Ölçek ve alt boyutları Cronbachalpha iç tutarlılık katsayıları; RDY alt boyutunda 0.87, ADY alt boyutunda 0.89, SY alt boyutunda 0.90 ve toplam Yalnızlık (SELSA-S) 0.92 olarak bulunmuştur. Bu araştırmada ise, RDY alt boyutunda 0.90, ADY alt boyutunda 0.88, SY alt boyutunda 0.88 ve toplam Yalnızlık (SELSA-S) Cronbachalpha iç tutarlılık katsayıları 0.91 olarak bulunmuştur.

Toplamda 15 maddesi olan ölçek SY Alt Boyut maddeleri; 2, 5, 7, 9, 13 iken; DY Alt Boyutu: ADY; 1, 4, 8, 11, 12 ve RDY; 3, 6, 10, 14, 15'inci maddelerinden oluşmaktadır. DY puanını ADY ve RDY toplamı oluşturmaktadır. Toplam yalnızlığı puanını; DY puanı ile SY puanı toplanarak hesaplanmaktadır. Ölçekteki sorularda her ifadenin içerdiği durumun ne denli yaşandığını, likert tipi derecelendirme ile 1 (şiddetle katılmıyorum) ile 7 (şiddetle katılıyorum) arasında değişmektedir. Ölçek maddelerinin puanları 6'sı düz şekilde (1, 4, 7, 10, 13, 15), 9'u ise (2, 3, 5, 6, 8, 9, 11, 12, 14) ters şekilde kodlanmıştır. Ölçekten alınacak minimum puan 15, maksimum puan 105'dir. Ölçek puanında artma, sosyal ve duygusal yalnızlığın yüksek seviyede olduğunu ifade etmektedir.[20]

Verilerin Toplanması ve Etik Açıklamalar

Araştırma için ilk olarak Atatürk Üniversitesi Hemşirelik Fakültesi Etik Kurulu'ndan izin (sayı:2021-2/5;onay tarihi:08.06.2021) ve araştırmanın gerçekleştirileceği hastaneden yazılı kurum izinleri (29.07.2021) alındı. HHBAÖ VE SELSA-S kullanımı için izinler alındı. Gerekli izinler alındıktan sonra, Kasım 2021- Ocak 2022 tarihleri arasında hastalardan veriler toplandı. Araştırmaya katılmayı kabul eden hastalara Bilgilendirilmiş Gönüllü Olur Formu ile yazılı onamları alındı.

Verilerin Analizi

Verilerin istatistiksel analizi Statistical Package for Social Sciences (SPSS 22.0) programı ile yapılmıştır. Kolmogrowsmirnov testi kullanılarak ölçümlerin hepsinin normal dağılım gösterdiği belirlendi. Ölçeklerin ve alt boyutlarının iç tutarlılığını gösteren Cronbach Alpha değerleri incelendi. Ölçeklerin ve alt boyutların yüksek düzeyde güvenilir olduğu belirlendi. Analizler bu bilgiler ışığında yapıldı. Bağımsız iki grup arasındaki farkın incelenmesi amacıyla bağımsız gruplarda t testi, 3 ve daha fazla grup arasındaki farkın incelenmesi amacıyla Tek Yönlü Varyans analizi kullanıldı. İki ölçüm arasındaki ilişkinin belirlenmesinde Pearsonkorelasyon katsayısı kullanıldı. Anlamlılık düzeyi olarak $p < 0.05$ alınmıştır. Sosyo-demografik özelliklerin dağılımı belirlemek amacıyla frekans ve yüzde, ölçümlerden alınan puanın belirlenmesi amacıyla ortalama ve standart sapma kullanıldı.

Araştırmanın Sınırlılıkları

Araştırmanın tek merkezde yapılmış olması ve verilerin pandemi döneminde yapılmış olması bu araştırmanın sınırlılığıdır.

BULGULAR

Hastaların Sosyo-Demografik Özelliklerine Göre Dağılımı

Hastaların %62.1'inin erkek olduğu, %37.1'inin 60 ve üzeri olduğu, %65.5'inin cerrahi servislerde yattığı, % 70.1'inin evli olduğu, %26.3'ünün lise mezunu olduğu bulundu. Hastaların %25.5'inin emekli olduğu, % 87.6'sının ailesi ile yaşadığı, %42.8'inin 3-7 gündür hastanede kaldığı, %64.2'sinin kronik bir rahatsızlığının olduğu, %32.5'inin sağlık durumunu kötü algıladığı belirlendi. Hastaların %72.7'sinin daha önce herhangi bir yataklı tedavi kurumunda yattığı, %47.2'sinin kendi bakımının yarısı karşılayabildiği, %74'ünün iki kişilik odada tedavi ve bakım aldığı, %85.3'ünün refakatçisinin olduğu, %58'inin yakınlarının ziyaretine bazen geldiği ifade etmiştir.

HHBAÖ ile SELSA-S ve Alt Boyut Puan Ortalamaları Arasındaki İlişkinin İncelenmesi

Hastaların HHBAÖ ile SELSA-S ve alt boyut ile puan ortalamaları arasındaki ilişkinin incelenmesi amacıyla yapılan korelasyon analizi sonuçları verilmiştir (Tablo 1). Ölçekler arası korelasyon katsayıları; çok zayıf (0.00-0.25), zayıf (0.26-0.49), orta (0.50-0.69), güçlü (0.70-0.89) ve çok güçlü (0.90- 1.00) olarak sınıflandırıldı.[21]

HHBAÖ puan ortalaması ile SELSA-S puan ortalaması arasında negatif yönde orta düzeyde anlamlı bir ilişki olduğu belirlendi ($r=-.564$, $p<0.05$). HHBAÖ puan ortalaması ile DY arasında negatif yönde zayıf düzeyde anlamlı bir ilişki olduğu saptandı ($r=-.496$, $p<0.05$). HHBAÖ puan ortalaması ile SY arasında negatif yönde orta düzeyde anlamlı bir ilişki olduğu bulundu ($r=-.568$, $p<0.05$). HHBAÖ puan ortalaması ile RDY puan ortalaması arasında negatif yönde çok zayıf düzeyde anlamlı ilişki olduğu saptandı ($r=-.239$, $p<0.05$). HHBAÖ puan ortalaması ile ADY puan ortalaması arasında negatif yönde orta düzeyde anlamlı bir ilişki olduğu bulundu ($r=-.605$, $p<0.05$) (Tablo 1).

Hastaların Sosyo-Demografik Özelliklerine Göre HHBAÖ puan ortalamalarının karşılaştırılması

Yattığı klinik, medeni durum, kronik bir rahatsızlığın varlığı, hastanede kalış süresi, sağlık durumunu nasıl algıladığı, kendi bakımını karşılama durumu, refakatçi bulundurma durumu ve yakınlarının ziyaret sıklığı de-

Tablo 1. HHBAÖ ile SELSA-S ve Alt Boyut Puan Ortalamaları Arasındaki İlişkinin İncelenmesi (N=388)

Ölçekler		Aile Alt Boyutu (ADY)	Romantik Alt Boyutu (RDY)	Duygusal Yalnızlık Alt Boyutu (DY)	Sosyal Yalnızlık Alt Boyutu (SY)	Yalnızlık Envanteri (SELSA-S)
Hastanın Hemşirelik Bakımını Algılayışı Ölçeği	r	-.605**	-.239**	-.496**	-.568**	-.564**
	p	.000	.000	.000	.000	.000

**p<0.01

ğişkenlerinin HHBAÖ puan ortalamaları arasında anlamlı bir fark belirlendi. Dâhili kliniklerde yatan hastaların, cerrahi klinikte yatanlara göre HHBAÖ puan ortalamalarının yüksek olduğu ve bu fark anlamlı bulundu ($p<0.05$). Evli olan hastaların bekârlara göre HHBAÖ puan ortalamalarının yüksek ve bu farkın anlamlı olduğu belirlendi ($p<0.05$). Kronik rahatsızlığı olmayan hastaların olanlara göre HHBAÖ puan ortalamalarının yüksek ve bu farkın anlamlı olduğu saptandı ($p<0.05$). 3-7 gündür hastanede yatanların diğerlerine göre HHBAÖ puan ortalamalarının yüksek ve bu farkın anlamlı olduğu belirlendi ($p<0.05$). Hastaların sağlık durumunu algılayışı durumunun her değişkeni arasında anlamlı bir fark olduğu, sağlık durumuna çok iyi yanıtı veren hastaların diğerlerine göre HHBAÖ puan ortalamalarının yüksek ve bu farkın anlamlı olduğu saptandı ($p<0.05$). Kendi bakımını kendi karşılayanların diğerlerine göre HHBAÖ puan ortalamalarının yüksek ve bu farkın anlamlı olduğu bulundu ($p<0.05$). Refakatçisi olanların olmayanlara göre HHBAÖ puan ortalamalarının yüksek ve bu farkın anlamlı olduğu belirlendi ($p<0.05$). Yakınları ziyaretine sürekli gelen hastaların diğerlerine göre HHBAÖ puan ortalamalarının yüksek ve bu farkın anlamlı olduğu bulundu ($p<0.05$) (Tablo 2).

Tablo 2. Hastaların Sosyo-Demografik Özelliklerine Göre HHBAÖ puan ortalamalarının karşılaştırılması (N=388)

	Değişkenler	x̄ ±SD	İstatistik ve p
Cinsiyet	Kadın	52.12±12.27	t=-0.057
	Erkek	52.20±12.08	p=0.955
Yaş	18-30	53.79±14.09	F=0.779
	31-45	11.97±1.37	p=0.506
	46-59	11.48±0.99	
	60 ve üzeri	51.12±12.36	
Klinik	Dâhili	56.75±12.58	**t=5.614**
	Cerrahi	49.75±11.19	**p=0.001**
Medeni Durum	Evli	53.14±12.03	**t=2.240**
	Bekâr	49.88±12.15	**p=0.015**
Öğrenim Durumu	Okuryazar değil	51.50±13.61	F=1.323
	Okuryazar	49.80±11.82	p=0.253
	İlkokul	51.94±11.23	
	Ortaokul	56.28±12.33	
	Lise	53.43±11.56	
	Üniversite	51.56±13.26	
Meslek	Ev Hanımı	51.74±12.84	F=0.743
	İşçi	53.14±12.25	p=0.616
	Memur	52.63±11.09	
	Çifti	49.07±12.10	
	Serbest meslek	53.61±12.33	
	Emekli	51.34±11.93	
	Öğrenci	56.00±15.70	
Birlikte Yaşadığı Kişi/Kişiler	Ailemle	52.70±12.07	F=2.915
	Arkadaşlarımla	50.64±10.51	p=0.055
	Yalnız	47.73±12.55	
Hastanede Yatma Süresi (Gün)	3-7	55.60±12.70	**F=12.861**
	8-14	50.20±11.47	**p=0.001**
	15 ve üstü	48.49±10.22	
Kronik Hastalığa Sahip Olma	Var	50.12±11.45	**t=-4.558** **p=0.001**
	Yok	55.83±12.51	
Şimdiki Sağlık Durumunu Algılama	Çok iyi	63.00±9.07	**F=21.774**
	İyi	58.35±10.83	**p=0.001**
	Orta	52.16±12.20	
	Kötü	47.90±10.25	
	Çok kötü	44.20±11.25	
Daha Önce Herhangi Bir Yataklı Tedavi Kurumuna Yatma Durumu	Evet	51.45±12.14	t=-1.904
	Hayır	54.08±11.96	p=0.058
Kendi Bakımını Karşılama Durumu	Kendim karşılıyorum	56.27±11.54	**F=24.733**
	Yardımla karşılıyorum	49.30±11.31	**p=0.001**
	Tüm gereksinimlerim başkaları tarafından karşılanıyor	43.17±11.97	
Tedavi ve Bakım Aldığı Oda Tipi	Tek kişilik	54.30±12.69	F=2.635
	İki kişilik	52.64±11.68	p=0.073
	Üç kişilik ve daha üstü	49.34±13.42	
Refakatçiye Sahip Olma	Refakatçim var	53.04±11.78	**t=3.444**
	Refakatçim yok	47.12±13.08	**p=0.001**
Yakınların Ziyarete Gelme Sıklığı	Sürekli	58.60±9.80	**F=18.396**
	Bazen	50.60±11.86	**p=0.001**
	Hiç	49.08±12.91	

Hastaların Sosyo-Demografik Özelliklerine Göre SELSA-S Puan Ortalamalarının Karşılaştırılması

Yattığı klinik, medeni durum, kronik bir rahatsızlığın varlığı, birlikte yaşadığı kişi/kişiler, hastanede kalış süresi, sağlık durumunu nasıl algıladığı, daha önce yataklı bir tedavi kurumunda yatma durumunun, kendi bakımını karşılama durumu, refakatçi bulundurma durumu ve yakınlarının ziyaret sıklığı değişkenleri ile "Yalnızlık Envanteri" puan ortalamaları arasında anlamlı bir farkın olduğu belirlendi. Dâhili kliniklerde yatan hastaların "Yalnızlık Envanteri" puan ortalamaları cerrahi kliniklerde yatanlara göre düşük ve farkın anlamlı olduğu ($p<0.05$), bekârların evlilere göre "Yalnızlık Envanteri" puan ortalamaları yüksek ve bu farkın anlamlı olduğu saptandı ($p<0.05$). Kronik rahatsızlığı olanların olmayanlara göre "Yalnızlık Envanteri" puan ortalamalarının yüksek ve bu farkın anlamlı olduğu($p<0.05$), yalnız yaşayanların ailesi ile yaşayanlara göre "Yalnızlık Envanteri" puan ortalamasının yüksek olup aralarındaki fark anlamlı olduğu belirlendi ($p<0.05$). 3-7 gündür hastanede kalanların diğerlerine göre "Yalnızlık Envanteri" puan ortalamalarının da düşük ve aralarında fark anlamlı olduğu saptandı ($p<0.05$). Hastaların sağlık durumunu algılayışı değişkenine göre "Yalnızlık Envanteri" puan ortalamaları arasındaki farkın anlamlı olduğu belirlendi ($p<0.05$). Daha önce yataklı bir tedavi kurumunda yatanların, yatmayanlara göre "Yalnızlık Envanteri" puan ortalamasının yüksek olduğu ve bu fark anlamlı ($p<0.05$), hastaların kendi bakımını karşılama durumu değişkenine göre "Yalnızlık Envanteri" puan ortalamaları arasındaki farkın anlamlı olduğu belirlendi ($p<0.05$). Refakatçi bulundurmayan hastaların, refakatçi bulunduranlara göre "Yalnızlık Envanteri" puan ortalamasının yüksek olduğu ve bu farkın anlamlı ($p<0.05$), yakınları ziyaretlerine sürekli gelen hastaların diğerlerine göre "Yalnızlık Envanteri" puan ortalaması da düşük olup ve bu farkın anlamlı olduğu saptandı ($p<0.05$) (Tablo 3).

Tablo 3. Hastaların Sosyo-Demografik Özelliklerine Göre SELSA-S Puan Ortalamalarının Karşılaştırılması (N=388)

	Değişkenler	**x̄ ±SD**	**İstatistik ve p**
Cinsiyet	Kadın	60.52±18.17	t=0.836
	Erkek	58.92±18.48	p=0.404
Yaş	18-30	65.41±22.78	F=2.387
	31-45	55.97±19.50	p=0.069
	46-59	58.83±16.60	
	60 ve üzeri	60.66±17.88	
Klinik	Dâhili	52.03±20.83	**t=-5.595**
	Cerrahi	63.48±15.55	**p=0.001**
Medeni Durum	Evli	54.97±16.74	**t=-8.092**
	Bekâr	70.22±17.58	**p=0.001**
Öğrenim Durumu	Okuryazar değil	59.97±16.98	F=0.430
	Okuryazar	60.57±16.15	p=0.838
	İlkokul	59.93±18.63	
	Ortaokul	54.72±21.92	
	Lise	59.06±18.19	
	Üniversite	60.53±21.85	
Meslek	Ev Hanımı	61.40.±17.69	F=0.484
	İşçi	58.07±19.58	p=0.820
	Memur	58.77±18.56	
	Çifti	58.59±17.82	
	Serbest meslek	59.22±18.30	
	Emekli	60.96±18.05	
	Öğrenci	53.67±16.14	
Birlikte Yaşadığı Kişi/Kişiler	Ailemle	57.80±18.07	**F=13.301**
	Arkadaşlarımla	67.64±14.76	**p=0.001**
	Yalnız	72.97±15.89	
Hastanede Yatma Süresi (Gün)	3-7	55.24±19.74	**F=8.824**
	8-14	61.76±17.68	**p=0.001**
	15 ve üstü	64.53±14.27	
Kronik Hastalığa Sahip Olma	Var	62.37±16.89	**t=3.982** **p=0.001**
	Yok	54.44±19.78	
Şimdiki Sağlık Durumunu Algılama	Çok iyi	40.15±16.10	**F=21.107**
	İyi	51.51±18.53	**p=0.001**
	Orta	58.75±18.47	
	Kötü	67.17±14.38	
	Çok kötü	67.74±13.20	
Daha Önce Herhangi Bir Yataklı Tedavi Kurumuna Yatma Durumu	Evet	61.45±17.22	**t=3.165**
	Hayır	54.42±20.29	**p=0.002**
Kendi Bakımını Karşılama Durumu	Kendim karşılıyorum Yarımla karşılıyorum	54.50±19.54 62.64±15.94	**F=18.052** **p=0.001**
	Tüm gereksinimlerim başkaları tarafından karşılanıyor	73.71±17.46	
Tedavi ve Bakım Aldığı Oda Tipi	Tek kişilik	58.60±19.18	F:0.906
	İki kişilik	58.97±18.81	p=0.405
	Üç kişilik ve daha üstü	62.17±15.99	
Refakatçiye Sahip Olma	Refakatçim var	58.27±18.15	**t=-3.275**
	Refakatçim yok	66.79±18.03	**p=0.001**
Yakınların Ziyarete Gelme Sıklığı	Sürekli	51.49±17.21	**F=12.340**
	Bazen	61.40±18.36	**p=0.001**
	Hiç	63.67±16.94	

TARTIŞMA

Araştırmaya katılan hastaların HHBAÖ puanları 25 ile 75 arasında değişmekte olup, ortalama 52.17±12.14 puanı ile orta puanın üstünde olduğu sonucuna ulaşıldı. Literatürde yapılan çalışmalara baktığımızda Yılmaz ve ark.'nın[22]yaptığı çalışmada hastaların puan ortalaması 56.70±7.26, Kayrakcı ve Özşaker'in[23] yaptığı çalışmada 62.30±16.09 ve Yeşil ve ark.[24] yaptığı çalışmada 70.56±6.80 olarak bulunmuştur. Bu çalışmaların yanında HHBAÖ düşük çıktığı çalışmalarda vardır. Öztürk ve ark.[25] yaptıkları çalışmada HHBAÖ puan ortalaması 33.13±17.38, Çoban ve Yurdagül'ün[26] yaptıkları çalışmada ölçek puan ortalaması 29.3±3,1 ile düşük olduğu belirlendi. Yapılan bu araştırmada hasta bakımı algılayışının puanının orta değerinin üstünde olması hasta-hemşire arasındaki ilişki, hemşirenin hastaya bakımı ve bakım sürecindeki desteği, çalışmanın yapıldığı yer ve zamana göre değişiklik gösterdiğini düşündürmektedir. Ayrıca Covid-19 pandemisi sırasında yapılan bu araştırma, pandeminin biyolojik ve fizyolojik etkilerinin yanı sıra toplum düzeninde ekonomik, sosyal, siyasal, ruhsal ve psikolojik olarak ruh sağlığını çeşitli şekillerde etkilemiş[27] olabileceğini düşündürmektedir.

Hastaların Yalnızlık ölçeği puanları 16 ile 99 arasında değişmekte olup, ortalama ölçek puanı 59.53±18.36 ile yalnızlık düzeyinin ortanın üzerinde olduğu görüldü. Literatürde yapılan araştırmalara baktığımızda yalnızlık puan ortalamaları 39.44±10.99 ile 70.70±12.31 arasında değişmektedir.[11,28] Bu araştırmada diğer araştırmalara oranla yalnızlık puan ortalamasının üstünde olması hastaların psikososyal durumu, duygusal durumu, kronik hastalıkları, aile içi iletişim veya yaklaşımlar, destek varlığının eksikliği araştırmanın yapıldığı yer ve zamanın etkili olduğu düşünülebilir.

Hastanın hemşirelik bakımını algılayışı ile hastaların yalnızlık durumu puan arasındaki ilişkisini incelendiğimizde HHBAÖ puan ortalaması ile Yalnızlık puan ortalaması arasında negatif yönde orta düzeyde anlamlı bir ilişki varlığı belirlendi. Hastanın hemşirelik bakım algısı puanı arttıkça yalnızlık durumunda azalma görüldüğü, yalnızlık puanı arttıkça hastanın hemşirelik bakım algısında azalma görülmüştür. Hastaların ihtiyaçları karşılanmasına ilişkin gelişen duygular hastaların hemşirelik bakımıyla ilgili olumlu ya da olumsuz görüş bildirmesine neden olacaktır.[29] Yalnızlık yaşayan hastaların ihtiyaçların belirlenmesinde içe kapanıklık ve soyutlama durumları bakım algılayışını da etkilediği düşünülmektedir. Yalnızlık yalnızca depresif belirtileri artırmakla kalmayıp, aynı zamanda algılanan stresi, olumsuz değerlendirme korkusunu, kaygıyı ve öfkeyi de artırdığı, iyimserliği ve kendine güveni azalttığı ifade edilmektedir.[30] Yapılan çalışmalarda hemşirenin varlığı; hastaların iyileşmesini kolaylaştırdığı, zihinsel ve fiziksel sağlıklarını arttırdığı, başa çıkmayı güçlendirdiği ve hemşirelerin zihinsel sağlıklarını iyileştirdiği bulunmuştur.[28,31,32] Bakım kalitesi algısının oluşturulması, hemşirenin bilgi ve teknik becerilerinin hacmi kadar, hemşirenin psikososyal yönü ile ilgili becerilerini de sergileyebilmesi ile mümkündür. Hastaya birey olarak değer verildiğini hissettirmek ve hastaya etkin zaman ayırabilmek ile sağlanacaktır.[33-35] HHBAÖ ile SELSA-S puan ortalamaları arasında negatif yönde orta düzeyde, HHBAÖ puan ortalaması ile DY arasında negatif yönde zayıf düzeyde, HHBAÖ puan ortalaması ile SY arasında negatif yönde orta düzeyde, HHBAÖ puan ortalaması ile RDY puan ortalaması arasında negatif yönde çok zayıf düzeyde ve HHBAÖ puan ortalaması ile ADY puan ortalaması arasında negatif yönde orta düzeyde anlamlı bir ilişki olduğu bulundu (Tablo 1). Bireyler ortak bir paylaşım içinde oldukları partnerlerinden ve ilişkilerinden doyum alamadıkça hissettikleri olumsuz duygulardan öne çıkan yalnızlık olmakta ve bu durum çiftler arasında gerçekleştiği için duygusal yalnızlık olarak belirginleşmekte. Romantik ilişkilerinde yaşanan yalnızlık, sosyal ve aile ilişkilerinde yalnızlık yaşayanlara oranla daha yalnız hissettikleri bulunmuştur.[36] Güren'in[37] yaptığı çalışmada da evli bireylerin aile destekleri, paylaşım yapılacak sosyal çevre, evlilik sürecinde eş desteği yalnızlık algısının üzerinde etkili olduğu gözlenmiştir.

SONUÇ

Bu araştırmanın soncunda; hastanın hemşirelik bakım algılayışı ile yalnızlık arasında negatif yönde orta düzeyde anlamlı bir ilişki olduğu belirlendi. Dâhili klinikte yatan hastaların cerrahi kliniğine göre bakım algısı puanı yüksek, yalnızlık puanı düşük bulunmuştur. Medeni durumu evli olan hastaların bekârlara göre bakım algısı puanı yüksek, yalnızlık puanı düşük bulunmuştur. Hastanede yatma süresi 3-7 gün olan hastaların 15 ve üstü olan hastalara göre bakım algısı puanı yüksek, yalnızlık puanı düşük bulunmuştur. Kronik hastalığı olan hastaların kronik hastalığı olmayan hastalara göre bakım algısı puanı düşük, yalnızlık puanı yüksek bulunmuştur.

Hastaların hemşirelik bakım algılayışı yüksek düzeyde tutup hemşirelik bakımın niteliği ve bakım memnuniyetinin arttırılması gerekmektedir. Hemşirelik bakımının etkin ve yeterli olması için hizmet içi eğitimlerin sıklıkla yapılarak hemşirenin bilgi ve beceri düzeyleri yüksek seviyede tutulmalıdır. Hastalara hemşirelik tanılarından olan yalnızlık riski tanısı konulduktan sonra uygun bakım planı hazırlanmalıdır. Hastaların sosyo-demografik özellikleri hemşirelik bakım algılayışı ve yalnızlık durumunu etkileyebileceğinden, hemşirelik bakımında hastalara bireysel, bütüncül yaklaşılmalıdır. Literatürde bu alanda hastanın hemşirelik bakım algılayışı ile yalnızlık düzeylerinin karşılaştırıldığı çalışmaların olmaması bu araştırmanın alana katkı sağlayacağı görüşünde olup, araştırmanın farklı popülasyonlarda yapılması önerilmektedir.

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HASTA GÜVENLİĞİNE BİR BAKIŞ: HEMŞİRELERİN BİLGİ GÜVENLİĞİ FARKINDALIK DÜZEYİNİN DEĞERLENDİRİLMESİ

A VIEW ON PATIENT SAFETY: ASSESSMENT OF NURSES' INFORMATION SECURITY AWARENESS LEVEL

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ÖZ

Bu çalışmada, hemşirelerin bilgi güvenliği farkındalık düzeyini belirlemek amaçlandı. Tanımlayıcı tipteki çalışma, Ankara ilindeki bir eğitim ve araştırma hastanesinde çalışan 294 hemşire ile Haziran-Ağustos 2022 tarihleri arasında gerçekleştirildi. Veriler, Tanıtıcı Özellikler Formu ve Bilgi Güvenliği Ölçeği ile toplandı. Veri analizinde tanımlayıcı istatistikler, bağımsız örneklem t testi ve tek yönlü varyans analizi kullanıldı. Hemşirelerin %47.3'ünün bilgi güvenliğine yönelik bir eğitim almadığı ve %97.6'sının hastane bilgi sistemine girişte şifre kullandığı saptandı. Ayrıca hemşirelerin % 33.3'ünün diğer kliniklerdeki hastalara ait bilgilere kolaylıkla ulaşabildiği ve %39.1'inin ise hastalara ait olan bilgilerin paylaşımı için hastadan onam almadığı belirlendi. Bilgi Güvenliği Ölçeği'nden alınan toplam puan ortalaması (3.21±0.53), hemşirelerin bilgi güvenliği farkındalığının orta düzeyde olduğunu gösterdi. Ölçek alt boyutlarından en yüksek puan hizmet sunumu (3.50±0.85), en düşük puan ise güvenlik politikası alt boyutundan (2.93±0.85) alındı. Hemşirelerin yaş, cinsiyet, eğitim durumu ve çalışma şekli gibi tanıtıcı özellikleri ile Bilgi Güvenliği Ölçeği toplam ve alt boyut puan ortalamalarının karşılaştırılması sonucunda istatistiksel olarak anlamlı bir farkın olmadığı belirlendi ($p>0.05$). Hemşirelerin bilgi güvenliği farkındalığının orta düzeyde olması, veri güvenliğini tehdit etmekte ve sağlık hizmet kalitesini olumsuz etkilemektedir. Hemşirelerin bilgi güvenliği farkındalığını artırmak, kaliteli ve güvenli sağlık bakım hizmet sunumunu sağlamak için hizmet içi eğitimler düzenlenmelidir.

Anahtar kelimeler: Bilgi güvenliği, farkındalık, hasta güvenliği, hemşire, hemşirelik

ABSTRACT

This descriptive study was aimed to determine the level of information security awareness of nurses and was conducted with 294 nurses working in a training and research hospital in Ankara between June and August 2022. Descriptive Information Form and the Information Security Scale were used in data collection. Descriptive statistics, independent sample t-test, and one-way analysis of variance were used in data analysis. It was found that 47.3% of the nurses did not receive any training on information security, and 97.6% used passwords to access the hospital information system. In addition, it was determined that 33.3% of the nurses could easily access information about patients in other clinics, and 39.1% did not obtain consent from the patient for sharing information about patients. The ISS total mean score (3.21±0.53) showed that nurses' information security awareness was moderate. In the subdimensions, the highest score was from service delivery (3.50±0.85), and the lowest was from the security policy (2.93±0.85). It was determined that descriptive characteristics of nurses, such as age, gender, educational status, and manner of work, and the ISS total and subscale score averages, it was observed that there was no statistically significant difference ($p>0.05$). A moderate level of information security awareness of nurses threatens data security and affects health service quality negatively. To increase the information security awareness of nurses and ensure quality and safe health care service delivery, in-service training activities should be organized.

Keywords: Information security, awareness, patient safety, nurse, nursing.

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GİRİŞ

Sağlık hizmeti sunan kurumlar hastaların tıbbi ve kişisel bilgilerini toplayan, kullanan ve depolayan karmaşık organizasyonlardır.[1] Bu kurumlarda bilgi güvenliğinin sağlanması, kaliteli sağlık bakım hizmet sunumunun göstergelerinden biri olarak kabul edilmektedir.[2] Sağlık Bakanlığı (SB) Bilgi Güvenliği Farkındalık Bildirgesi'nde, hasta ya da çalışanlara ait kişisel ve klinik verilerin bütünlüğü bozulmadan güvenli şekilde kayıt edilmesi, depolanması ve doğru kişiye ulaştırılmasının önemi vurgulanmaktadır.[3] Hasta Hakları Yönetmeliği'nde yer alan "sağlık hizmetinin verilmesi sebebiyle edinilen bilgiler, kanun ile müsaade edilen haller dışında hiçbir şekilde açıklanamaz" ibaresi ile de hastanedeki bilgi güvenliği yasal güvence altına alınmıştır.[4]

Bilgi güvenliği yönetiminde amaç, bilgi güvenliği ihlaline yönelik olayların meydana gelmesini engellemek ve önleyici tedbirler almaktır.[5] Bilgi güvenliğinin gizlilik, bütünlük ve erişilebilirlik bileşenlerinden biri zarar görürse bilgi ihlali meydana gelmektedir. Gizlilik bileşeni; bilginin yetkisiz kişilerin eline geçmemesi ve erişiminin engellenmesi, bütünlük bileşeni; kurumun özel bilgilerinin yetkisiz kişi ya da kişiler tarafından değiştirilmeden bilginin doğru ve tam olarak işlenmesi, erişilebilirlik bileşeni ise, kişilerin yetkileri dahilinde bilgiye ulaşabilir ve kullanabilir durumda olmasını ifade etmektedir.[6] Bu üç temel bileşenin korunması ile bilgi güvenliğinin sağlanabilmesi mümkün olacaktır. Bilgi güvenliğinin sağlanmasındaki temel amaç ise bilgiyi korumak, kaliteli, kesintisiz ve güvenli bir hizmet sunumu sağlayarak oluşabilecek bilgi açığını önlemektir.[7] Kurumlarda bilgi güvenliğinin sağlanması için, bilginin izinsiz veya yetkisiz bir biçimde erişiminin, kullanımının, değiştirilmesinin ve ifşa edilmesinin önlenmesi gerekmektedir.[6] Yapılan çalışmalarda kurumun dijital alt yapısı ve sağlık çalışanlarının tıbbi yasalara ve yönetmeliklere göre gizlilik, bütünlük ve erişilebilirlik nitelikleri göz ardı edilmeden bilgi güvenliliğinin iyi planlanmasının gerekli olduğu vurgulanmaktadır.[6,8,9]

Bilgi güvenliğinin istendik düzeyde sağlanabilmesi için yasalara, kurallara ve donanımsal güvenlik konularına uyulması gerekmektedir. Yapılan bir çalışmada sağlık hizmetlerinde bilgi güvenliğinin donanımsal konulardan ve yasal politikalardan etkilendiği belirtmektedir.[10] Başka bir çalışmada ise, optimal hasta bakımı ve yönetimini sağlayarak sağlık hizmet sunumunu geliştirmek için sağlık hizmetleri bilgilerine ilişkin bilgi güvenliği stratejilerinin, kılavuzlarının ve politikalarının benimsenmesi önerilmektedir.[11] Bununla birlikte sağlık hizmeti sunan kurumlarda donanımsal olarak denetimler, kimlik doğrulama, yetkilendirme gibi son derece gelişmiş teknoloji korumalarına ve şifreleme gibi bilgi gizliliği önlemlerine rağmen, insan hatası nedeniyle güvenlik ihlalleri yaşanabilmektedir.[12] Bilgi güvenliği süreçlerinin işleyebilmesi için insan faktörünün de dikkate alınması, bilinçli ve yetkin kişilerin istihdam edilmesi gerekmektedir.[13] Kurumdaki sağlık profesyonellerinin bilgi güvenliği düzeyinin yeterli olması ve bu konudaki kurumsal politikaları ve stratejileri benimsemeleri gerektiği belirtilmektedir.[8] Bilgi güvenliği politikalarına uyumluluk anlayışını artırmada ve bilgi güvenliği politikasıyla kullanıcı uyumluluğunu geliştirmede yöneticilere büyük sorumluluk düşmektedir.[14] Ek olarak, sağlık kurumlarında bilgi güvenliğinin sağlanması ve bilgi güvenliği kültürünün kurum kültürüne dönüştürülmesinde yönetici desteği de önemlidir.[7,15]

Bilgi güvenliğinin doğru şekilde uygulanması için sağlık profesyonellerinde farkındalık oluşturmak önem taşımaktadır.[16] Bilgi güvenliği farkındalığının sağlanmasındaki amaç, sağlık çalışanlarının kurum içinde ve kurum dışında bilgi eksikliğinden kaynaklanabilecek güvenlik tehditlerine karşı önlem almasını sağlamaktır.[5] Yapılan çalışmalarda, bilgi güvenliği farkındalığının oluşması için, çalışanlara uygun ve yeterli eğitimin verilmesi gerektiği vurgulanmaktadır.[6,17] Günümüzde teknolojinin getirdiği riskler, hastanelerin büyük organizasyonlar olması, sağlık hizmetlerinin multidisipliner yapıda olup çok fazla bilgi girdi-çıktısının olması gibi hususlar bilgi güvenliğine yönelik farkındalığın önemini ortaya koymaktadır. Sağlık hizmeti alan bireylerle uzun süre etkileşimde olan hemşirelerin, bilgi güvenliği farkındalık düzeylerinin belirlenmesi, gereksinim analizi yapılabilmesi açısından önemlidir. Mevcut literatürde, hemşirelerde bilgi güvenliği farkındalık düzeyinin araştırıldığı sınırlı sayıda araştırmaya rastlanmıştır.[18,19] Bu çalışmanın amacı, Ankara'da bulunan bir eğitim ve araştırma hastanesinde görev yapan hemşirelerin bilgi güvenliği farkındalık düzeyini değerlendirmek ve literatüre katkı sağlamaktır. Elde edilen bulguların hemşirelerin bilgi güvenliği davranışlarını şekillendirmeye, sağlık bakım hizmetinin güvenirliğini ve kalitesini artırmaya katkı sağlama potansiyeli olacaktır.

Çalışmada aşağıdaki sorulara yanıt aranmıştır.

1. Hemşirelerin bilgi güvenliği farkındalık düzeyleri nasıldır?
2. Hemşirelerin tanıtıcı özellikleri ile Bilgi Güvenliği Ölçeği (BGÖ) puan ortalaması arasında istatistiksel olarak anlamlı bir fark var mıdır?

GEREÇ VE YÖNTEM

Araştırmanın Türü

Bu çalışma, tanımlayıcı tipte gerçekleştirildi.

Araştırmanın Yapıldığı Yer ve Özellikleri

Çalışma, Ankara ilinde yer alan bir eğitim ve araştırma hastanesinde Haziran-Ağustos 2022 tarihleri arasında gerçekleştirildi. Hastanede 896 hemşire çalışmakta olup 15 adet dahili birim, iki adet temel birim, 14 adet cerrahi birim, 10 adet tedavi ünitesi ve iki adet acil tıp kliniği mevcuttur. Kurumda hastaya ait veriler fiziki olarak hastanenin arşivinde ve bilgisayarlarda elektronik olarak saklanmakta ve depolanmaktadır.

Araştırmanın Evren ve Örneklemi

Bu çalışmanın evrenini, Ankara ilindeki bir eğitim ve araştırma hastanesinde çalışan tüm hemşireler oluşturdu (N=896). Örneklem büyüklüğü, %95 güven aralığı ve %5 hata payı ile t değeri 1.96 alınarak, prevelans değeri ise Aksu'nun (2014)[6] çalışmasındaki gibi 0.5 alınarak 270 olarak hesaplandı.

Çalışmaya katılımın gönüllülük esasına dayalı olması ve kayıplar olabileceği göz önüne alınarak örneklem sayısı %10 artırılarak 297 hemşireye ulaşılması hedeflendi. Araştırma kapsamına, araştırmanın yapıldığı kurumda en az altı ay çalışmış olan ve çalışmaya katılmayı kabul eden hemşireler dahil edildi. Araştırma sürecinde 302 hemşireye ulaşıldı. Tam olarak doldurulmamış olan üç soru formu ve istatistiksel analizde, veri dağılımında gözlenen yüksek veya düşük olan aykırı değer olarak belirlenen beş soru formu çalışmaya dahil edilmedi.

Araştırma 294 hemşireden elde edilen verilerle tamamlandı.

Veri Toplama Tekniği ve Araçları

Veriler "Tanıtıcı Özellikler Formu" ve "Bilgi Güvenliği Ölçeği" ile toplandı. Veri toplama aracı, hemşirelere çalışma hakkında bilgi verilerek araştırmacılardan biri tarafından elden dağıtıldı. Gündüz vardiyasında vardiya başladıktan sonra dağıtıldı, vardiya sonunda toplandı. Aynı şekilde gece vardiyasına gelen hemşirelere vardiya başlandıktan sonra dağıtıldı, sabaha karşı vardiya bitmeden önce toplandı. Gündüz ve gece vardiyasında dağıtılan tüm formlar boş da olsa aynı vardiya bitiminde geri alındı. Veriler aralıklı olarak aynı süreci izleyerek toplanmaya devam etti. Soru formunun doldurulma süresinin ortalama olarak 10 dakika olduğu gözlendi.

Tanıtıcı Özellikler Formu

Araştırmacılar tarafından ilgili literatür[1,6,20] incelenerek oluşturulan bu formda, hemşirelerin tanıtıcı özellikleri ve bilgi güvenliğine ait toplam 12 soru yer aldı.

Bilgi Güvenliği Ölçeği (BGÖ)

Upfold ve Sewry'nin (2005)[21] geliştirdiği BGÖ, Türkçe'ye Aksu (2014)[6] tarafından uyarlanmıştır. Ölçek beş alt boyuttan (erişim ve yetkilendirme, güvenlik uygulamaları, hizmet sunumu, örgütsel güvenlik ve güvenlik politikası) ve toplam 27 maddeden oluşmaktadır. Ölçeğin puanlama yöntemi, 5'li likert tipinde 1-kesinlikle katılmıyorum'dan 5-kesinlikle katılıyorum'a doğru derecelendirilmiştir. Ölçekte ters madde bulunmamaktadır. Katılımcıların ölçek maddelerine verdikleri puan toplamlarının, ölçekteki madde sayısına bölünmesiyle toplam ölçek ve alt boyut puan ortalamaları belirlenmektedir. Ölçek toplamından ve altboyutlarından alınan puan ortalaması "5" puana yaklaştıkça bilgi güvenliği farkındalığının arttığı, "1" puana yaklaştıkça bilgi güvenliği farkındalığının azaldığı şeklinde değerlendirilmektedir. Türkçe versiyonunda Cronbach alfa katsayısı 0.81-0.90 olarak bildirilmiştir.[6] Bu çalışmada ise ölçeğin toplam Cronbach alfa katsayısı 0.89, alt boyutlarının ise ise 0.71-0.87 aralığında hesaplandı.

Araştırmanın Etik Boyutu

Araştırmanın yürütülebilmesi için Etik Kuruldan (Karar No: 2022/220) ve araştırmanın yapıldığı kurumdan yazılı izin alındı. Hemşireler araştırmanın amacı ve katılımın gönüllü olduğu doğrultusunda bilgilendirildi, katılım için sözel izinleri alındı.

Veri Analizi

Araştırma verileri SSPS 29.0 paket programı ile değerlendirildi. Hemşirelerin tanıtıcı özellikleri ve bilgi güvenliğine yönelik soruların değerlendirilmesinde frekans ve yüzde, ölçeğin ortalama puanının değerlendirilmesinde ise ortalama ve standart sapma değerleri kullanıldı. Verilerin normal dağılıma uygunluğu Kolmogorov-Smirnov testi ve Skewness ve Kurtosis değerleri ile belirlendi. Hemşirelerin tanıtıcı özellikleri ile ölçeğin toplam ve alt boyut puan ortalamasının karşılaştırılmasında ise bağımsız örneklem t testi ve tek yönlü varyans analizi (ANOVA) kullanıldı.

BULGULAR

Hemşirelerin yaş ortalaması 30.97±7.06 yıl olup, % 55.8'i 29 yaş ve altındaydı ve %73.5'i kadındı. Eğitim durumuna göre %71.1'i lisans mezunuydu. Hemşirelerin %33'ü yoğun bakımda ve %83.3'ü vardiyalı olarak çalışıyordu. Hemşirelerin meslekte çalışma yıl ortalamaları 8.43±7.41 yıl ve bulundukları kurumda çalışma yıl ortalamaları ise 6.12±5.38 yıl olarak belirlendi (Tablo 1).

Hemşirelerin %52.7'sinin kurumda bilgi güvenliğine yönelik eğitim aldığı saptandı. Hemşirelerin %96.6'sı hastanenin bilgi sistemine girişte kullanıcı adı, %97.6'sı şifre, %2'si ise akıllı kart kullandığını belirtti. Araştırmada, hemşirelerin tamamı çalıştıkları klinikteki hastaların bilgilerine erişirken, %33.3'ü ise diğer kliniklerdeki hastaların bilgilerine de kolayca erişebildiğini ifade etti. Hemşirelerin hastanede kolaylıkla ulaşabildikleri diğer bilgilerin sırasıyla; kurum prosedürleri (%50), çalışan-

Tablo 1. Hemşirelerin Tanıtıcı Özellikleri (n=294)

Özellikler	n	%
Yaş		
29 ve altı	164	55.8
30 ve üzeri	130	44.2
Cinsiyet		
Kadın	216	73.5
Erkek	78	26.5
Eğitim durumu		
Sağlık Meslek Lisesi-Önlisans	67	22.8
Lisans	209	71.1
Lisansüstü	18	6.1
Çalışılan Birim		
Dahili Servis	92	31.3
Cerrahi Servis	56	19.0
Yoğun Bakım	97	33.0
Acil Servis	49	16.7
Çalışma Şekli		
Gündüz	49	16.7
Vardiyalı	245	83.3
	Ort±SS	**Min-Maks**
Yaş	30.97±7.06	21- 52
Meslekte Çalışma Yılı	8.43±7.41	0.7- 28
Kurumda Çalışma Yılı	6.12±5.38	0.7- 24

lara ait bilgiler (%19), sosyal güvence bilgileri (%18.4), yönetimsel raporlar (%8.2) ve hastaneye ait mali bilgiler (%5.4) olduğu görüldü. Hastaya ait bilgilerin üçüncü kişilerle paylaşımında, hemşirelerin %60.9'u hastadan yazılı onam formu aldığını belirtti. Hemşirelerin bilgi güvenliğinin artırılmasına yönelik önerilerinin sırasıyla; şifre kullanımı (%95.9) ve şifrenin kesinlikle başkalarıyla paylaşılmaması (%85), şifre kalitesinin uygun seçimi (%80.3), anti-virüs programının kullanımı (%73.1), yazılım ve donanımın ihtiyaca göre güncellenmesi (% 73.1), klinik bilgisayarların yetkili kişiler dışında kullanmasına izin verilmemesi (%58.2), çalışanın birimden ayrılırken bilgisayarda kendi oturumunu kapatması (% 58.2) ve bilgisayarda kişisel USB'lerin kullanımına izin verilmemesi (%39.1) olduğu görüldü (Tablo 2).

Hemşirelerin BGÖ toplam puan ortalamasının 3.21±0.53, Hizmet Sunumu alt boyutu puan ortalamasının 3.50±0.85, Erişim ve Yetkilendirme alt boyutu puan ortalamasının 3.38±0.63, Güvenlik Uygulamaları alt boyutu puan ortalamasının 3.08±0.73, Örgütsel Güvenlik alt boyutu puan ortalamasının 3.04±0.78 ve Güvenlik Politikası alt boyutu puan ortalamasının ise 2.93±0.85 olduğu belirlendi (Tablo 3).

Hemşirelerin tanıtıcı özellikleri ile BGÖ toplam ve alt boyut puan ortalamalarının karşılaştırılması sonucunda istatistiksel olarak anlamlı bir farkın olmadığı saptandı (p>0.05) (Tablo 4).

TARTIŞMA

Bir eğitim ve araştırma hastanesinde çalışan hemşirelerin bilgi güvenliğine yönelik farkındalık düzeyinin değerlendirildiği bu çalışmada, hemşirelerin %52.7'sinin bilgi güvenliği eğitimi aldığı belirlendi. Bu sonuç hemşirelerin yarıya yakınının bilgi güvenliği eğitimi almadığını göstermekte ve bilgi güvenliği açısından bu durumun bir tehdit oluşturduğunu düşündürmektedir. Bu çalışma sonucuna benzer şekilde Kurt (2019)[22], Hastane Yönetim Bilgi Sistemlerini (HBYS) kullanan klinik ve idari

Tablo 2. Hemşirelerin Bilgi Güvenliğine Yönelik Sorulara Verdiği Cevaplar

	Evet		Hayır	
Bilgi Güvenliğine Yönelik Sorular	**n**	**%**	**n**	**%**
Kurumunuzda bilgi güvenliğine yönelik herhangi bir eğitim aldınız mı?	155	52.7	139	47.3
***Hastane bilgi sistemine girişte hangi yöntemi kullanıyorsunuz?**				
Kullanıcı adı	284	96.6	10	3.4
Şifre	287	97.6	7	2.4
Akıllı kart	6	2.0	288	98.0
Parmak izi	0	0	294	100
***Hastanenizdeki hangi tür bilgilere ulaşımız kolaydır?**				
Kendi kliniğimdeki hastaya ait bilgiler	294	100	0	0
Diğer kliniklerdeki hastalara ait bilgiler	98	33.3	196	66.7
Kurum prosedürleri	147	50.0	147	50.0
Çalışanlara ait bilgiler	56	19.0	238	81.0
Sosyal güvence bilgileri	54	18.4	240	81.6
Yönetimsel raporlar	24	8.2	270	91.8
Hastaneye ait mali bilgiler	16	5.4	278	94.6
Hastanın kimlik ve tıbbi bilgilerinin paylaşımında hastadan onam alıyor musunuz?	179	60.9	115	39.1
***Hasta güvenliğinin artırılması için hangi önlemlerin alınmasını önerirsiniz?**				
Şifre kullanımı	282	95.9	12	4.4
Şifrenin kesinlikle başkalarıyla paylaşılmaması	250	85.0	44	15.0
Şifre kalitesinin uygun seçilmesi	236	80.3	58	19.7
Anti-virüs programlarının kullanımı	215	73.1	79	26.9
Yazılım ve donanımın ihtiyaca göre güncellenmesi	215	73.1	79	26.9
Klinik bilgisayarların yetkili kişiler dışında kullanmasına izin verilmemesi	171	58.2	123	41.8
Çalışanın birimden ayrılırken bilgisayarda kendi oturumunu kapatması	171	58.2	123	41.8
Bilgisayarda kişisel USB'lerin kullanımına izin verilmemesi	115	39.1	179	60.9

*Birden fazla seçenek işaretlenmiştir.

Tablo 3. BGÖ Puan Ortalamalarının Dağılımı

Alt Boyutlar	Ort±SS	Min	Maks
Hizmet Sunumu	3.50±0.85	1.00	5.00
Erişim ve Yetkilendirme	3.38±0.63	1.44	4.89
Güvenlik Uygulamaları	3.08±0.73	1.00	5.00
Örgütsel Güvenlik	3.04±0.78	1.00	5.00
Güvenlik Politikası	2.93±0.85	1.00	5.00
BGÖ Toplam Ortalama Puanı	3.21±0.53	1.70	4.52

*BGÖ: Bilgi Güvenliği Ölçeği, **Ort: Ortalama, ***SS: Standart sapma

Tablo 4. Hemşirelerin Özellikleri ile BGÖ Puan Ortalamalarının Karşılaştırılması

Özellikler	Erişim ve Yetkilendirme Ort±SS	Güvenlik Uygulamaları Ort±SS	Hizmet Sunumu Ort±SS	Örgütsel Güvenlik Ort±SS	Güvenlik Politikası Ort±SS	Bilgi Güvenliği Ölçeği Toplam Ort±SS
Yaş						
29 ve altı	3.35±0.65	3.14±0.71	3.42± 0.84	3.12 ±0.77	2.98±0.87	3.23±0.56
30 ve üzeri	3.41±0.59	3.01±0.75	3.60± 0.86	2.94 ±0.79	2.85±0.82	3.19±0.49
t	-0.709	1.481	-1.810	1.907	1.329	0.499
p	0.479	0.140	0.071	0.057	0.185	0.618
Cinsiyet						
Kadın	3.35±0.62	3.10±0.72	3.46 ±0.85	3.08± 0.76	2.96±0.84	3.21±0.54
Erkek	3.46±0.65	3.05±0.77	3.62±0.86	2.94± 0.84	2.82±0.87	3.22±.0.49
t	-1.396	0.502	-1.411	1.324	1.283	-0.093
p	0.164	0.616	0.159	0.187	0.201	0.926
Eğitim durumu						
Sağlık Meslek Lisesi-Önlisans	3.41±0.68	2.98±0.74	3.57±0.88	2.99±0.811	2.94±0.77	3.21±0.51
Lisans	3.36±0.61	3.12±0.73	3.47±0.85	3.05±0.78	2.92±0.88	3.21±0.54
Lisansüstü	3.46±0.62	3.10±0.76	3.61±0.80	3.14± 0.68	2.94±0.79	3.28±0.51
t	0.363	0.883	0.471	0.302	0.023	0.141
p	0.696	0.414	0.625	0.740	0.977	0.869
Çalışılan Birim						
Dahili Servis	3.34±0.68	2.95±0.73	3.44±0.83	2.98±0.77	2.89± 0.84	3.15±0.53
Cerrahi Servis	3.53±0.55	3.08±0.78	3.65±0.91	3.07±0.83	2.98± 0.83	3.30±0.49
Yoğun Bakım	3.27±0.64	3.10±0.71	3.39±0.87	3.00±0.75	2.89±0.83	3.15±0.56
Acil Servis	3.47±0.55	3.31±0.69	3.66±0.78	3.22±0.78	3.00±0.95	3.35±0.49
F	2.529	2.575	1.832	1.161	0.292	2.508
p	0.057	0.054	0.141	0.325	0.831	0.059
Çalışma Şekli						
Gündüz	3.34±0.59	3.03±0.77	3.47±0.76	2.98±0.77	2.90±0.81	3.17±0.48
Vardiyalı	3.38±0.64	3.10±0.73	3.50±0.87	3.05±0.78	2.93±0.86	3.22±0.54
t	-0.449	-0.594	-0.220	-0.577	-0.243	-0.596
p	0.654	0.553	0.826	0.564	0.808	0.552

*BGÖ: Bilgi Güvenliği Ölçeği, **Ort: Ortalama, ***SS: Standart sapma

birim çalışanlarının (hemşire, doktor, tıbbi sekreter ve idari birimde masa başı personel) %57.8'inin bilgi güvenliği eğitimi aldığını bulmuştur. Karadağ ve Abuhanoğlu (2015)[23] çalışmasında, sağlık çalışanlarının (hemşire, doktor, teknisyen, diş hekimi, idari personel) %96.5'i bilgi güvenliği riskleri konusunda bilinçlendirilmeleri gerektiğini ifade etmiştir. Bilgi güvenliği farkındalığının sağlanması için çalışanlarda güvenlik bilincinin oluşturulması ve bilgi güvenliğine yönelik tehditlere karşı nasıl korunması gerektiği konusunda bilinçlendirme yapılması gerekmektedir.[24] Ayrıca bu sürecin kurum içinde hiyerarşinin tüm basamaklarında uygulanması ve kurumların tüm çalışanlarına eğitim verilmesi önerilmektedir.[25] Bilgi güvenliği farkındalık eğitimi, bilgilerin nasıl ve ne şekilde korunması gerektiği konusunda çalışanlarda güvenlik bilinci oluşturması açısından önem taşımaktadır.[16]

Bu çalışmada hemşirelerin neredeyse tamamına yakını, bilgi güvenliğinin sağlanması için kurumlarında kendi bilgi sistemlerine kullanıcı adları ve şifreleri ile giriş yaptığını belirtmiştir. Taçar (2022)[18] hemşirelerle yaptığı çalışmada çalışmamıza benzer şekilde, hemşirelerin neredeyse tamamına yakını bilgi sistemine girişte kullanıcı adı (%96.2) ve şifre (95.9) ile giriş yaptığı görülmüştür. Dijital veya dijital olmayan ortamlarda verilerin bütünlüğünün korunması ve izinsiz erişimlerin engellemesi amacıyla sisteme girişte uygun kimlik belirleme yöntemleri kullanılmalıdır. Karadağ ve Abuhanoğlu'nun (2015)[23] yaptığı çalışmada sağlık çalışanlarının (hemşire, doktor, teknisyen, diş hekimi, idari personel) %96.9'u bilgilerin kaybolma ve hasar görme riskine yönelik koruma altına alınması gerektiğini belirtmiştir. Kurumlarda kimlik belirleme yöntemi olarak kullanılan kullanıcı adı ve şifrelerin telefon, e-posta gibi iletişim araçlarıyla kolaylıkla paylaşılıyor olma ihtimaline karşı parmak izi sisteminin hastanelere entegre edilmesi, bilgi gizliliğini sağlayabilme düzeyini artıracaktır.

Bu araştırmada hemşirelerin üçte biri hastanın rızası alınmadan hastaya ait bilgilerin paylaşıldığını ifade etmiştir. Bu sonuç hastanın mahremiyet ve gizlilik hakkının ihlal edilebileceğini düşündürmektedir. İspanya'da

bir hastanede doğrudan gözlem yoluyla yapılmış olan bir çalışmada, bilgi gizliliğinin ihlal edildiği durumlar araştırılmış, gözlemlenen ihlallerin %54.6'sının hastanın tıbbi tedavisinde yer almayan sağlık personeline bilgi paylaşımı ile gerçekleştiği belirtilmiştir.[26] Sağlık hizmeti sunumunda hastaya uygulanan tüm işlemlerin kayıt altına alınması gerekmektedir.[25] Kayıt altına alınan bilgilerin gizliliği göz ardı edilmeden, kurum içi ve kurumlar arası paylaşımlarda hastalardan bilgilendirilmiş rıza alınması gerekmektedir. Hastanın rızası alınmadan hastaya ait bilgilerin, gizlilik ve mahremiyet göz ardı edilerek hasta dışında sigorta şirketleri, medikal firmalar, ilaç şirketleri, sosyal medya paylaşımları veya bilimsel araştırmalarda kullanılmak üzere üçüncü kişilerle paylaşılma ihtimali bilgi güvenliği açısından dikkat edilmesi gereken bir husustur.[27] Hastadan rıza alınmadan yapılan her türlü bilgi paylaşımı hukuki sorunları da beraberinde getirmektedir. Hasta ve çalışan güvenliği açısından hemşireler, hastalara ait bilgilerin paylaşımında hastanın rızasının alınmış olmasını kontrol etmelidir.

Bu araştırmadan elde edilen sonuçta hemşirelerin bilgi güvenliğine yönelik farkındalıklarının orta düzeyde olduğu belirlendi. Bu sonuç verilerin erişim, gizlilik ve bütünlüğünün istendik düzeyde sağlanamadığını göstermektedir. Hastanelerdeki bilgi yönetim sistemlerinde yer alan verilere erişebilmeleri ve bu verileri düzenleyebilmeleri nedeniyle hemşireler bilgi güvenliğinden sorumlu sağlık çalışanları arasında yer almaktadır. Çelikçöp ve Yarar'ın (2020)[28] yaptığı çalışmada hastanede çalışan kalite yönetim direktörleri ve kalite birim sorumlularının bilgi güvenliği farkındalıklarının orta düzeyde olduğu, bilgi güvenliği bilincine yeteri kadar sahip olmayan çalışanların bilgi güvenliğine yönelik tehdit unsuru oluşturabileceği raporlanmıştır. Hemşireler, sağlık kurumlarında farklı meslek üyeleriyle eşgüdüm halinde çalışmaktadır.[29] Bu nedenle hemşirelerin bilgi güvenliğinin sağlanmasına yönelik farkındalıkları hem kendi meslektaşlarına, hem de birlikte çalıştığı diğer meslek üyelerine rol model olması açısından önem arz etmektedir. Bilgi güvenliği endişelerini gidermek ve yüksek kaliteli sağlık hizmetleri sunmak için hemşirelerin bilgi güvenliğine yönelik farkındalıklarının tam olarak sağlanması yöneticilerin sorumlulukları arasında yer almaktadır.[30]

Bu çalışmada hemşirelerin BGÖ "hizmet sunumu'' alt boyut düzeyinin ortalamanın üzerinde ve en yüksek puanı aldığı görüldü. Bu sonuç ölçek alt boyut maddeleri doğrultusunda, fazla iş yükünün bilgi güvenliği ihlaline neden olmadığını göstermektedir. Ayrıca kurumun bilgi güvenliğine yönelik uyguladığı süreçlerin sağlık hizmet kalitesini olumsuz etkilemediği, sağlık hizmet sunumundaki değişikliklerin de bilgi güvenliğine verilen önemi etkilemediğini düşündürmektedir. Yapılan çalışmalarda bu çalışmaya benzer şekilde "hizmet sunumu" alt boyutunun iyi düzeyde olduğu belirtilmektedir.[6,22] Taçar (2022)[18] hemşirelerle yaptığı çalışmada, hizmet sunumu alt boyut düzeyinin yüksek olmasını, hastalara sunulan hizmet kalitesinin bilgi güvenliği süreçlerinden etkilenmediği şeklinde yorumlamaktadır. Sağlık hizmeti sunumunda çalışanların hastaya ait verileri doğru şekilde sisteme aktarması, iletmesi ve yetkili kişilerin erişebilmesi kurumun bilgi güvenliği standartları için oldukça önemlidir.[22]

Araştırma sonucumuzda BGÖ "erişim ve yetkilendirme'' alt boyut puanının orta düzeyin biraz üzerinde olduğu görülmüştür. Hemşirelerin hastanedeki hangi tür bilgilere kolaylıkla ulaşabiliyorsunuz?'' sorusuna verdiği cevaplar arasında üçte birinin diğer klinikteki hastalara ait bilgilere kolaylıkla ulaştıklarını belirtmeleri bu sonucu destekler niteliktedir. Bu sonuçlar hastane yönetiminin sağlık çalışanlarını, bilgiye erişiminde yetkilendirmesine yönelik bir standardının ve kurum politikasının net olmadığını düşündürmektedir. Bilgiye erişim konusunda çalışanlara yetki tanımının yapılmaması, bilgi güvenliği açısından ciddi bir tehdit unsuru oluşturmaktadır.[5] Kurumlarda hasta ya da çalışan verilerine erişimin nasıl olacağı doğru tanımlanmalıdır. Hollanda'da hastanelerdeki bilgi güvenliği memurlarıyla yapılan bir çalışmada, çalışanların kendi çalışma koşulları ve yükümlülüklerini dikkate alarak, kurum içerisinde hangi bilgiye erişmesi gerektiği hakkında yeterli bilgiye sahip olması gerektiği vurgulanmaktadır.[31] Kurumda kimlerin hangi verilere erişim sağlayacağı ve bu erişimin hangi seviyede olacağı, kurumun yetkilendirme prosedürü göz önüne alınarak düzenlenmesi sağlık hizmet sunumu açısından önem taşımaktadır.[5,6]

Çalışmamızda BGÖ "güvenlik uygulamaları'' alt boyutunda hemşirelerin orta düzeyde farkındalıklarının olduğu görülmüştür. Hemşirelere sorulan sorularda da bilgi güvenliğinin artırılmasına yönelik önerilerinin bulunması bilgi güvenliği uygulamaların kısmen de olsa farkında olduklarını göstermektedir. Bilgi güvenliğinin sağlanmasında güvenlik uygulamalarının önemi büyüktür. Bilgi güvenliğini tehdit eden unsur oluştuğunda çalışanların yapması gerekenleri ve yardım için kimin aranacağını bilmesi oluşabilecek riskler karşında kuruma fayda sağlayacaktır. Ayrıca yazılım ve donanımın ve anti-virüs programlarının belirli periyotlarda güncellenmesi, şifre yönetim sisteminin belirli kurallar doğrultusunda oluşturulması ve bilgi erişimi açısından yetkilendirme prosedürünün kullanılması kurumlarda bilgi güvenliğinin gizlilik, bütünlük ve erişilebilirlik ilkelerini temel alarak sürekliliği sağlayacaktır.[23]

Araştırmamızın BGÖ "örgütsel güvenlik" alt boyutunda hemşirelerin orta düzeyde farkındalıkları olduğu belirlendi. Bu sonuç, çalışmanın yapıldığı hastanede örgütsel güvenlik kültürünün yeteri kadar oluşmadığını düşündürmektedir. Hemşirelerin yarısının bilgi güvenliği eğitimi almaması, hemşirelerin üçte birinden fazlasının bilgi paylaşımı için hastadan onam almaması, bilgiye erişim ve yetkilendirmede düzenlemeler yapılmaması yönetsel anlamda örgütsel güvenlikle ilgili eksiklikleri göstermektedir. Kurt (2019)[22] HBYS kullanan tıbbi ve idari personeller (hekim, hemşire, tıbbi sekreter gibi) ile yaptığı çalışmada, bu çalışmayla paralel olarak örgütsel güvenlik alt boyutunun orta düzeyde olduğu görülmektedir. Sağlık hizmeti veren kurumlarda bilgi güvenliğinin sağlanması, örgütlerin kurumsal anlamda bilgi güvenliği ve çalışanların bilgi güvenliği farkındalık düzeyinin yüksek olmasıyla mümkündür.[16] Hastanedeki bilgi gizliliğinin sürdürebilmesi için denetleyici uzman kişi ve ekiplerin olması, bilgi güvenliği ihlali durumunda çalışanlara disiplin uygulamalarının bildirilmesi, çalışanların kurumdan uzaklaştığında bilgisayarlarını daima güvenli şekilde bırakması örgütsel güvenlik kültürünün oluşmasına yardımcı olmaktadır.[8]

Araştırmamızdan elde edilen sonuca göre BGÖ "güvenlik politikası" alt boyutunun orta düzeyin altında

ve hemşirelerin en düşük farkındalık düzeyine sahip alt boyut olduğu bulundu. Bu sonuç yöneticiler ve çalışanların bilgi güvenliğine dair politika ve uygulamalarda yeteri kadar gerekli özeni ve sorumluluğu gösterdiğini düşündürmektedir. Karadağ ve Abuhanoğlu (2015)[23] sağlık çalışanlarıyla (hemşire, doktor, teknisyen, diş hekimi, idari personel) yaptığı çalışmada, katılımcıların %93.7'si bilgi güvenliğinin sağlanması konusunda kurumun üst yöneticilerinden başlayarak tüm çalışanların sorumluluk sahibi olması gerektiğini belirtmiştir. Taçar (2022)[18] ise hemşirelerle yaptığı çalışmada güvenlik politikası alt boyutundan düşük puan alınmasını bilgi güvenliğine ilişkin eğitimler, politikalar ve çalışanların sorumluluklarına dair yeterlilik ve memnuniyetin düşük olması ile ilişkilendirmiştir. Güvenlik politikaları, yönetim tarafından desteklenen ve iyi yönetilebilen, anlaşılabilir, uygulanabilir olmalıdır.[32] Ayrıca bilgilerin saklanması, korunması ve taşınması sırasında gerekli önlemlerinin alınması için, kurumlar yasa ve yönetmeliği göz önüne alarak kendilerine uygun güvenlik politikası oluşturması gerekmektedir.[33,34]

SONUÇ

Bir kamu hastanesinde çalışan hemşirelerin bilgi güvenliği farkındalık düzeyini değerlendirmek amacıyla yapılan bu çalışma sonucunda hemşirelerin, bilgi güvenliği farkındalığının orta düzeyde olduğu bulundu. Bu sonuçlar doğrultusunda, hemşirelere bilgi güvenliğinin kalıcı şekilde benimsetilmesine yardımcı olmak için uygulamalı eğitimler düzenlenmesi, eğitim öncesi ve sonrası bilgi düzeylerini ölçen deneysel tasarımda araştırmalar yapılması, bilgi güvenliğinin sürdürülebilir olması için kurumun oluşturduğu bilgi güvenliği prosedürleri ve politikaların net olması ve denetlemesi önerilmektedir.

Bu çalışma sadece bir eğitim ve araştırma hastanesinde çalışan hemşirelerde yapıldığı için sonuçların tüm hemşirelere genellenebilirliği araştırmanın sınırlılığını oluşturmaktadır. Araştırmanın verileri yapıldığı zaman kapsamında geçerlidir, zamana bağlı değişiklik gösterebilmektedir.

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AN EVALUATION ON THE FACTORS AFFECTING THE LEVEL OF FATIGUE AND HANDOVER EFFECTIVENESS OF EMERGENCY DEPARTMENT NURSES

ACİL SERVİS HEMŞİRELERİNİN YORGUNLUK DÜZEYİNİ VE DEVİR TESLİM ETKİNLİĞİNİ ETKİLEYEN FAKTÖRLER ÜZERİNE BİR DEĞERLENDİRME

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ABSTRACT

It is predicted that due to the increasing work load of nurses, fatigue levels and knowledge transfer will be adversely affected. The present study aimed to determine the Fatigue Level, Handover Effectiveness, and Related Factors in Emergency Nurses. The study is a descriptive cross-sectional study. Research data were collected from nurses working in the emergency departments of 8 hospitals in a city in Turkiye. The data were collected through Google Form using the Personal Information Form, the Handover Evaluation Scale, and the Fatigue Scale. There is a negative and significant relationship between the nurses' fatigue levels and the handover effectiveness (r=-0.476 p<0.001). It was determined that there was a positive and meaningful relationship between the handover effectiveness and the handover duration and preparation time for the handover (in orderr=0.573 p<0.001, r=0.497 p<0.001). In addition, the nurses who were elderly, dissatisfied with working in the emergency department, only working during the day, caring for more patients, and having a longer total working time and weekly average working time in the emergency department were more tired and had lower handover effectiveness quality (p<0.05). It is possible to develop strategies to reduce fatigue levels and increase the quality of handover effectiveness by determining the fatigue of emergency nurses and these factors affecting the quality of handover effectiveness.

Keywords: Emergency nursing, nursing, fatigue, handover effectiveness, patient safety,

ÖZ

Hemşirelerin artan iş yükü nedeniyle yorgunluk düzeylerinin ve bilgi aktarımının olumsuz etkileneceği öngörülmektedir. Bu çalışmada acil hemşirelerinde yorgunluk düzeyi, devir teslim etkinliği ve ilişkili faktörlerin belirlenmesi amaçlanmıştır. Çalışma tanımlayıcı türde kesitsel bir çalışmadır. Araştırma verileri Türkiye'de bir ilde bulunan 8 hastanenin acil servislerinde çalışan hemşirelerden toplanmıştır. Veriler Kişisel Bilgi Formu, Devir Teslim Değerlendirme Ölçeği ve Yorgunluk Ölçeği kullanılarak Google Form aracılığıyla toplanmıştır. Hemşirelerinin yorgunluk seviyeleri ile nöbet devir teslim etkinliği arasında negatif yönlü anlamlı bir ilişki vardır (r=-0.476 p<0.001). Nöbet devir teslimine hazırlık süresi ve nöbet devir teslim süresi ile nöbet devir teslim etkinliği arasında ise pozitif yönlü anlamlı bir ilişki olduğu belirlenmiştir (sırasıyla r=0.573 p<0.001, r=0.497 p<0.001). Ayrıca ileri yaşta olan, acil serviste çalışmaktan memnun olmayan, sürekli gündüz çalışan, daha fazla hastaya bakım veren, acil serviste toplam çalışma süresi ve haftalık ortalama çalışma süresi fazla olan hemşirelerin daha yorgun olduğu ve nöbet devir teslim kalitesinin daha düşük olduğu saptanmıştır (p<0.05). Acil servis hemşirelerinin yorgunluğunu ve nöbet devir teslim etkinlik kalitesini etkileyen bu faktörleri saptayarak, yorgunluk seviyelerini azaltmayı ve nöbet devir teslim etkinliği kalitesini artırmayı amaçlayan stratejiler geliştirmek mümkündür.

Anahtar kelimeler: Acil hemşireliği, hemşirelik, yorgunluk, nöbet devir teslim, hasta güvenliği,

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INTRODUCTION

Emergency services are a leading hospital service unit where patients with vital risks are given first service, frequent patient changes, priorities are constantly changing, and there is a high level of uncertainty.[1] The number of patients who apply to the emergency service due to population growth and epidemic diseases is increasing daily, creating a significant workload for nurses.[2] The inadequacy of the emergency nurse staff, which has been consistently reported over the years, and the resulting increased workload increase the fatigue levels of nurses.[3] Fatigue is a feeling of sleepiness or lack of energy that can result in burnout. Among the most acute effects of fatigue are decreased motivation, impaired concentration, problems with recording processing, and inability to transfer information.[4]

One of the most intense moments of information transfer in the nursing profession is handover effectiveness.[5] Handover effectiveness is two-way communication that transfers information and responsibility to one or more patients.[6] During the handover, nurses convey their information to their colleagues verbally and in writing.[5] This communication creates continuity among nurses and makes it easier for nurses to set priorities, plan patient care, and ensure continuity in care.[7] However, the handover process is not just about patient information. It also includes identifying current problems, sharing knowledge, and providing emotional support to patients and their relatives.[8] It is known that factors such as phone calls, noisy environment, unnecessary conversations, time pressure, distrust of other team members, and the fatigue levels of nurses are among the factors that reduce handover effectiveness.[9] It is predicted that the fatigue levels of nurses may harm the quality of the handover effectiveness.[10,11] Increasing fatigue levels threaten nurses' safety and patient care, negatively affecting nurses' neurocognitive functioning and hindering work performance.[12]

It is stated that the handover effectiveness at shift change is a sensitive activity for patient safety.[13] Safe and effective patient care depends on the continuity and perfection of communication between healthcare professionals, especially nurses. In this respect, it cannot be ignored that effective communication is ensured in the handover of duty. However, studies suggest that the efficacy of handover is often incomplete and/or incorrect.[10,14] Poor quality seizure handover effectiveness can negatively affect patients, staff, and healthcare institutions. Studies determined that poor quality seizure handover effectiveness caused a delay in diagnosis and treatment, inappropriate treatment, prolonged hospital stay, medication errors, and patient and nurse dissatisfaction.[13,15] There are also studies stating that there is insufficient evidence about the effectiveness and outputs of the handover process.[10,16]

The number of patients admitted for care in emergency departments has increased due to the corona virus pandemic.[17]With the increase in the number of patients cared for, there has been a significant increase in the responsibilities and workload of nurses.[2] It is thought that this situation may cause both physical and mental fatigue in nurses and negatively affect the transfer of information. Therefore, this study aimed to determine fatigue level, handover effectiveness, and related factors in emergency nurses.

MATERIALS AND METHODS

Study Design

This research was conducted in descriptive and cross-sectional types.

Participants

The research population consisted of 324 emergency nurses working in the emergency departments of a city hospital, a state hospital, a university hospital, and 5 private hospitals in a city in Turkiye. Data were collected between January and April 2022. The selection of the sample aimed at reaching the entire workforce. Nurses who directly participated in patient care in the emergency department, worked in the emergency department for at least six months, could speak and understand Turkish, and agreed to participate in the study were included in the study. Nurses who filled in the data collection form incompletely were not included in the study. The study's data collection process was completed with a total of 177 nurses (54.62% of the population). The flow chart of the research is given in Figure 1.

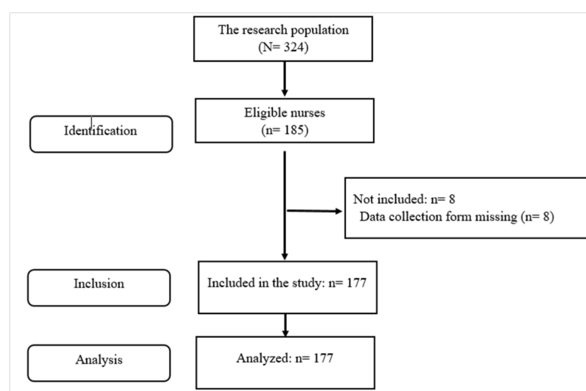

Figure 1: Flowchart of the Research

In order to calculate the power of the research, the mean score of the Handover Evaluation Scale (HES) was used in the G*Power program. Test family: t tests, Statistical test: Difference from constant (one sample case), Type of power analysis: Post hoc options were used.[18] The nurses' HES score average ($\bar{X}$= 46.91) was entered in Mean H_1, the nurses' HES standard deviation (SD= 15.11) was entered in the standard deviation, and the average score (40) according to the minimum and maximum scores that could be obtained in the Handover Evaluation Scale was entered in Mean H_0. As a result of this calculation, the effect size was 0.40. In this direction, the working power was determined as 99% due to the post-power analysis that took effect size: 0.40, n=177, and alpha=0.05.

Data Collection

Before starting data collection, the number of nurses working in the emergency departments of 1 City Hospital, 1 State Hospital, 1 University Hospital and 5 private hospitals in the province was determined. The nurses were reached through the nurses in charge of the emergency department. Responsible nurses were asked to transmit the data collection form created on Google Form to all nurses who met the inclusion criteria of the

study via WhatsApp. In order to maximize the response rate, emergency departments were revisited two weeks after the start of data collection and reminders about the study were given. The "Informed Consent Form" checkbox is mandatory in Google Form. While creating the form, standardization was ensured by limiting one response per IP address so that nurses could respond only once. The researcher's contact information was written on the informed consent forms, and the questions of the nurses who wanted to participate in the study were answered via telephone or e-mail.

Data Collection Tools

Research data were collected using the Personal Information Form, the Handover Evaluation Scale and the Fatigue Scale.

Personal Information Form

The form created by the researcher by examining the literature consists of 13 questions containing nurses' demographic and professional characteristics.[16,19]

Handover Evaluation Scale

The scale was developed by O'Connell et al. in 2014. Tuna and Dalli performed Turkish validity and reliability in 2019.[16] The scale consists of 10 items and two subdimensions. This scale uses a 7-point Likert-type rating, and each item is scored between 1 and 7. The efficiency of nurses' handover is evaluated with the total scale score. The highest 70 and the lowest 10 points can be obtained from the scale. As the total score obtained from the scale increases, the nurses' handover evaluation quality increases. In the scale's Turkish validity and reliability study, the Cronbach alpha value, the internal consistency coefficient, was found to be 0.92. In the study, the Cronbach alpha value of the scale was determined as 0.95.

Fatigue Scale

To assess chronic fatigue, the "Checklist Individual Strength" fatigue questionnaire developed by the Vercoulen et al. was used. The Turkish validity and reliability of the scale were done by Ergin and Yildirim.[20] The scale consists of 20 statements and four sub-dimensions measuring fatigue in the last two weeks. The highest score that can be obtained from the scale is 140, and the lowest score is 20. The scale is a Likert-type measurement tool consisting of degrees between 1 and 7. As the total score obtained from the scale increases, the severity and impact of fatigue also increase. In the validity and reliability study of the scale, the Cronbach alpha value, which is the internal consistency coefficient, was found to be 0.87. In the study, the Cronbach alpha value of the scale was determined as 0.89.

Ethical

Institutional permissions were obtained from the local university ethics committee (2021/60) and from the hospitals where the study was conducted in order to conduct the study. Permission was obtained from the scale developers via e-mail for the use of the scales used in the research. It was also stated that the data obtained from the research would be kept confidential and used only for scientific purposes. Informed consent was obtained from all nurses participating in the study. The principles of the Declaration of Helsinki were complied with at all stages of the study.

Evaluation of Data

The obtained data were evaluated in the computer environment's software program of IBM SPSS Statistics 23.0 (IBM Corp., Armonk, New York, USA). The normal distribution of numerical data was examined with the Shapiro-Wilk test of normality. Descriptive statistics are given as numbers, percentages, mean, standard deviation, median and interquartile range. During the comparison of two independent groups, the data showing normal distribution were analyzed with the Independent Sample t-test. The data not normally distributed were analyzed with the Mann-Whitney U test. The One-Way Analysis of Variance was used for normally distributed data in comparing three or more independent groups. The Kruskal Wallis Test was used for data that did not show normal distribution. A post-hoc or Dunn's test was applied to the statistically significant data as a multiple comparison test. Pearson Correlation analysis was performed to statistically evaluate the relationship between scale scores and the relationship's direction and severity. A $p<0.05$ value was considered statistically significant in all comparisons.

RESULTS

The distribution of demographic and professional characteristics of the nurses included in the study is given in Table 1, where it is shown that 45.2% were between the ages of 26-35, 67.2% were female, 58.2% were married, 49.2% had no children, and 74.6% had a bachelor's degree. Sixty-one per cent of the nurses stated that chose the emergency service willingly, 85.3% worked in shifts change, 59.3% were satisfied with working in the emergency department, 42.4% cared for an average of 6-10 patients per nurse, and 59.9%worked four years and less time in the emergency department, and 65.0% of them work 40-55 hours per week on average. In addition, it was determined that the preparation time of the nurses for the handover effectiveness of duty was 28.16±18.10 minutes, and the handover effectiveness time of the nurses was 21.75±12.77 minutes.

The mean scores and Cronbach Alpha values of the Nurses on the Handover Effectiveness Scale and the Fatigue Scale are given in Table 2. The mean score of the Handover Effectiveness Scale was 46.91±15.11, and the mean score of the Fatigue Scale was 82.79±27.16.

When the demographic and professional characteristics of the nurses were compared with the fatigue scale, it was determined that the age, number of children, willingness to choose the emergency service, working shift, number of patients per nurse, total working time in the emergency department and average weekly working time were statistically significant ($p<0.05$).When the demographic and professional characteristics of the nurses were compared with the HES, it was determined that the age, willingness to choose emergency service, working shift, being satisfied to work in the emergency department, number of patients per nurse, total working time in the emergency department and average weekly working time were statistically significant ($p<0.05$), (Table 3).

Table 4 shows the correlation analysis between the nurses' characteristics regarding handover times, the mean scores of the Handover Effectiveness Scale, and the Fatigue Scale. It has been determined that there is a positive and moderate significant relationship between nurses' HES and the preparation time for the handover

Table 1. Distribution of nurses' demographic and professional characteristics (n=177).

Characteristics	n(%)	Characteristics	n(%)
Age		**Shifts**	
≤25	48(27.1)	Daytime only	10(5.6)
26-35	80(45.2)	Only night	16(9.0)
36-45	34(19.2)	Shift change	151(85.3)
≥46	15(8.5)	**Working in the Emergency Department**	
Gender		Satisfied	105(59.3)
Female	119(67.2)	No satisfied	72(40.7)
Male	58(32.8)	**Number of Patients Per Nurse**	
Marital Status		≤5	28(15.8)
Married	103(58.2)	6-10	75(42.4)
Single	74(41.8)	11-15	49(27.7)
Number of Children		≥16	25(14.1)
No	87(49.2)	**Total Working Time in the Emergency Department (Years)**	
1	38(21.5)	≤4	106(59.9)
2	43(24.3)	5-9	33(18.6)
≥3	9(5.1)	≥10	38(21.5)
Educational Level		**Average Working Time Per Week (Hours)**	
Health vocational high School	19(10.7)	40-55	115(65.0)
Associate degree	17(9.6)	56-71	46(26.0)
Licence	132(74.6)	≥72	16(9.0)
Graduate	9(5.1)	**Handover Preparation Time (Mean ± SD) (minute)**	28.16±18.10
The Situation of Willingly Choosing the Emergency Service		**Handover Time (Mean ± SD) (minute)**	21.75 ± 12.77
Yes	108(61.0)		
No	69(39.0)		

Table 2. The mean scores and alpha values of the Handover Effectiveness Scale and the Fatigue Scale (n=177).

Scales	Number of Items	X̄	SD	Cronbach Alpha
Handover Effectiveness Scale	10	46.91	15.11	0.95
Fatigue Scale	20	82.79	27.16	0.89

of the shift and the time of the handover of the shift ($p<0.001$). In addition, it has been determined that there is a negative and moderate significant relationship between the fatigue levels of the nurses and the quality of the handover effectiveness ($p<0.001$).

DISCUSSION

Increased nurse fatigue can negatively affect work performance, harming patient safety. In addition, the quality of the handover effectiveness of nurses in shift changes is vital for patient safety.[13] Poor quality seizure handover effectiveness can negatively affect patients, staff, and healthcare organizations. It is predicted that there is a relationship between the fatigue levels of nurses and the efficiency of shift handover.[10] Therefore, this study investigated fatigue level, handover effectiveness, and related factors in emergency nurses.

The study determined that the fatigue levels of older nurses who have children, work unintentionally in the emergency department and only work during the day were statistically significantly higher. Similarly, studies have proven that nurses who have children and who are older have higher fatigue levels.[21,22] Unlike the literature, our study findings determined that the fatigue levels of nurses who only work during the day are higher.[19,23] A study determined that nurses with children experience intra-familial conflict and have high fatigue levels at work.[24] Most nurses who work only during the day must work six or seven days a week because they work overtime. Therefore, it was thought that the fatigue levels of nurses working during the day were higher due to their almost uninterrupted work. It is thought that these demographic factors related to nurse fatigue will provide evidence to institutions to develop strategies to reduce the fatigue levels of emergency nurses.

Many factors, such as staff shortage, unsystematic shifts, and overtime, can cause nurses to experience a heavy workload.[25] The workload can cause work fatigue in nurses and poses a significant risk for patient-nurse safety.[26] In this study, it has been proven that as the number of patients per nurse, the total working time in the emergency department, and the average weekly working time increase, the fatigue levels of the nurses increase. These findings are like the literature.[21,27,28] However, a study in the literature also proves that experienced nurses tolerate acute fatigue better due to their productive work performance.[29] It has been determined that there is a significant relationship between workload and fatigue, which affects work motivation, physical fatigue, and activity.[30] Longer working hours may cause workers to be exposed to occupational diseases and reduce work motivation because employees do the same job for a long time.[31] It can be said that good planning of working hours and workload in units with a heavy workload and requiring serious work performance, such as the emergency service, will effectively reduce the fatigue levels of nurses and will positively

Table 3. Comparison of the nurses' demographic and professional characteristics and the mean scores of the Handover Effectiveness Scale and the Fatigue Scale (n=177).

Characteristics	Fatigue Scale		HES	
	Mean±SD	**p**	**Mean±SD**	**p**
Age				
≤25	83.62 ± 27.73[ab]	**0.002**	48.43 ± 13.68[ab]	**0.017**
26-35	75.68 ± 25.47[a]		49.46 ± 13.10[a]	
36-45	90.67 ± 27.61[b]		42.14 ± 17.71[b]	
≥46	100.20 ± 21.59[b]		39.26 ± 19.25[b]	
Gender				
Female	81.97 ± 27.86	0.566	47.05 ± 14.89	0.857
Male	84.48 ± 25.81		46.62 ± 15.68	
Marital Status				
Married	82.74 ± 27.19	0.977	46.51 ± 15.50	0.679
Single	82.86 ± 27.29		47.47 ± 14.63	
The Situation of Willingly Choosing the Emergency Service				
Yes	78.58 ± 26.97	**0.009**	51.00 ± 13.71	**<0.001**
No	89.39 ± 26.30		40.50 ± 15.05	
	M (IQR)	**p**	**M (IQR)**	**p**
Number of Children				
No	88.00 (29.00)[ab]	**0.040**	52.00 (18.00)	0.430
1	75.00 (40.75)[a]		48.50 (22.00)	
2	84.00 (40.00)[b]		48.00 (34.00)	
≥3	90.00 (28.50)[ab]		42.00 (18.50)	
Educational Level				
Health vocational high School	79.00 (41.00)	0.285	53.00 (14.00)	0.306
Associate degree	85.00 (55.00)		60.00 (18.50)	
Licence	86.50 (33.50)		50.00 (20.25)	
Graduate	44.00 (50.00)		48.00 (34.00)	
Shifts				
Daytime only	111.50 (41.25)[a]	**0.013**	25.00 (45.50)[a]	**0.023**
Only night	82.50 (52.25)[b]		47.00 (31.00)[ab]	
Shift change	82.00 (28.00)[b]		51.00 (18.00)[b]	
Working in the Emergency Department				
Satisfied	80.00 (24.50)	0.191	54.00 (15.00)	**<0.001**
No satisfied	89.00 (64.00)		40.00 (25.00)	
Number of Patients Per Nurse				
≤5	78.00 (44.75)[a]	**<0.001**	53.00 (19.75)[a]	**0.009**
6-10	78.00 (51.00)[a]		52.00 (16.00)[a]	
11-15	90.00 (32.00)[b]		40.00 (31.00)[b]	
≥16	90.00 (42.50)[b]		45.00 (19.50)[ab]	
Total Working Time in the Emergency Department (Years)				
≤4	80.00 (50.00)[a]	**<0.001**	51.00 (20.25)[a]	**<0.001**
5-9	76.00 (16.00)[a]		55.00 (15.50)[a]	
≥10	111.00 (33.25)[b]		37.50 (32.00)[b]	
Average Working Time Per Week (Hours)				
40-55	76.00 (43.00)[a]	**<0.001**	53.00 (20.00)[a]	**0.018**
56-71	90.50 (33.50)[b]		48.00 (25.00)[b]	
≥72	105.00 (48.25)[b]		47.00 (32.75)[b]	

HES: Handover Effectiveness Scale, M: Median, IQR: Interquartile Range
The superscripts a, b indicate a difference within a group, and the same letters indicate that there is not an in-group difference, and different letters indicate an in-group difference.

Table 4. The relationship between nurses' characteristics regarding handover times, the mean scores of the Handover Effectiveness Scale, and the Fatigue Scale (n=177).

	Handover Preparation Time (minute)	Handover Time (minute)	Fatigue Scale	HES
Handover Preparation Time (minute)	1			
Handover Time (minute)	r=0.649 p<0.001	1		
Fatigue Scale	r=-0.247 p<0.001	r=-0.221 p<0.001	1	
HES	r=0.573 p<0.001	r=0.497 p<0.001	r=-0.476 p<0.001	1

HES: Handover Effectiveness Scale, r: Pearson correlation analysis

affect patient care.

The quality of the handover effectiveness in shift changes in emergency services is vital in ensuring and maintaining patient safety.[32] In this study, in which the risk factors that may affect the efficiency of seizure handover in the emergency department were investigated; It has been determined that the quality of shift handover efficiency of nurses who are older, who constantly work during the day, and who are not satisfied with working in the emergency department, is lower. A study proved that the physical activity rate of nurses working the day shift was 89.3%, and the activity rate of nurses working night shifts was 65.8%.[33] Therefore, it was thought that daytime nurses had lower shift-handover effectiveness. As age progresses, nurses' level of work motivation and performance decreases.[34] Employee motivation determines productivity and work-related performance.[35] Therefore, it is thought that the job motivation level of the elderly nurses who are not satisfied with working in the emergency department effectively decreases the handover activity's performance. To prevent this situation, rotation among the nurses may be recommended after working in the emergency department for a certain period.

Due to the high number of patients and overtime, the workload increases, which may negatively affect the nurses' shift-handover effectiveness.[36] The study determined that nurses with high number of patients per nurse, total working time in the emergency department, and average weekly working time have a lower quality of handover effectiveness. A study proved that the high number of patients cared for harmed the efficiency of nurses' shift handover.[37] In emergency departments and complex and dynamic health care environments, nurses' work lists are often characterized by overtime and irregular shifts.[3] Therefore, improvements that can be made regarding the number of nurses and working hours in emergency services can increase the quality of handover effectiveness and patient safety.

In the literature, it is suggested that the seizure handover time should be between 15-45 minutes, depending on the general condition of the patient and the number of patients in the clinic.[16] In the study, similar to the literature, the handover time of emergency nurses was found to be 21.75±12.77. Having sufficient written and verbal information is essential for an effective handover.[37] Therefore, nurses must complete the necessary preparations before handover. The study determined a positive and significant relationship between the preparation for the handover, the time of handover, and the hand over's effectiveness. In other words, it has been concluded that the more time the nurses allocate for preparation and handover effectiveness, the more effective handover is. The effective use of communication and the complete transfer of information in the transfer of patient information is of great importance in ensuring patient safety.[38] For this reason, it may be recommended to plan for the handover process in health institutions, especially in emergency services, by the managers of the institutions.

Staff fatigue factor significantly affects communication.[39] Transfer of patient information accurately, clearly and systematically during the handover process is possible with communication between health professionals.[6] Recently, there has been an enormous increase in patients due to the corona virus pandemic. This situation caused a rise in nurses' workload.[17] In the literature, it has been proven that the fatigue levels of emergency nurses increase due to the increased workload.[3] The study determined a statistically negative and significant relationship between the fatigue levels and the efficiency of hand over of emergency department nurses. In other words, as the fatigue levels of the nurse's increase, the quality of the handover effectiveness decreases.

It has been reported that most adverse events and nearly all errors are due to ineffective patient delivery.[13,15] Similarly, there are studies in the literature that predict that nurses' fatigue levels negatively affect the quality of handover effectiveness.[10,11] Therefore, it is thought that it is necessary to take measures at both individual and institutional levels to reduce the fatigue levels of emergency nurses for patient and employee safety.

There are several known limitations to this cross-sectional study. It is impossible to generalize the results because the research was carried out in a single province. Nurses' fatigue levels and quality of handover effectiveness are dynamic, and the cross-sectional survey results may only reflect information over a specific period. The limitations of the study are that the number of nurses constituting the population of the study is limited and that approximately half of the population can be reached in the sample. In addition, other variables may not be included in this study that could potentially affect nurses' fatigue levels and quality of shift handover. There are limited quantitative studies to determine the fatigue levels of emergency nurses and the factors affecting the quality of shift handover. Despite the limitations, it is thought that the findings of this study will contribute to the literature.

CONCLUSION

The increased fatigue levels of emergency nurses negatively affect the efficiency of shift handover, which is vital for ensuring and maintaining patient safety. It has been determined that there is a positive and moderate significant relationship between nurses' HES and the preparation time for the handover of the shift and the time of the handover. It was determined that the older nurses were not satisfied with working in the emergency department, working continuously during the day, caring for more patients, having a longer total working time in the emergency department, and a longer average weekly working time were more tired and had a lower quality of duty handover activity. The findings from this study contribute to determining the factors affecting the fatigue of emergency nurses and the quality of handover effectiveness. Therefore, it is recommended to develop strategies to reduce fatigue levels and improve the quality of handover effectiveness. Nurse leaders and researchers should be aware of the risks that may occur in these issues and take necessary precautions. It is recommended that qualitative studies and experimental studies should be conducted to determine the causes and coping strategies affecting the fatigue level and the quality of handover effectiveness of emergency department nurses.

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LIFE ADJUSTMENT ANALYSES OF PEOPLE WHO HAD CORONAVIRUS DISEASE. A CROSS-SECTIONAL STUDY
KORONA VİRÜS HASTALIĞI GEÇİRMİŞ İNSANLARIN YAŞAMA UYUM ANALİZLERİ: KESİTSEL BİR ÇALIŞMA

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ABSTRACT
We aimed to determine the life adjustment process of people who have had corona virus and the factors affecting this process, to investigate the long-term effects related to this disease and report hem for the first time. In this cross-sectional study conducted between March and December 2021, 202 participants who previously had corona virus infection, identified by reverse transcription polymerase chain reaction test, were enrolled. The data was collected online using the Hacettepe Personality Inventory and evaluated using descriptive statistics, survival analyses and Kaplan–Meier survival analyses in SPSS software. According to the Hacettepe personality inventory, the mean total adjustment score of the participants was 91.97±16.9, the mean social adjustment score was 45.47±9.7 and the mean personal adjustment score was 46.49±8.7. According to the hazard function graphs, it was calculated that the mean general adjustment month of the participants was 13.59±0.64, the mean social adjustment month was 13.89±0.65 and the mean personal adjustment month was 11.83±0.52. It has been observed that the corona virus disease has a negative impact on life and social and personal adjustment, while the mean time for people to adjust to life is 1 year.

Keywords: Corona virus disease, life adjustment, survival analysis

ÖZ
Bu araştırma ile korona virüs hastalığı geçirmiş insanların hastalıktan sonraki zaman içinde kişisel ve sosyal boyutlarıyla yaşama uyum sürecini ve etkileyen faktörlerin belirlenmesi, hastalıkla ilişkili uzun vadeli sonuçların araştırılması ve literatüre ilk bilgilerinin verilmesi amaçlanmaktadır. Bu araştırma 1 Mart-31 Aralık 2021 tarihlerini kapsayan kesitsel bir çalışmadır. Araştırmanın örneklemini daha önce RT-PCR testi ile tanımlanan koronavirüs enfeksiyonu geçirmiş olan 202 kişi oluşturmuştur. Veriler, Hacettepe Kişilik Envanteri ile online olarak toplanmıştır. Verilerin değerlendirmesi SPSS programında tanımlayıcı istatistik, yaşam sürdürme analizlerinde Kaplan-Meier sağ kalım analizleri ile yapılmıştır. Katılımcıların Hacettepe Kişilik Envanterine Göre toplam uyum puan ortalaması 91.97±16.9; sosyal uyum puanı ortalaması 45.47±9.7 ve kişisel uyum puan ortalaması 46.49±8.7 olduğu saptanmıştır. Hazard fonksiyon grafiklerine göre de katılımcıların genel uyum ortalama ayının 13.59±0.64 olduğu, sosyal uyum ortalama ayının 13.89±0.65 olduğu ve kişisel uyum ortalama ayının ise 11.83±0.52 olduğu hesaplanmıştır. Korana virus hastalığının kişisel ve sosyal olarak genel yaşam uyuma olumsuz etkisi olduğu ve insanların yaşama uyum yapma süresinin ortalama 1 yıl olduğu görülmüştür.

Anahtar kelimeler: Koronavirüs hastalığı, yaşama uyum, yaşam sürdürme analizi

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INTRODUCTION

Corona virus disease has continued to impact the world since 2020on a massive scale, posing a major global risk to public health and disrupting lives on an unprecedented scale.[1,2] During the last 2 years when we have been living with this disease, our lives have been altered in every direction leading to a negative impact on the physical, social and psychological functioning of individuals and societies and have important economic consequences. Therefore, it is important for an individual and society to know how the emotional and psychosocial effects of the uncertainty and crisis that occurred during this disease period are managed and how to adjust to them because the healthy survival of an individual depends on his/her ability to adjust.[1-6] The concept of adjustment is the ability of an individual to establish and maintain a balanced relationship between his/her own self and the environment in which he/she lives by using his/her own characteristics. Adjustment, which requires an individual to respond to certain changes in the field of his/her life, is a cyclical process and the events and personality traits directly affect the adjustment of individual. Adjustment in an individual's life is handled in two parts: personal and social adjustment. Personal adjustment is the harmony that one wants to achieve with the whole of one's spiritual life. Social adjustment, on the contrary, is a person's success in adjustment to other individuals and making himself/herself accepted in a unique way by the communities which he/she interacts with.[7,8]

Most of the research literatures confirm that the corona virus disease has a negative impact on healthy and active lifestyles and consequently leads to a decline in mental health and quality of life.[3-6,9-12] However, to the best of our knowledge, there are no studies on how the effects of psychological, emotional and physiological situations experienced by the patient after recovering from the corona virus disease affected the person's adjustment to personal and social life. Hence, the results of our study are crucial. This study aimed to determine the life adjustment process of people after they had corona virus disease, to determine the factors affecting this process, to investigate the long-term effects associated with this disease and to report them for the first time. Further, this study aims to provide a social example of life adjustment after this disease, which is a common issue worldwide, and encourage similar research in different cultures and environments.

MATERIALS AND METHODS

Study Design and Participants

This research is a cross-sectional study covering the period between March and December 2021. The participants of the study consisted of individuals who applied to the Siirt Public Health Directorate between March and December and who had corona virus disease. According to the data of the Provincial Directorate of Health, the average number of cases in these months was calculated as 250. A total of 356 people were reached out between these dates who agreed to participate in the research. However, 81 of the individuals answered the inventory incompletely and 73 individuals did not fill out a valid inventory, so only 202 individuals were included in the study. The participation rate was calculated as 57%. Post-hoc power analysis conducted after the research revealed that the power of the study (1-β) was 0.89 and the sample size was sufficient. The inclusion criteria are as follows: age ≥18 years, having a history of corona virus infection as defined by a positive reverse transcription polymerase chain reaction test according to World Health Organization criteria (2021a), a corona virus infection at least 1 month ago and non-presence of psychiatric or any highly disabling pathology. The exclusion criteria are those younger than 18 years of age, those with a psychiatric diagnosis, and those who have not been diagnosed with Covid 19 or have recently had Covid 19.

Procedures

Before beginning the research, study permission and ethical approval were obtained by the Ministry of Health's Scientific Research Platform (2021-01-25T13_10_19) and Harran University (Decision no: 15.02.2021/04), respectively. Also, administrative permissions were obtained from the Şanlıurfa Provincial Health Directorate. The patients and their relatives were contacted after reviewing their records, and the interested participants were briefed about the study and provided with a link to the online questionnaire. Data were collected from the participants who provided consent before accessing the questionnaire.

Hacettepe Personality Inventory (HPI) used in this study consists of two main sections, 'Personal' and 'Social Adjustment', with eight subscales and a total of 168 items, measuring personal and social adjustment levels of individuals. Eight subscales of HPI consisted of four for 'personal adjustment' (Self-Actualization, Emotional Stability, Neurotic Tendencies, Psychotic Symptoms) and four for 'social adjustment' (Family Relations, Social Relations, Social Norms, Antisocial Tendencies). The sum of 'personal adjustment' and 'social adjustment' scores constitutes the 'general adjustment' score. A decrease in the scores obtained from HPI means a decrease in the adjustment scores. In our study, the internal consistency coefficient of the scale was found to be 0.86 and so the scale is valid and reliable.[13] In this study, Cronbach's Alpha value was calculated as 0.91.

Statistical Analysis

The data obtained were recorded and evaluated in IBM SPSS Statistics v.22.0 (IBM Corp.; Armonk, NY, USA) package program. In statistical analyses, mean ± standard deviation, minimum maximum values were used for continuous variables; number and percentage were used for nominal variables.

In the survival analysis, time was defined as the period from the beginning of the diagnosis to the date of the study (minimum 1 month and maximum 18 months). Further the time was compared through general adjustment (GA) month, personal adjustment (PA) month and social adjustment (SA) month. The Kaplan–Meier survival analysis was used to evaluate the data individually, and comparisons were made by log-rank test. While evaluating the results in the study, at a 95% confidence interval, $p<0.05$ was considered statistically significant.

RESULTS

Out of the 202 individuals who participated in the study, 54.0% were female and 85.1% had a university or higher education level. The mean age of the participants

was 26.87±12.36 and 69.8% of them were under 25 years of age. It was observed that 59.9% of the participants had corona virus disease more than 5 months (1 month–18 months) ago and for majority of them disease was managed at home (81.7%). More than half (52.5%) of the participants stated that they had a difficult time during the disease and were bed-ridden during the course of the disease. After the corona disease, 8.4% of the participants stated that it had no effect on them, 62.9% stated that it had a physiological effect (60% lost weight) and 15.3% stated that it had a psychological effect (80.2% were afraid to go out).

The scores of the participants are given in Table 1 according to the HPI. It was found that the mean total adjustment score of the participants was 91.97±16.9, the mean social adjustment score was 46.49 ± 8.7and the mean PA score was 45.47±9.7. According to the HPI norms, the mean general, personal, social and sub-dimension scores correspond to 50%.

Figure 1, 2, 3 shows hazard function graphs of the participants according to general, social and PA variables. Accordingly, it was determined that the mean GA month of the participants was 13.59±0.64, the mean SA month was 13.89±0,65 and the mean PA month was 11.83±0.52.

Table 2 shows the adjustment levels of the participants according to their socio-demographic characteristics. Accordingly, it was found that the mean SA month of the participants who stated that this disease did not have any effect on them after having corona was 9.12±0.2 months, while the mean SA month of the participants who stated that it had psychological, physiological or both effects was 14.80±0.8; this difference was statistically significant (p<0.05). While comparing other variables, no statistically significant difference was calculated.

Table 1. Values Related to Participants' Personality, Social, General and Sub-Dimension Adjustment Scores According to Hacettepe Personality Inventory

	n	$\bar{x}$	SD	Min	Max	Full Value
General Cohesion Score	202	91.97	16.9	50	154	160
Personal Cohesion Score	202	45.47	9.7	22	75	80
Social Cohesion Score	202	46.49	8.7	26	79	80
Self-actualization	202	11.33	2.9	3	20	20
Emotional Stability	202	11.96	2.9	5	19	20
Neurotic Tendencies	202	11.26	3.3	2	19	20
Psychotic Symptoms	202	10.91	2.9	2	20	20
Family Relations	202	11.06	2.8	4	20	20
Social Relations	202	11.95	2.7	4	20	20
Social Norms	202	11.75	3.0	4	20	20
Antisocial Tendencies	202	11.72	3.0	3	20	20

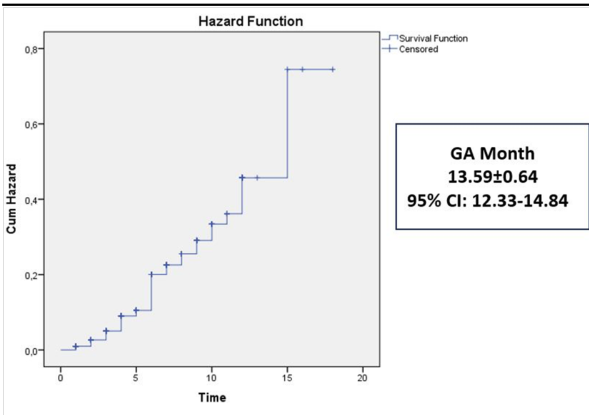

Figure 1: Hazard Function Graph by Participants' General (GA) Adjustment Variable

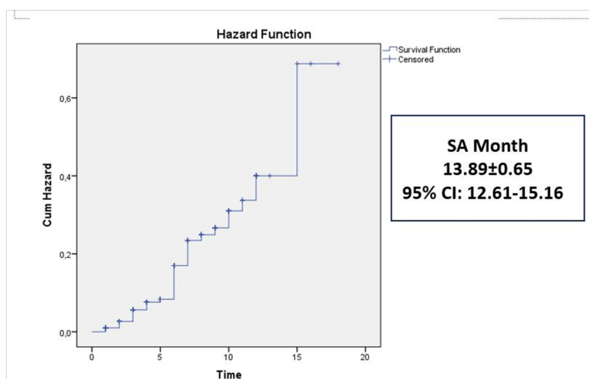

Figure 2: Hazard Function Graph by Participants' Social (SA) Adjustment Variable

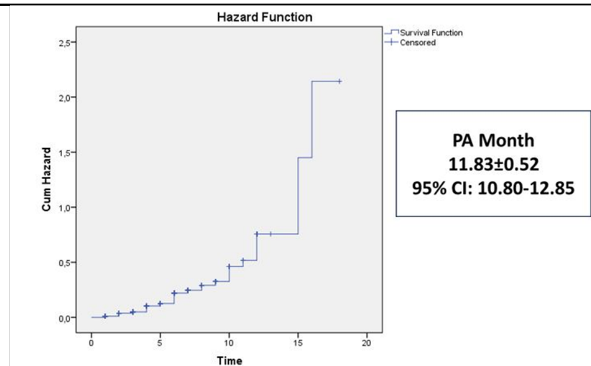

Figure 3: Hazard Function Graph by Participants' Personal (PA) Adjustment Variable

DISCUSSION

This is the first study to investigate the adjustment of individuals with corona virus disease to life, to themselves and to social life after the disease, the time of adjustment and the factors affecting the adjustment process. Therefore, no comparison with other literature can be made. The fact that the majority of the participants in this study (85.1%) had an education at the university level and were young (mean age 26.87), we assume that the answers given by the participants to the inventory are more reliable and valid.

Almost all the participants (91.6%) stated that the co-

Table 2. Kaplan–Meier Survival Analysis According to Socio-Demographic Characteristics of Participants

Variables	General Adjustment				Personal Adjustment				Social Adjustment			
	Mean Adjustment Months	**95% CI**	**Log Rank**	**p**	**Mean Adjustment Months**	**95% CI**	**Log Rank**	**p**	**Mean Adjustment Months**	**95% CI**	**Log Rank**	**p**
Sex			0.39	0.530			0.17	0.677			0.46	0.494
Female	13.27±0.8	11.68-14.86			11.62±0.6	10.30-12.93			13.56±0.8	11.93-15.18		
Male	11.08±0.3	10.30-11.86			10.51±0.4	9.69-11.32			11.29±0.3	10.54-12.04		
Age			0.09	0.764			0.39	0.527			0.08	0.774
Under 25	14.07±0.6	12.81-15.34			12.47±0.6	11.10-13.83			14.18±0.6	12.91-15.44		
25 Years and Over	12.16±0.6	10.80-13.51			11.21±0.6	9.90-12.53			12.71±0.6	11.41-14.01		
Education Status			0.60	0.437			0.09	0.763			0.99	0.320
Primary Education	10.84±0.5	9.67-12.02			10.21±0.5	9.05-11.37			10.83±0.5	9.78-11.89		
University and Above	13.43±0.6	12.09-14.76			11.93±0.5	10.80-13.05			13.67±0.6	12.33-15.01		
Location during the Covid Process			0.15	0.690			0.08	0.776			0.48	0.486
Home	13.72±0.6	12.38-15.06			11.94±0.5	10.82-13.07			14.06±0.6	12.71-15.41		
Hospital	10.29±0.6	9.07-11.51			10.11±0.5	8.99-11.22			10.01±0.6	8.79-11.24		
Chronic Disease Status			0.88	0.340			0.71	0.398			1.34	0.246
No	13.35±0.6	12.04-14.65			11.66±0.5	10.59-12.74			13.61±0.6	12.29-14.94		
Yes	10.69±0.5	9.52-11.86			10.48±0.6	9.19-11.76			11.00±0.6	9.93-12.06		
Evaluation of the Covid Process			0.14	0.705			0.10	0.742			0.59	0.440
Comfortable	13.66±0.6	12.29-15.03			11.94±0.5	10.79-13.08			13.64±0.7	12.27-15.01		
Difficult	10.14±0.5	9.08-11.19			9.89±0.5	8.86-10.92			10.64±0.4	9.71-11.56		
Status of being Affected After Covid			1.17	0.278			2.47	0.116			4.12	**0.043**
No	11.11±0.5	8.37-13.86			10.08±0.5	7.46-12.70			9.12±0.5	7.15-13.02		
Yes	14.25±0.7	13.18-15.32			12.46±0.4	11.27-13.66			14.80±0.8	13.78-15.82		

rona virus disease had one or more effects on them. Among these effects, physiologically, they experienced weight loss and weakness, which still persisted, while psychologically, they were mostly afraid to go out and avoided people. When we analyzed the findings, individual and collective reactions to corona virus disease can be explained by the fear of the unknown. Studies have reported patients having persistent physical[3,9,10,12,14-16] and psychological symptoms[3-6,10,11,15-19] 1 to 3 months after being discharged from the hospital. When these symptoms were examined, physiological symptoms were similar to those in this study, but unlike the symptoms such as anxiety and stress mentioned in the psychological findings, people revealed their feelings and behaviors by expressing that they were afraid to go out and avoided people after this disease. This shows that people have a negative attitude towards social and life adjustment.

According to the HPI inventory of the participants in this study, it was found that their general, social, personal and sub-dimension adjustments were at a moderate level after having corona virus disease (Table 1). In their survival analyses, it was found that the participants needed 13.59±0.64, months to adjust to the environment, 13.89±0,65 months for SA and 11.83±0.52 months for PA after the corona virus disease. With these results, this is the first study to indicate that it will take an average of 1 year for people to adjust to life after corona virus disease. In a case study report of a corona virus patient, it was reported that the patient returned to work after 7 months, but although he felt that he had returned to his normal state, he was understandably very nervous in the crowd and took leave again.[17] In another study conducted in China and the United States, which monitored the course of people's psychological and behavioral reactions based on the four waves of the corona virus disease pandemic, it was suggested that understanding how people react and adjust to the current crisis is important in terms of preparing for the next pandemic and protecting community/individual health.[4] Thus, this study explains one dimension of this suggestion and suggests that there should be programs to increase the adjustment process of people after corona virus disease to create healthy societies.

In this study, the Kaplan–Meier survival analysis clearly showed that the mean social adjustment month of people who experienced psychological/physiological effects after corona virus disease was 14.80±0.8 months, whereas it was 9.12±0.2 months for people who did not experience any effects ($p<0.05$, Table 2). In another study, it is stated that the distress experienced in the disease may increase the distress that may occur in the person's later life.[18,19] This result suggests that those who experience psychological and physiological effects after corona virus disease should be prioritized and supported.

CONCLUSIONS

We investigated the life adjustment process of people having corona virus, and the social/personal interventions are needed to increase adjustment to life after corona virus disease. These results strongly suggest the need for community health programs.

Nurses are highly likely to encounter individuals who have been diagnosed with COVID-19 in every environment in which they provide healthcare services (e.g., hospitals, family health centers). By the assessment of the adaptation levels of the individual in the care to be provided to them, it will be possible to increase both the quality of nursing care and the adaptation levels of individuals.

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METACOGNITIONS AND RUMINATIVE THOUGHT IN DEPRESSED INDIVIDUALS*
DEPRESİF BİREYLERDE ÜSTBİLİŞLER VE RUMİNATİF DÜŞÜNME

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ABSTRACT

It is known that the repetitive and persistent ruminative thought style in depression is closely related to met a cognition. In Türkiye, studies on this subject in depressed patients are relatively limited. This study aimed to examine the relationships between metacognitions and ruminative thought style in individuals diagnosed with depression. The data was collected between 01.05.2021 and 31.12.2022 from 210 depression patients who applied to psychiatric clinics of a state hospital in the Black Sea Region. Introductory Information Form, Ruminative Thought Style Scale and Metacognition-30 Scale were used to collect data. The Spearman correlation test was used to determine the correlations. Path analysis was used to test how metacognitions predicted ruminative thought in depressive individuals. It was determined that there was a statistically significant and moderately positive correlation between the mean scores of ruminative thought style and psychopathological metacognitive activity (r=0.477; p<0.01). In addition, according to the established path model, 36.5% of the variance changes in the ruminative t thought style are explained by this model. It was determined that the effect of psychopathological metacognitive activities on variance changes in ruminative thought was 60.7%. It is seen that there is a relationship between problematic metacognitions and ruminative thought. Studies in the literature support this result. This study, which determined that metacognition and sub-dimensions are related to rumination in individuals diagnosed with depression in a Turkish sample, will serve as a reference for therapy approaches to be applied to individuals with depressive symptoms.

Keywords: Depression patient, metacognition, ruminative thought

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ÖZ

Depresyonda tekrarlayıcı ve süreklilik arz eden ruminatif düşünce biçiminin üst bilişlerle yakından ilişkili olduğu bilinmektedir. Türkiye'de ise depresif hastalarda bu konuda yapılan çalışmalar oldukça sınırlıdır. Bu çalışmada depresyon tanısı almış bireylerde üst bilişler ve ruminatif düşünme biçimi arasındaki ilişkileri incelemek amaçlanmıştır. Veriler Karadeniz Bölgesi'nde yer alan bir devlet hastanesi psikiyatri kliniklerine başvuran 210 depresyon hastasından 01.05.2021-31.12.2022 tarihleri arasında toplanmıştır toplanmıştır.Verilerin toplanmasında Tanıtıcı Bilgi Formu, Ruminatif Düşünme Biçimi Ölçeği ve Üst biliş-30 Ölçeği kullanılmıştır. Korelasyonları belirlemek amacıyla Spearman korelayon testi uygulanmıştır. Üst bilişlerin depresif bireylerde ruminatif düşünme biçimini ne ölçüde yordadığını test etmek amacıyla path analizi kullanılmıştır. Ruminatif düşünme biçimi ve psikopatolojik üst bilişsel faaliyet puan ortalamaları arasında pozitif yönde orta düzeyde istatistiksel olarak anlamlı bir ilişki olduğu belirlenmiştir (r=0.477; p<0.01). Ayrıca kurulan path modeline göre ruminatif düşünme biçimindeki varyans değişimlerinin %36.5'inin bu model tarafından açıklandığı ve ruminatif düşünme biçimindeki varyans değişimlerinde psikopatolojik üst bilişsel faaliyetlerin etkisinin %60.7 olduğu belirlenmiştir.Sorunlu üstbilişlerle ruminatif düşünce arasında ilişki olduğu görülmektedir. Bu bulgu literatürde yer alan çalışmalarla desteklenmektedir. Türkiye örnekleminde depresyon tanısı almış bireylerde üst biliş ve alt boyutlarının ruminasyonla ilişkili olduğunu belirleyen bu çalışma, depresif semptomları olan bireylerde uygulanacak terapi yaklaşımları için bir referans görevi görecektir.

Anahtar kelimeler: Depresyon hastası, üstbiliş, ruminatif düşünme

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INTRODUCTION

Flavell first defined the concept of metacognition as having knowledge about one's own thinking processes and using this knowledge to monitor, evaluate, and control cognitive processes.[1] Metacognitive abilities begin to develop during childhood. The child who starts to learn about the world he/she lives in during infancy also gains the ability to think about what he/she has learned over time.[2] It is known that the social environment and culture in which people live are effective in the cognitive development process.[3] However, cultural conditions are also thought to play a role in the development of metacognition, which refers to an individual's ability to evaluate information.[4]

Metacognition, a concept defining high-level cognitive skills, is associated with learning, behavior regulation, and awareness.[5,6] However, some dysfunctional thinking and coping strategies in psychopathology may originate from metacognitive processes.[7-9]

It has been reported that recurrent and uncontrollable anxiety in psychopathological processes is closely related to metacognitive beliefs, and maladaptive metacognitions are used more.[7] It can be said that this situation is valid for many mental disorders, including depression.[7,10] It is stated that in depression, the metacognitive structure is dominated by thoughts about the past rather than anxious thoughts, and this situation reduces problem-solving skills and adds low confidence.[11]

According to metacognitive theory, negative emotions and thoughts that cause psychopathological processes are normal and temporary in most people. However, the reason for the persistence and recurrence of these negative feelings and thoughts is the activation of a specific thought system called cognitive attention syndrome in individuals with high sensitivity.[12]Ruminative thoughts characterize cognitive attention syndrome and worry, excessive self-directed attention, impaired cognitive functioning, biased attention, inappropriate coping that interferes with learning from experiences, and problematic metacognitions are responsible for its activation.[12,13]

Ruminative thought can be defined as continuous inefficient thinking of the problem and repetitive and continuous depressive thinking.[11,14] Generally, individuals cannot develop a strategy to solve problems during ruminative thought. Instead of developing an appropriate and applicable strategy, they tend to obsessively and passively think about the situation and nature of the problem over and over again.[15] This way of thinking also restricts the communication of emotions.[16] It is stated that this situation is valid in depression and increases the severity and duration of depressive symptomssuch as sadness, excessive anxiety and thinking about the past.[11,15]

It is argued that ruminative thought, which has an essential place in depression, is closely related to metacognition.[11] While Cognitive Theory explains the way of thinking in depression by the fact that the individual has negative schemas about himself, his future, and the world, Metacognitive Theory emphasizes being stuck in a depressive state.[12,13] In this case, the effect of ruminative thought is observed. Many studies show a relationship between metacognitions and ruminative thought.[17,18] However, considering the cultural learning processes that play a role in the development of metacognition, studies to be conducted in different countries and cultures are considered essential.[5] In Türkiye, it is seen that the number of studies addressing the relationship between metacognitive processes and ruminative thought style in patients with depression is limited.[19]

This study examined the relationships between metacognitions and ruminative thought in individuals diagnosed with depression. Determining the relationships between problematic metacognition and ruminative thought in depressed patients is vital to understanding the links between these two variables that affect the severity of depression. Considering the development of metacognitive processes with cultural processes, it is thought that this study conducted in Türkiye will contribute to the field.In this context, answers were sought to the following research questions.

Question 1: Is there a relationship between metacognitive processes and ruminative thought in depressed individuals?

Question 2: Does the metacognitive processes affect ruminative thought style of depressed individuals?

MATERIALS AND METHODS

Method of the Study

The research was conducted as across-sectional and descriptive relational study to investigate the relationship between metacognitions and ruminative thought style in depressed individuals in depth by establishing structural equation modeling.

Population and Sample of the Study

The study population consisted of patients who applied to psychiatry clinics of a state hospital. Since the study had a similar design to the study conducted by Dragan & Dragan (2014)[20] with patients with anxiety disorder, the sample calculation was calculated based on this study. In line with the recommendation of the literature, the study sample consisted of 210 individuals with depression, paying attention to the fact that the

number of variables in the model should be between 10-20 times the number of variables in the model and not less than 200and taking missing data into account.[21]

Inclusion Criteria

Study:

- 18 years and over
- Can speak and understand Turkish
- Literate
- Diagnosed with depression
- Individuals who approved the informed consent form were included.

Exclusion Criteria

- Under 18 years of age
- People with mental disorders other than depression
- Illiterate people
- Individuals who do not agree to participate in the study will be excluded.

Data Collection Forms in the Research

Data were collected using a descriptive information form including socio-demographic information (age, gender, year of diagnosis, etc.), the Ruminative Thought Style Scale, and the Metacognition Scale-30.

Introductory Information Form

The descriptive information form consists of 12 questions about gender, age, year of diagnosis, whether or not she/he was hospitalized, family's monthly income, whether they work or not, thoughts about recovery, religious/spiritual values, death, values, self-perception, and goals.

Ruminative Thought Style Scale

This study used the Ruminative Thought Style Scale developed by Brinker and Dozois (2009), which tries to evaluate the individual's thought style in general without considering the individual's current mood.[22] The scale has a 7-point Likert-type scoring system and consists of 20 items. Scoring is done by giving a score between 7=describes me very well, and 1= does not describe me at all. The scale examines ruminative thought as repetitive, uncontrollable, intrusive, and reflexive. The scale, which has no cut-off point, evaluates the ruminative thought tendencies of individuals.[22] The lowest score on the scale is 20, and the highest is 140. Higher scores on the scale indicate an increase in the ruminative thought of individuals.

The Cronbach's alpha internal consistency reliability coefficient of the scale, validated by Karatepe et al. (2013), was calculated as 0.90 and determined to be a reliable measurement tool for evaluating the ruminative thought style.[23] In our study, this value was determined as 0.93.

Metacognition Scale-30

The short form of the scale, developed by Wells and Cartwright-Hatton (2004) in 1997 to assess various dimensions of metacognitive activities associated with psychopathology, has 30 questions in its short form, while its first form included 65 questions. The scale has a 4-point Likert-type scoring as 1: strongly disagree; 2: somewhat disagree; 3: somewhat agree; 4: strongly agree and consists of 30 questions. It consists of 5 subscales: positive beliefs about worry, uncontrollable thoughts and danger, cognitive confidence, the need to control thoughts, and cognitive awareness. Higher scores indicate higher metacognitive activity in psychopathological form.[24]

Tosun and Irak (2008) reported that the factor structure of the Turkish form of the scale, whose Turkish validity and reliability was conducted by them, was the same as the original form.[25] Questions 1,7,10,20,23, and 28 constitute the positive beliefs sub-dimension and include positive beliefs about worrying and that worrying is helpful in problem-solving. A high score in this dimension indicates a high belief that worrying helps solve problems and avoid unwanted situations. Questions 6,13,15,21,25, and 27 constitute the dimension of uncontrollability of thoughts and danger and include the belief that one needs to control one's worries and that thoughts cannot be controlled to fulfill one's functions and stay safe. Questions 8,14,18,24,26, and 29 constitute the cognitive confidence dimension, and the high score obtained from the cognitive confidence dimension, which includes the lack of confidence in one's memory and attention, indicates that the person has low cognitive confidence. Questions 2,4,9,11,16, and 22 constitute the need to control the thoughts dimension and the need to control negative beliefs, including the themes of being punished and responsible. A high score in this dimension indicates that people need to control their thoughts. Questions 3,5,12,17,19 and 30 constitute the dimension of cognitive awareness and refer to dealing with one's thought processes. People with high scores in this dimension tend to observe and examine their own thoughts and thought processes.[25]

As a result of the analysis of the scale's reliability, it was found that the internal consistency Cronbach Alpha value of the scale was 0.93, and the Alpha values for the subscales ranged between 0.72 and 0.93. In addition, the Cronbach Alpha reliability coefficient for the whole scale is 0.86. In our study, this value was found to be 0.84.

Data Collection and Ethical Disclosures

Data were collected from patients admitted to state hospital psychiatry clinics between 01.05.2021 and 31.12.2022. Depressive individuals who applied to the hospital's psychiatric clinic

as outpatients and volunteered to participate in the study were recruited. Data forms were given to the patients, and they were asked to fill them in themselves. The researcher was present with the patients during this process. In addition, approval was obtained from the Clinical Research Ethics Committee of a state university (Approval no: 21-KAEK-097; Approval date: 04.03.2021), institutional permission from the Provincial Health Directorate (Approval no: E-87064461-044; Approval date: 12.03.2021), and verbal and written informed consent from the patients.

Statistical Analysis of Data

The data obtained from the research were evaluated in a computer environment. In the data evaluation, descriptive statistics,the Shapiro-Wilk test was applied to evaluate conformity to normal distribution. Since the data did not conform to a normal distribution, and the Spearman correlation test was used to determine correlations. A value of $p<0.05$ was considered statistically significant in the comparisons. Path analysis was used to test the extent to which psychopathological metacognitive activities predict ruminative thought in depressed individuals through the LISREL 8.71 program.

Path analysis is a statistical method that offers the opportunity to identify and model missing conditions and test them. In path analysis, missing data are used in the model. Path analysis, an applied regression analysis method, tests complex hypotheses using path graphs (Glozah & Pevalin, 2014). Path analysis is a method that allows us to obtain much more information about processes that are considered ordinary. With this method, direct or indirect effects of an independent variable or variables on the dependent variable or variables can be seen.[21] In path analysis, the Chi-square (X^2) value is close to zero, Degrees of freedom (df) >0 and p>0.05, p<0.05, CMIN/DF<3, Goodness of Fit Index (GFI)>90, Adjusted Goodness of Fit Index (AGFI)>90, Comparative Fit Index (CFI)>90 and Root Mean Square Error of Approximation (RMSEA)<0.05 for model fit indices.[21]

RESULTS

Among the depressed individuals who participated in our study, 66.7% were male, the mean age was 34.80±11.66, 62.9% were diagnosed with depression within five years, 55.2% were hospitalized for the first time, 60.0% were not working at any job, and 74.3% thought that they would recover. When the difference between the scale scores according to the descriptive characteristics of the individuals was examined, no statistically significant difference was found between the scale scores according to any of the descriptive characteristics, including gender, income status, duration of diagnosis, whether hospitalized or not (p>0.05). According to Table 1, it is seen that the mean scores of ruminative thought style and psychopathological metacognitive activity of depressed individuals who participated in the study are pretty high. In this context, it was determined that there was a statistically significant positive relationship between the mean scores of ruminative thought style and psychopathological metacognitive activity (r=0.477; p<0.01). Similarly, it was determined that there was a statistically significant relationship between ruminative thought style and psychopathological metacognitive activity sub-dimensions at a weak level in a positive direction (p<0.01).

The path model created within the research was analyzed in a computer environment. The results of the path model analysis in Figure 1 show that the model produced goodness-of-fit values and fit the data (X^2 /df=2.338 (X^2 /df<3). The model was found to be an oversaturated and desirable model (df=8 (df>0). When we look at the model fit indices, it is seen that GFI=0.97, AGFI=0.92, CFI=0.94, and RMSEA=0.080, and the model fits the data. In addition, 36.5% of the variance changes in ruminative thought style, 15.6% of the variance changes in cognitive awareness, 47.6% of the variance changes in need to control thoughts, 27.5% of the variance changes in cognitive confidence, 44.1% of the variance changes in uncontrollability of thoughts and danger, and 17.3% of the variance changes in positive beliefs about worry are explained by this model (Table 2=Squared Multiple Correlation). In addition, the effect of psychopathological metacognitive activities on variance changes in ruminative thought was 60.5%. According to these calculation values given for the model, the significance levels between the variables are given in Table 2.

DISCUSSION

In the study, the relationship between ruminative thoughts and metacognitions in individuals diagnosed with depression was examined. In order to examine this relationship in detail, the correlations between the sub-dimensions of the metacognitions scale and ruminative thought were evaluated separately. After the analysis, it was seen that there was a positive and significant relationship between rumination and all sub-factors of metacognition. According to the level of relationship, the variables associated with rumination arethe uncontrollability of thought, cognitive confidence, positive beliefs about worry, the need to control thoughts, and cognitive awareness. However, in the current study, it was found that problematic

Table 1. Correlation Values of Depressive Individuals' Age, Ruminative Thought Style Scale (RTSS), Metacognition Scale (MCS), and Subscale Means and Correlation Values

Variables	X± SD	1.	2.	3.	4.	5.	6.	7.	8.
Age	34.80±11.66	-	.008	.156*	.030	.127	.117	.117	.155*
RTS	100.96±23.41		-	.477**	.337**	.371**	.361**	.307**	.171**
MC	79.78±13.33			-	.529**	.678**	.652**	.692**	.539**
PBW	15.63±4.42				-	.153*	.260**	.123	.174*
UTD	15.92±3.78					-	.326**	.510**	.282**
CC	15.02±4.66						-	.323**	.120
NCT	16.15±4.16							-	.307**
CA	17.04±3.78								-

Notes: *0.05; **0.01; RTS: Ruminative Thought Style; MC: Metacognition; PBW: Positive Beliefs About Worry; UTD: Uncontrollability of Thought and Danger; CC: Cognitive Confidence; NCT: Need to Control Thoughts; CA: Cognitive Awareness

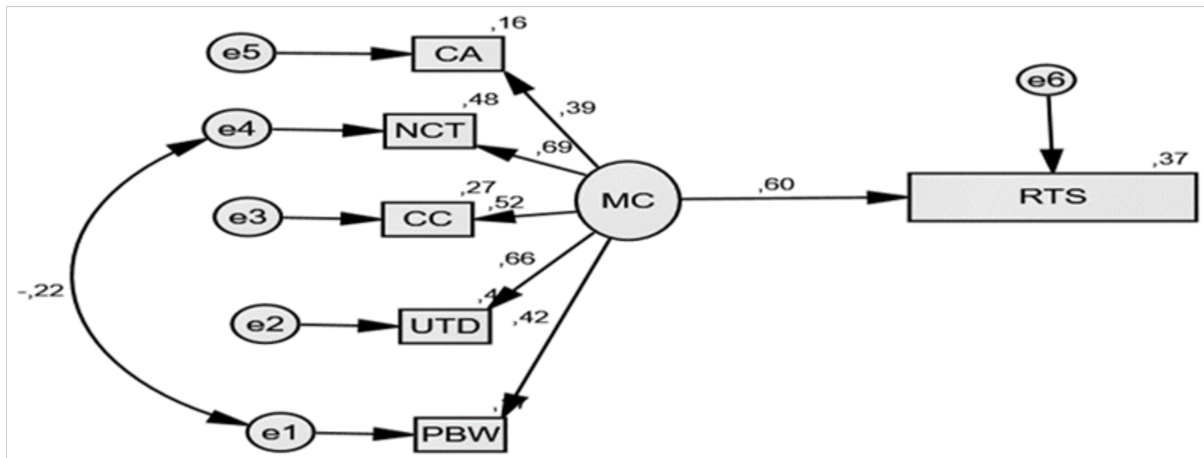

Figure 1: Standardized parameter values of the path model

RTS: Ruminative Thought Style; MC: Metacognition; PBW: Positive Beliefs About Worry; UTD: Uncontrollability of Thought and Danger; CC: Cognitive Confidence; NCT: Need to Control Thoughts; CA: Cognitive Awareness

metacognitions predicted rumination in individuals diagnosed with depression.

Within the scope of the study, the findings indicating the relationship between problematic metacognitions and rumination were also supported by previous studies. [18,26]According to the metacognitive model of rumination and depression (MCM), negative thoughts and emotions initially activate metacognitive beliefs about the usefulness of rumination.[27] In this situation, one aims to protect oneself against the possibility of repetition of the negative situation. As a result, the individual experiences more rumination. However, rumination makes it difficult for the individual to effectively problem solving and causes negative affect. As a matter of fact, there are studies indicating the relationship between rumination and metacognitions with depression symptoms in both clinical and non-clinical samples.[28-30]Rumination is a thought style involving repetitive thoughts about personal problems. Problematic metacognitions may predict individuals' ruminative thought styles.[29] In fact, in the model established within the scope of the study, it is seen that there is a moderate positive relationship between the uncontrollability of thought and danger, which is a sub-dimension of metacognitions, and ruminative thoughts. It is known that ruminative thought is common in depression.[31] Metacognitive processes, which include being aware of one's own ruminative thoughts and perceptions that these thoughts cannot be controlled, are likely to have a mutual relationship with ruminative thought.[17]

According to the analysis results, a moderate positive relationship exists between the need to control thoughts sub-dimension and rumination. Rumination refers to obsessive and difficult-to-control thoughts. It is possible that individuals are aware of rumination and feel discomfort and need for control.[17] This may be a negative situation for

Table 2. Regression Weights and Standardized Regression Weights for the Model

Variables	Unstandardized B	Standardized B	S.E.	t	p
CC<------MC	1.344	0.524	0.315	4.274	0.001
RTS<-----MC	7.781	0.605	1.732	4.493	0.001
UTD <---MC	1.363	0.664	0.301	4.600	0.001
PBW <---MC	0.739	0.415	0.266	2.783	0.005
CA <-----MC	0.822	0.395	0.220	3.735	0.002
NCT<----MC	1.580	0.690	0.354	4.469	0.001
Squared Multiple Correlations					
RTS	**CA**	**NCT**	**CC**	**UTD**	**PBW**
0.365	0.156	0.476	0.275	0.441	0.173

Notes: RTS: Ruminative Thought Style; MC: Metacognition; PBW: Positive Beliefs About Worry; UTD: Uncontrollability of Thought and Danger; CC: Cognitive Confidence; NCT: Need to Control Thoughts; CA: Cognitive Awareness

health. Indeed, studies show that rumination negatively affects quality of life and health.[32,33]

One metacognitive dimension with a moderate positive relationship with ruminative thought is distrust in cognitive processes. It has been found in the literature that there are negative relationships between ruminative thought and cognitive skills such as memory, attention processes, and focusing on individuals with depressive symptoms.[34,35] It is thought that ruminative thought, which focuses on negative memories common in depression and constantly evaluating oneself around those memories, negatively affects cognitive processes.[36]

Strong correlations were observed between the positive beliefs about worry subscale and ruminative thought. This situation can be interpreted within the framework of the relevant literature regarding an exaggerated perception of responsibility in individuals with depressive symptoms. Depressive individuals may hold themselves responsible for adverse events.[37] In this sense, the individual is likely to feel anxiety with the perception of responsibility, even for variables that he/she cannot control.[38,39] Studies indicate that metacognitions about the positive consequences of worry are associated with depressive symptoms and rumination.[18,40]

It was found that there was a low level of positive and significant relationship between cognitive awareness, one of the metacognition sub-factors examined in the study, and rumination. The study conducted by Spada et al. (2021)[18] found that the cognitive awareness sub-dimension predicted rumination, uncontrollability, and danger. In the study conducted by Evli and Şimşek (2021)[40], it was found that there was a moderate positive relationship between ruminative thought style and cognitive awareness dimension.

The results of this study are limited to patients who depression in a State Mental Health and Diseases Hospitalpsychiatry clinics between 01.05.2021 and 31.12.2022. It is seen that there are different measurement tools to measure metacognition.[41,42] This study limits the metacognitive variables related to rumination with the measurement tool Metacognition-30.

CONCLUSION

Within the scope of the study, the relationships between rumination and sub-dimensions of metacognitions in individuals diagnosed with depression were discussed separately within the theoretical knowledge and literature framework. This study, which determines which metacognitions are related to rumination in individuals diagnosed with depression in the Turkish sample, will serve as a reference for therapy approaches to be applied in individuals with depressive symptoms. However, to provide more information about which metacognitions predict rumination in individuals diagnosed with depression, studies utilizing different measurement tools to measure metacognitions are thought to be necessary. At the same time, qualitative studies on this subject are considered necessary to collect in-depth data.

Ethics Committe Approval: Tokat Gaziosmanpaşa University Clinical Research Ethics Committee's approval dated 04.03.2021 and numbered 21-KAEK-097 was obtained for the conduct of the study.

Informed Consent: Individuals were informed during the collection of research data and their

consent was obtained.

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ÇOCUK DİŞ HEKİMLERİNİN PROBİYOTİKLERLE İLGİLİ BİLGİ, GÖRÜŞ VE TUTUMLARININ DEĞERLENDİRİLMESİ*

EVALUATION OF KNOWLEDGE, OPINIONS AND ATTITUDES OF PEDIATRIC DENTISTS REGARDING PROBIOTICS

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ÖZ

Probiyotiklerin ağız sağlığı üzerindeki etkileri üzerine araştırmalar artmaktadır. Fakat dişhekimlerinin probiyotik ürünlere ilişkin bilgi ve tutumları ve bunların probiyotik ürünlerin tüketimi üzerindeki etkisi hakkındaki bilgi sınırlıdır. Bu çalışmanın amacı Türkiye'deki çocuk diş hekimlerinin probiyotiklerle ilgili bilgi, görüş ve tutumlarının değerlendirilmesidir.Ankete 100 çocuk diş hekimi (80 kadın, 20 erkek) katılmıştır. Katılımcıların % 44'ü çocuk diş hekimliği alanında doktora veya uzmanlık öğrencileri iken; 15 yılı aşkın mesleki deneyimi olanların oranı %24'tür. Çalışmaya katılanların % 83'ü probiyotiklerle ilgili tanımlamayı doğru işaretlerken; %30'u probiyotiklerin sadece bakteriler olduğunu ifade etmiştir. Çocuk diş hekimlerinin %66'sı probiyotiklerleilgili kendilerinin "orta", "iyi" veya "çok iyi" bilgi düzeyine sahip olduğunu belirtmiştir ve bu oran, çocuk diş hekimliğialanındaki akademik derece ile istatistiksel olarak anlamlı bulunmamıştır (p=0.077). Çocuk diş hekimlerinin %64'ü probiyotik ürünlerin kullanımını hastalarına önermiştir ve en çok (%79.4) antibiyotik tedavisi sırasında koruyucu amaçla tavsiye etmişlerdir.Bu çalışmaya katılan çocuk diş hekimlerinin probiyotikler hakkındaki bilgi düzeyinin yeterli olduğu sonucuna varılmıştır. Katılımcılar probiyotik kullanımıyla ilgili olumlu görüşe sahiplerdir ancak hastalara probiyotik kullanımını önerme konusunda daha düşük bir oran bulunmuştur.

Anahtar kelimeler: Anket, bilgi, çocuk diş hekimi, probiyotik, tutum

ABSTRACT

Research on the effects of probiotics on oral health is increasing. But there is limited information on the knowledge and attitudes of dentists, towards probiotic products and their impact on probiotic product consumption. The aim of this study is to evaluate the knowledge, opinions, and attitudes of pediatric dentists in Turkey regarding probiotics.A total of 100 pediatric dentists (80 females, 20 males) participated in the survey. Among the participants, 44% were doctoral or specialization students in the field of pediatric dentistry, and 24% had more than 15 years of professional experience. 83% of the respondents correctly identified the definition of probiotics, while 30% believed that probiotics were only bacteria. 66% of pediatric dentists stated that they had an "average," "good," or "very good" level of knowledge about probiotics, and this percentage did not show a statistically significant difference concerning their academic level in the field of pediatric dentistry (p=0.077). 64% of pediatric dentists recommended probiotic products to their patients, with the highest percentage (79.4%) recommending them for preventive purposes during antibiotic treatment. It has been concluded that the knowledge level of pediatric dentists participating in this study regarding probiotics is sufficient. Participants hold positive views about probiotic use; however, there is a lower rate of recommending probiotic use to patients.

Keywords: survey, knowledge, pediatric dentist, probiotic, attitude

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GİRİŞ

Probiyotikler 2001 yılında Dünya Sağlık Örgütü ve Amerika Gıda ve Tarım Örgütü tarafından "yeterli miktarda alındığında sağlığa yararlı etki sağlayan canlı mikroorganizmalar" olarak tanımlanmıştır.[1] Probiyotik kavramı ilk kez 20. yüzyılın başlarında Fizyoloji ve Tıp alanında Nobel ödüllü bilim insanı Ellie Metchnikoff tarafından ortaya çıkarılmıştır.[2] Metchnikoff'a göre, Bulgaristan popülasyonunun uzun yaşam sürelerinin nedeni, sindirim sistemlerini düzenlemeye yardımcı olan laktik asit bakterilerini içeren fermente ürünlerin fazla tüketilmesidir.[3] Dünya Sağlık Örgütü tarafından probiyotikler, antibiyotiklerden sonra ikinci en önemli immün savunma sistemi olarak gösterilmiştir.[4] Probiyotikler, patojenler için uygun olan konak ortamını bozarak dokular için koruyucu işlev görürler.[5]

Probiyotik olarak kullanılan en yaygın mikroorganizmalar; Bifidobacterium türleri, Lactococcus türleri, Lactobacillus türleri, Bacillus türleri, Streptococcus türleri gibi bakterilerin yanı sıra Candida türleri gibi mayalardır.[6] Bu probiyotik mikroorganizmalar yiyecek ve içecek formunda (peynir, yoğurt, süt ürünleri, dondurma, meyve suyu,sakız vb.) veya kapsül,tablet ve tozlar gibi besin takviyeleri olarak birçok formda piyasada bulunabilmektedir.[7] Probiyotik suşların sindirim sistemi, ürogenital sistem ve ağız sağlığının dengesini sağlamada kullanımı hakkında çok sayıda çalışma yapılmıştır.[8,9]

Günümüzde araştırmacılar tarafından büyük ilgi gösterilen bir konu olan insan mikrobiyomunun konak savunması,vücut fizyolojisi ve dengeli bir bağışıklık sisteminin gelişimi konusundaki rolü olduğu kanıtlanmıştır.[10] Yaşamın erken döneminde ağız boşluğunun mikrobiyal kolonizasyonu ve olgunlaşması özellikle ilgi çekicidir, çünkü yaşamın ilk 1000 günü, sağlıklı bir büyüme ve gelişmeyi teşvik etmek için pre- ve probiyotiklerle yapılan müdahaleler yoluyla mikrobiyotayı modüle etmek için bir fırsat penceresi sağlar.[11] Probiyotikler, çeşitli çocukluk hastalıkları için terapötik veya önleyici bir seçenek olarak önerilmektedir.[12]

Oral probiyotikleri içeren pastil, tablet, sakız, kapsül, gargara ve diş macunu ürünlerinin marketlerde yerini alması ile ağız ve diş sağlığını hedef alan probiyotik çalışmalar hız kazanmıştır.[13] Probiyotiklerin diş çürüğü, periodontal hastalık oluşumunu azaltma, ağız kokusunu azaltma ve Candida'nın neden olduğu oral enfeksiyonlarla savaşma etkisi vardır.[14]

Sağlık profesyonelleri probiyotik kullanımının faydalarını destekleyen birçok kanıta rağmen, hastalara probiyotikleri önerme konusunda tereddüt edebilmektedirler.[15] Litaratürde diş hekimlerinin ve diş hekimliği öğrencilerinin de dahil edildiği sağlık çalışanları üzerinde yapılan probiyotik ürünlerle ilgi bilgi düzeylerinin, görüşlerinin ve tutumlarını değerlendiren az sayıda çalışma bulunmamasına rağmen spesifik olarak çocuk diş hekimlerinin değerlendirildiği bir çalışma bulunmamaktadır.[15-18] Bu araştırmanın amacı ülkemizde çocuk diş hekimliği alanında hizmet veren diş hekimlerinin probiyotik ürünlerle ilgi bilgi düzeylerinin, görüşlerinin ve tutumlarının değerlendirilmesidir.

GEREÇ VE YÖNTEM

Çalışmamız Marmara Üniversitesi Diş Hekimliği Pedodonti Anabilim Dalı'nda gerçekleştirilmiş olup, Marmara Üniversitesi Diş Hekimliği Fakültesi Klinik Araştırmalar Etik Kurulu tarafından 2022-70 protokol numarası ile 26.05.2022 tarihinde etik olarak onaylanmıştır. Araştırmamızda çalışmaya gönüllü olarak katılacak çocuk diş hekimleri ve çocuk diş hekimliği uzmanlığı yapan araştırma görevlileri dahil edilmiştir. Araştırmacılar tarafından önceki çalışmalara dayanarak kesitsel bir araştırma geliştirilmiştir.[15-16] Çocuk diş hekimlerinin probiyotiklerle ilgili bilgi, tutum ve uygulamalarını değerlendirmeyi amaçlayan anket üç bölümde toplamda 29 soru olacak şekilde elektronik ortamda (Google forms kullanılarak) oluşturulmuştur. Hekimlere anket bağlantıları (link) elektronik yolla (e-posta) dağıtılmıştır. Gönüllü onam formu da anket bağlantısı ile birlikte elektronik ortamda gönderilmiştir.

Anketin ilk bölümü, katılımcılarının yaşı, cinsiyeti, mesleki deneyim yılı (≤5 yıl, 6-11 yıl, 12-17 yıl, 18-23 yıl ve ≥23 yıl olarak sınıflandırılmıştır), pedodonti alanındaki akademik derece (Doktora/Uzmanlık öğrencisi, PhD/ Uzman, Öğretim Üyesi, Doçent, Profesör) gibi demografik özelliklerini kapsamaktadır (4 Soru). İkinci bölüm, çocuk diş hekimlerininprobiyotiklerin tanımları ve kullanım alanlarıyla ilgili çoktan seçmeli veya doğru/ yanlış şeklinde işaretlenmeyi gerektiren bilgi sorularınıiçermektedir (15 Soru). Üçüncü bölümde ise probiyotiklerin kullanımı ile ilgili klinisyenlerin görüşlerini ve tutumlarını değerlendiren evet/hayır şeklinde işaretlenmeyi gerektiren sorular bulunmaktadır (10 Soru).

Bu çalışma için örneklem büyüklüğü 95 katılımcı olarak hesaplanmıştır (G*power version 3.1.9.6, $\alpha=0.05$, $1-\beta=0.95$, etki büyüklüğü: 0.906). Ankete katılım oranının düşük olacağı ve veri kaybının da hesaba katılacağı öngörülerek, çalışmaya 30 Haziran 2022-30 Temmuz tarihleri aralığında toplam 147 kişi davet edilmiştir ve 100 kişi anketi tamamlamıştır. Katılım oranı %68'dir.

İstatistiksel Yöntem

Toplanan verilerdeki tanımlayıcı istatistikler sayı ve yüzde olarak verilmiştir. Kategorik değişkenler arasındaki ilişkiler Ki-kare testi ile test edilmiştir. Analizlerde SPSS (Version 26.0, SPSS Inc., Chicago, IL, USA) Windows versiyon paket programı kullanılmıştır. Anlamlılık düzeyi$p<0.05$ olarak kabul edilmiştir.

BULGULAR

Uygulanan ankete 24-62 yaş aralığında 20(%20) erkek ve 80(%80)kadın toplam 100 çocuk diş hekimi veya çocuk diş hekimliği uzmanlığı yapan araştırma görevlisi katılmıştır. Çalışmaya katılan hekimlerin %44'ü Doktora/Uzmanlık öğrencisi; %27'si PhD/Uzman; %8'i doktor öğretim üyesi; %12'si doçent ve %9'u profesör ünvanına sahip hekimlerden oluşmaktaydı (Tablo 1).

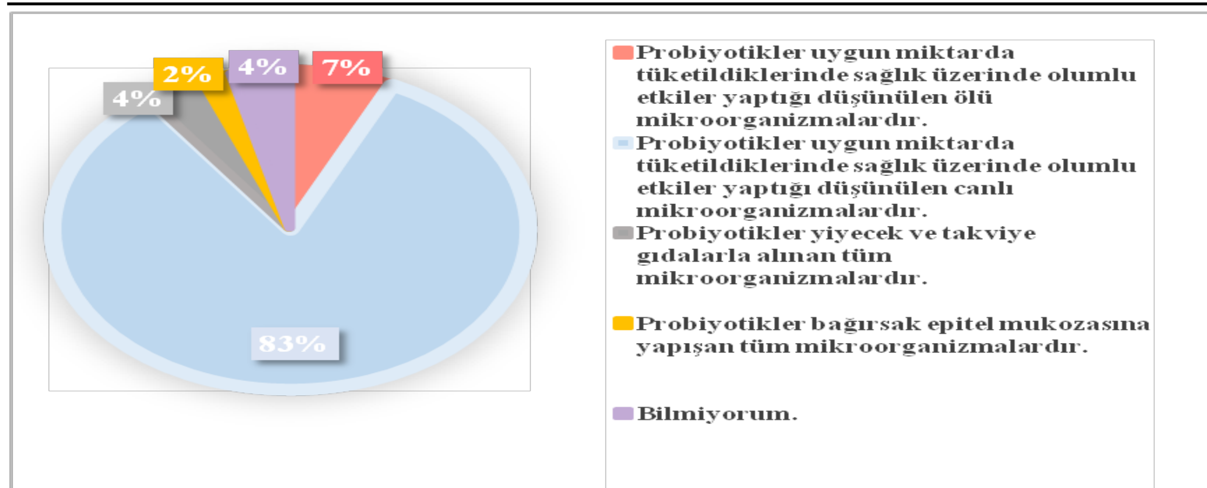
Katılımcıların %83'ü "Probiyotiklerle ilgili tanımlamalardan hangisi doğrudur?" sorusuna doğru tanımı olan "Probiyotikler uygun miktarda tüketildiklerinde sağlık üzerinde olumlu etkiler yaptığı düşünülen canlı mikroorganizmalardır" cevabını vermiştir (Şekil 1). Probiyotik olarak kullanılabilecek mikroorganizmaların sorulduğu çok seçenekli soruda en çok işaretlenen mikroorganizmalar sırası ile Lactobacillus acidophilus(%90) ve Lactobacillus rhamnosus(%76) olmuştur. Bu soruda katılımcıların yalnızca az bir kısmı (%12) probiyotik

bakterilerden biri olmayan Mycobacterium avium'u işaretlemiştir (Şekil 2).

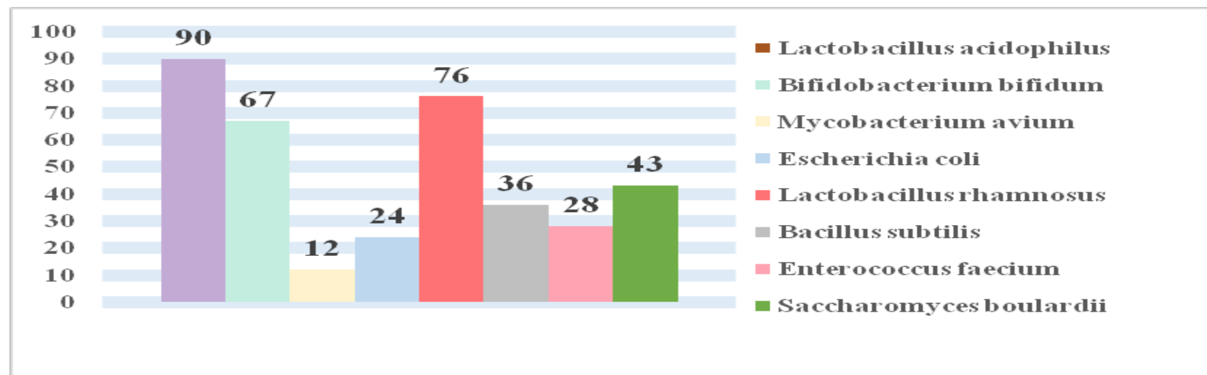
Çalışma katılımcıları, mesleki deneyim süresine göre, ≤5 yıl, 6-11 yıl, 12-17 yıl,18-23 yıl ve ≥23 yıl olmak üzere beş kategoride kategorize edilmiştir. Katılımcıların probiyotiklerle ilgili bilgi düzeyini ölçen sorulara verdikleri yanıtların mesleki deneyim sürelerine göre istatistiksel olarak karşılaştırılması Tablo 2'de verilmiştir. Katılım-

Tablo 1. Katılımcıların demografik bilgileri

		n	%
Cinsiyet	Kadın	80	80.00
	Erkek	20	20.00
Yaş	20-29	50	50.00
	30-39	24	24.00
	40-49	15	15.00
	50+	11	11.00
Mesleki deneyim süresi	≤5 yıl	42	42.00
	6-11 yıl	22	22.00
	12-17 yıl	12	12.00
	18-23 yıl	7	7.00
	≥ 23 yıl	17	17.00
Pedodonti alanındaki akademik derece	Doktora/Uzmanlık öğrencisi	44	44.00
	PhD/Uzman	27	27.00
	Öğretim Üyesi	8	8.00
	Doçent	12	12.00
	Profesör	9	9.00



Şekil 1:"Probiyotiklerle ilgili tanımlamalardan hangisi doğrudur?" anket sorusuna katılımcıların verdiği yanıtlar



Şekil 2: "Probiyotik olarak kullanılabilen mikroorganizmalar hangisi/hangileridir?" çok seçenekli anket sorusuna katılımcıların verdiği yanıtlar

cıların üçte ikisinden fazlası (%70) sadece bakterilerin probiyotik özellikler gösterebileceğini bildirmiştir. Bu soruya en fazla yanlış cevap verenler (%42.9) 18-23 yıl arası mesleki deneyime sahip hekimler olmuştur (p=0.617). Katılımcıların neredeyse tamamına yakını (%98) probiyotiklerin toz, likit, macun, jel, granül, kapsül gibi formlarda olabileceğini belirtirken bu soruya yanlış yanıt veren %2'lik kısım ≤5 yıl mesleki deneyime sahip olan hekimler olmuştur (p=0.474). "Bir mikroorganizmanın ağız probiyotiği olabilmesi için gereken temel özellikler: ağız boşluğuna yapışabilme ve kolonize olabilme yeteneğidir" sorusuna genel popülasyonun % 95'i doğru yanıt verirken; en az doğru yanıt veren grup ≥ 23 yıl mesleki deneyime sahip olan hekimler olmuştur (p=0.217). Hekimlerin nerdeyse tamamına yakını (%97) probiyotiklerin hedeflediği oral problemlerin; diş çürükleri, periodontal hastalıklar, oral kandida ve ağız kokusu olduğunu düşünmekteydiler. Hekimlerin yaklaşık yarısına (%49) yakını probiyotiklerin tüketiminin uzun aralıklarla ve kısa süreli olmalı gerektiğini belirtmiştir. Çalışmaya katılanların çok büyük bir bölümü (%87) doğum şeklinin ve antibiyotik kullanımının yenidoğan bebeklerde kommensal bağırsak probiyotik bakterilerinin kolonizasyonunda gecikme görüldüğünü düşünmekteydiler. Bu soruya verilen yanıtlarda en çok doğru yanıt veren grup ≤5 yıl (%100) ve 6-11 yıl (%81.8) mesleki deneyime sahip olan grup olmuştur ve bu fark istatistiksel olarak anlamlı bulunmuştur (p=0.001). Çalışmamıza katılan 12 yıl üstü mesleki deneyime sahip tüm hekimler; probiyotikler sağlıklı bebek ve çocuklarda pozitif sonuçlar verdiğini düşünmekteydiler (p=0.604) ve yine aynı gruptaki hekimler yüksek çürük riski gözlemlenen hastalara probiyotiklerin önerilebileceğini düşünmekteydiler (p=0.392). Probiyotikler kronik ve ciddi hastalığı olan immünsupresif çocuklarda kontraendike olduğunu düşünen katılımcı sayısı ise yarıya yakındı (%54). Diş hekimliği ve probiyotiklerin ilişkisinin değerlendirildiğinde; katılımcıların tamamına yakını (%96) çürük riski yüksek olan hastalara probiyotik önerilebileceğini belirtirken; katılımcıların yalnızca %13'ü oral hijyeni iyi olan hastalara probiyotiklerin kontraendike olduğunu bildirmiştir. Hekimlerin çok küçük bir kısmının (%7) aparey kullanan/ortodontik tedavi gören hastalarda probiyotikler kontraendike olduğunu düşündüğü bulunurken; katılımcıların %88'lik kısmının kavitasyon oluşmamış başlangıç çürüklerinin önlenmesinde oral probiyotikler etkili olduğunu düşündükleri bulunmuştur. 18-23 yıl arası mesleki deneyime sahip hekim grubu en yüksek oranla (%28.6) kavitasyon oluşmamış başlangıç çürüklerinin önlenmesinde oral probiyotikler etkisiz olduğunu düşünmekteydiler (p=0.504).

Tablo 2. Katılımcıların probiyotiklerle ilgili bilgi düzeyini ölçen sorulara verdikleri yanıtların mesleki deneyim sürelerine göre karşılaştırılması

		Mesleki deneyim süresi						
		≤5 yıl	6-11 yıl	12-17 yıl	18-23 yıl	≥ 23	P	Toplam
		n (%)	n (%)	n (%)	n (%)	n (%)		
Probiyotikler sadecebakterilerdir.	D	11(26.2)	6(27.3)	4(33.3)	4(57.1)	5(29.4)	0.617	30(30)
	Y	31(73.8)	16(72.7)	8(66.7)	3(42.9)	12(70.6)		70(70)
Probiyotikler; toz, likit, macun, jel, granül, kapsül gibi formlarda olabilir.	D	40(95.2)	22(100)	12(100)	7(100)	17(100)	0.474	98(98)
	Y	2(4.8)	0	0	0	0		2(2)
Bir mikroorganizmanın ağız probiyotiği olabilmesi için gereken temel özellikler: ağız boşluğuna yapışabilme ve kolonize olabilme yeteneğidir.	D	39(92.9)	22(100)	12(100)	7(100)	15(88.2)	0.217	95(95)
	Y	3(7.1)	0	0	0	2 (11.8)		5(5)
Diş çürükleri,periodontal hastalıklar, oral kandida, ağız kokusu; probiyotiklerin hedeflediği oral problemler arasında yer alır.	D	41(97.6)	22(100)	11(91.7)	7 (100)	16(94.1)	0.557	97(97)
	Y	1(2.4)	0	1(8.3)	0	1(5.9)		3(3)
Probiyotiklerin tüketimi uzun aralıklarla ve kısa süreli olmalıdır.	D	18(42.9)	11(50)	6(50)	4(57.1)	10(58.8)	0.828	49(49)
	Y	24(57.1)	11(50)	6(50)	3(42.9)	7(41.2)		51(51)
Sezaryen doğum, prematüre doğum ya da doğuma yakın/doğum sonrası dönemde antibiyotik tedavisi gören yenidoğanlarda kommensal bağırsak probiyotik bakterilerinin kolonizasyonunda gecikme görülür.	D	42(100)	18(81.8)	7(58.3)	5(71.4)	11(64.7)	0.001*	83(83)
	Y	0	4(18.2)	5(41.7)	2(28.6)	6(35.3)		17(17)
Probiyotikler sağlıklı bebek veçocuklarda pozitif sonuçlar verir.	D	40(95.2)	21(95.5)	12(100)	7(100)	17(100)	0.604	97(97)
	Y	2(4.8)	1(4.5)	0	0	0		3(3)
Probiyotikler kronik ve ciddi hastalığı olan immünsupresif çocuklarda kontraendikedir.	D	22(52.4)	11(50)	5(41.7)	6(85.7)	10(58.8)	0.418	54(54)
	Y	20(47.6)	11(50)	7(58.3)	1(14.3)	7(41.2)		46(46)
Yüksek çürük riski gözlemlenen hastalara probiyotikler önerilmez.	D	2(4.8)	2(9.1)	0	0	0	0.392	4(4)
	Y	40(95.2)	20(90.9)	12(100)	7(100)	17(100)		96(96)
Oral hijyeni iyi olan hastalara probiyotikler kontraendikedir.	D	2(4.8)	4(18.2)	1(8.3)	3(42.9)	3(17.6)	0.090	13(13)
	Y	40(95.2)	18(81.8)	11(91.7)	4(57.1)	14(82.4)		87(87)
Aparey kullanan/ortodontik tedavi gören hastalarda probiyotikler kontraendikedir.	D	3(7.1)	2(9.1)	1(8.3)	0	1 (5.9)	0.875	7(7)
	Y	39(92.9)	20(90.9)	11(91.7)	7(100)	16(94.1)		93(93)
Kavitasyon oluşmamış başlangıç çürüklerinin önlenmesinde oral probiyotikler etkilidir.	D	39(92.9)	20(90.9)	10(83.3)	5(71.4)	14(82.4)	0.504	88(88)
	Y	3(7.1)	2(9.1)	2(16.7)	2(28.6)	3(17.6)		12(12)

*p<0.05 düzeyinde anlamlı, Ki-kare testi, D:Doğru, Y:Yanlış

Çalışmamızdaki hekimlerin %36'sı "Probiyotiklerin kullanımı hakkında ne kadar bilgi sahibi olduğunuzu düşünmektesiniz?" sorusuna "orta düzey" cevabını verirken; %30'u iyi veya çok iyi düzey bilgi sahibi olduğunu belirtmiştir.Doktora ve Uzmanlık öğrencileri en yüksek oranlarda probiyotiklerle ilgili "iyi" veya "çok iyi" düzeyde bilgi sahibi olduklarını düşünmekteydiler (Tablo 3) (p=0.077). Katılımcıların %90'ı probiyotiklerle ilgili daha fazla bilgi edinmek istediğini belirtmiştir.

TARTIŞMA

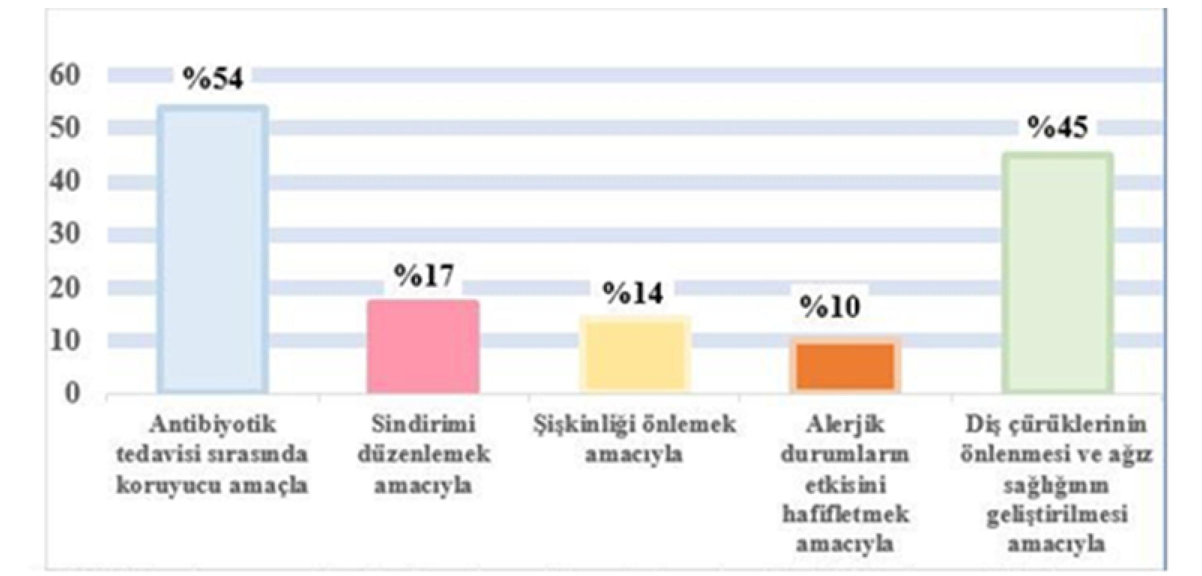
Diş çürüğü, özellikle okul çağındaki çocuklarda en yaygın olarak görülen bulaşıcı olmayan hastalıktır.[19] Beslenme, ağız hijyeni, florür maruziyeti ve karyojenik bakterilerin kolonizasyon derecesi gibi faktörler demineralizasyon ve remineralizasyon arasındaki dengeyi dinamik olarak etkiler. Bununla birlikte diş çürüklerini etkileyen spesifik mikroorganizmaların varlığı, diş çürüklerinin altında yatan mekanizmanın flora bozukluğundan kaynaklanabileceğini ve mikrobiyomun diyet içeriğine büyük ölçüde duyarlı olduğunu göstermektedir.[20] Ekolojik plak hipotezine göre S. mutans, hücre dışı polisakkarit sentezleyerek ve asidik metabolitler üreterek önemli bir karyojenik organizmayı temsil eder.[21] Benzer şekilde, birçok çalışma S. mutans varlığı ile çürük riski arasındaki ilişkiyi bildirmiştir.[22] Antibiyotiklere bağlı gastrointestinal yan etkiler bakteriyel direnç ve alerjik reaksiyonlar nedeniyle ortaya çıkan olumsuz sonuçlar dikkate alındığında probiyotikler oral sağlığı korumada alternatif bir tedavi yöntemi olabilir.[23] Litaratür incelendiğinde probiyotiklerin çocukların genel sağlığı ve ağız-diş sağlığı üzerine katkılarını inceleyen birçok çalışma [14,24,25] ve farklı sağlık çalışanlarının[15,16] probiyotikler ile ilgili bilgi düzeyini ve tutumlarını değerlendiren çalışmalar bulunmaktadır. Buna rağmen çocuk diş hekimlerinin değerlendirildiği bir çalışma bulunmamıştır. Bu çalışmada, probiyotiklerle ilgili çocuk diş hekimlerinin bilgi, görüş ve tutumları değerlendirilmiştir.

Dünya Sağlık Örgütü'nün tanımlamasına göre probiyotikler canlı mikroorganizmalardır ve uygun miktarda tüketildiklerinde konakçıya yarar sağlarlar.[1] Probiyotiklerle ilgili doğru tanımla sorusuna bizim çalışmamızın katılımcıları %83 oranında doğru yanıt vermiştir.Bizim çalışma bulgularımızla benzer şekilde, Patait ve ark.'larının[16] diş hekimliği lisansüstü öğrencileri üzerine yaptığı çalışma ve Soni ve ark.'larının[26] sağlık çalışanları

Tablo 3. Probiyotiklerin kullanımı hakkında ne kadar bilgi sahibi olduğunuzu düşünmektesiniz? sorusuna katılımcıların verdiği yanıtların mesleki deneyim seviyelerine göre değerlendirilmesi

	Doktora/Uzmanlık öğrencisi	PhD/Uzman	Öğretim Üyesi	Doçent	Profesör	Toplam	P
	n(%)	n(%)	n(%)	n(%)	n(%)	n(%)	
Probiyotiklerle ilgili bilgi sahibi değilim.	4(44.4)	5(55.6)	0	0	0	**9**	0.077
Probiyotiklerle ilgili kısıtlı bilgi sahibiyim.	12(48)	8(32)	1(4)	2(8)	2(8)	**25**	
Probiyotiklerle ilgili orta düzeyde bilgi sahibiyim.	18(50)	10(27.8)	1(2.8)	3(8.3)	4(11.1)	**36**	
Probiyotiklerle ilgili iyi düzeyde bilgi sahibiyim.	7 (30.4)	3(13)	0	5(21.7)	2(8.7)	**17**	
Probiyotiklerle ilgili çok iyi düzeyde bilgi sahibiyim.	3(42.9)	1(14.3)	0	2(28.6)	1(14.3)	**7**	

*p<0.05 düzeyinde anlamlı, Ki-kare testi



Şekil 3: "Hastalarınıza probiyotikleri hangi amaçla/amaçlarla tavsiye edersiniz?" çok seçenekli anket sorusuna katılımcıların verdiği yanıtlar

üzerine yaptığı çalışma, Oliver ve ve ark.'larının çalışmasında[27] skorlar sırasıyla %94.1, %80 ve %91 olarak gösterilmiştir. Bunların dışında sağlık çalışanı öğrenciler üzerinde yapılan başka bir çalışmada ise beslenme-diyetetik ve eczacılık fakültesi öğrencilerinin probiyotik tanımlama sorusuna verdiği doğru yanıtın diş hekimliği ve paramedik öğrencilerinden daha yüksek olduğu bildirilmiştir.[28] Ebelik ve hemşirelik öğrencileri üzerinde yapılan bir başka çalışmada ise kız öğrencilerin daha yüksek oranda doğru cevap verdiği bildirilmiştir.[29]
Probiyotik olarak bilinirliği en çok olan mikroorganizmalar Lactobacillus ve Bifidobacterium türleridir.[30] Bizim çalışmamızda katılımcıların en çok Lactobacillus acidophilus (%90), Lactobacillus rhamnosus (%76) ve Bifidobacterium (%67) türlerini probiyotik olarak tanımlamıştır. Anketimizde sorulan probiyotik özellikte tek maya türü olan Saccharomyces boulardii'nin bilinirliği %43 olarak bulunmuştur. Katılımcıların yalnızca az bir kısmı (%12) probiyotik özellik göstermeyen fırsatçı bir patojen olan Mycobacterium avium'u işaretlemiştir. Çalışma sonuçlarımızla benzer şekilde Patait ve ark.'larının[16] çalışmalarında en çok bilinen türler Lactobacillus acidophilus (%92), Bifidobacterium (% 82) ve Lactobacillus rhamnosus (%62) olarak bildirilirken Mycobacterium avium'u işaretleyenler daha düşük (%4) oranda bulunmuştur. Çalışma sonuçları incelendiğinde, sağlık çalışanlarının farklı uzmanlık alanlarına sahip olsalar bile, probiyotik mikroorganizmaların bilinirlik düzeylerinin benzer olduğu gözlenmiştir. Katılımcıların lisans eğitimlerindeki çeşitliliklerin ise probiyotik mikroorganizmaların bilinirlik düzeyini etkilemediği düşünülebilir.
Bağırsak mikrobiyota gelişimi, bebeklerin fizyolojik gelişiminin bir parçasıdır ve doğum şekli, beslenme, sağlık durumu, coğrafi bölge ve antibiyotik maruziyeti gibi faktörlerden etkilenen karmaşık bir ekosistemdir.[31,32] Bağırsakları dolduran mikroorganizmalar bağışıklık ve metabolik fonksiyona sahiptir ve enfeksiyöz hastalıklara karşı koruma sağlar.[33] Faydalı mikropların normal anne-bebek iletimini ortadan kaldıran sezaryen doğum şekli, bebek bağırsak mikrobiyotasının dengesiz bir şekilde gelişmesi ile ilişkilendirilir ve buna bağlı olarak bağışıklık ve metabolik gelişiminin bozulmasına neden olur.[34] Anne sütü ve probiyotikler, bozulmuş bağırsak mikrobiyota kolonizasyonuna sahip bebekler için özellikle önemlidir. Doğal yoldan, ilk üç ayda antibiyotik maruziyeti olmadan doğan ve anne sütü alan bebeklerde, mikrobiyom gelişiminin optimal olduğu bilinmektedir.[32] Yapılan çalışmalar erken yaşamda bozulan bağırsak kolonizasyonunun uzun vadeli sağlık risklerini taşıdığını, kronik bağışıklık hastalıkları ve aşırı kilo alma riskini artırdığını göstermektedir.[35]
"Sezaryen doğum, prematüre doğum ya da doğuma yakın/doğum sonrası dönemde antibiyotik tedavisi gören yenidoğanlarda kommensal bağırsak probiyotik bakterilerinin kolonizasyonunda gecikme görülür" ifadesini belirten katılımcıların oranı %83'tü. Bu soruya doğru cevap verme oranı katılımcıların mesleki deneyimine göre kıyaslandığında istatistiksel olarak anlamlı farklılıklar bulunmuştur. Doğru cevap oranı en yüksek olan gruplar şaşırtıcı bir şekilde 0-5 yıllık deneyime sahip olan grup (%100) ve 6-11 (%81.8) yıllık deneyime sahip olanlar olurken en düşük oran %58.3 ile 12-17 yıllık tecrübeye sahip grup olmuştur (p=0.001).
Çalışmamızda probiyotiklerin kronik ve ciddi hastalığı olan immünsupresif çocuklarda kontraendike olduğunu düşünen katılımcı oranı %54 olarak bulunmuştur. Altta yatan hastalıkları veya bağışıklık sistemi baskılanmış hastalarda probiyotik alımının etkisi hala belirsizdir.[36] Literatürde çocuklarda probiyotik ajanların neden olduğu izole ciddi enfeksiyon vakaları, özellikle yakın zamanda geçirilmiş cerrahi, malignite veya immün yetmezlik gibi konağın duyarlılığı rapor edilmiştir. Bu nedenle probiyotiklerin rolü sağlık personeli tarafından daha iyi araştırılmalı ve dikkatle yönetilmelidir.[37]
Probiyotikler, ağız boşluğunun mikrobiyal florasını değiştirmek ve başta diş çürükleri olmak üzere ağız hastalıklarını azaltmak için denenmiş ve çoğunlukla *S. mutans* türlerinin seviyelerini azaltılmasında etkili bulunmuştur.[14] Oral biyofilm oluşumu sırasında laktobasil türü probiyotiklerin güçlü bir şekilde *S. mutans'* ın büyümesini inhibe ettiği birçok çalışmada bildirilmiştir.[38] Çalışmamıza katılan çocuk diş hekimlerinin büyük bölümü (%88) kavitasyon oluşmamış başlangıç çürüklerinin önlenmesinde oral probiyotiklerin etkili olduğunu düşündükleri bulunmuştur.Birçok çalışmada probiyotiklerin kullanımının çocuklarda diş çürümesini kontrol etme konusunda olumlu bir etki oluşturdukları gösterilse de doza bağlı bir ilişki ortaya konulmamıştır, bu da sınırlı verilerin klinik uygulamayı kısıtlayabileceği anlamına gelmektedir.[14]
Bu çalışmadaki katılımcıların %36'sı kendilerini probiyotiklerin kullanımı konusunda "orta düzeyde" bilgi sahibi olarak, %24'ü ise bu konuda "iyi" veya "çok iyi" düzeyde bilgi sahibi olarak tanımlamıştır. Uluslararası sağlık çalışanları arasında yapılan bir çalışmada, katılımcıların %36.4'ü kendilerini "orta" düzeyde ve % 36.2'si ise "iyi" düzeyde bilgi sahibi olarak tanımlamıştır. Bu çalışmada, en yüksek düzeyde bilgi sahibi olduğu düşünülen grubun eczacılar ve yardımcı sağlık profesyonelleri olduğu, buna rağmen diş hekimleri ve tıp doktorlarının ikinci sırada olduğu bildirilmiştir.[15] Pediatristlere probiyotiklerle ilgili bilgidüzeylerinin sorulduğu bir başka bir çalışmada ise katılımcılar kendilerini %59.5'i "orta," %36.5'i "iyi" olaraktanımlamıştır.[39] Çalışmamızda, tüm akademik dereceler arasında doktora ve uzmanlık öğrencilerinin, probiyotiklerle ilgili olarak en yüksek oranda "iyi" (%30.4) veya "çok iyi" (%42.9) düzeyde bilgi sahibi olduklarını düşündükleri bulunmuştur (p=0.077).
Bu çalışmada kendileri için probiyotik içeren ticari ürün kullanan hekimler %92 olarak bulunurken Fijan ve ark. çalışmasında bu oran tüm hekimler için %84,2 olarak bildirilmiştir.[15] Aile hekimlerinden ve pediatristlerden hiç probiyotik ticari ürün kullanmamış olanların sayısı oldukça düşük olarak bildirilmiştir.[39]
Çalışmamızdaki çocuk diş hekimlerinin %64'ü probiyotik kullanımını hastalarına önerirken en çok önerme sebebi olarak antibiyotik sırasında koruyucu amaçla olarak bulunmuştur. Bir başka çalışmada ise probiyotik kullanımını hastalarına önerme oranı oran tıp hekimleri için %82.4 ve diş hekimleri için %83.3 olarak bildirilmiş ve bu sonuçlar bizim çalışmamıza göre yüksek bulunmuştur.[15] Altındiş ve ark.[39] çalışmalarında aile hekimlerinin %36.3'ü ve pediatristlerin %21.7'sinin hastalarına probiyotik önerdikleri bildirilirken hekimlerin en çok probiyotik önerdiği durum ilk sırada akut viral gastroenterit olurken ikinci sırada antibiyotikle ilişkili yan

etkiler olduğunu bildirmiştir.

Probiyotiklerin olası faydalarına ilişkin artan ilgi ve farkındalık, çok çeşitli formlarda mevcut ticari ürünlerin katlanarak büyümesine neden olmuştur. Çoğu gıda takviyesi olarak sınıflandırıldığından, tıbbi ürünlere göre daha az sıkı kriterleri ve kalite kontrol prosedürlerini yerine getirmek zorundadırlar. Bu sebeplerden probiyotiklerin güvenlikleri hakkında endişelere yol açmaktadır.[40,41] Diğer çalışmalarla karşılaştırıldığında ülkemizde çocuk diş hekimliği alanında hizmet vermekte olan hekimlerimizin probiyotiklerle ilgili bilgi düzeyinin değerlendirildiği sorular karşılaştırıldığında diğer ülkelerdeki diş hekimleri ve sağlık çalışanları ile benzer olduğu görülmektedir.[15,16,26] Buna rağmen çalışmaya katılan hekimlerimiz hastalarına probiyotik ürünlerin kullanımını önerme açısından diğer çalışmalardan düşük bulunmuştur.[15] Bizim çalışmamızda kendileri için daha yüksek oranda probiyotik kullanıp (%92) hastalara daha az oranda (%64) önerilmesinin nedeni probiyotiklerle ilgili kanıt düzeylerinin yeterli olmaması vedoğru endikasyonlarda doğru doz ve doğru sıklığa dairgüvenilir kılavuzların olmaması olabilir.

Ülkemizde hemşirelik gibi üniversite öğrencilerininde dahil olduğu çalışmalar ve farklı bölüm öğrencilerinin dahil edildiği çalışmalarda ise probiyotiklerle ilgili düşük ve orta bilgi düzeyi, bilinirlik ve tüketim bildirilmiştir.[29,42] Bu çalışmaların aksine üniversite öğrencilerin çoğunun probiyotik bilgi düzeylerinin iyi olduğu ve bu besinleri tükettiğini bildiren çalışmalar vardır.[17,18,26]

Bu çalışmada çocuk diş hekimlerinin probiyotikler ile ilgili bilgileri ve farkındalıkları ile mesleki deneyimleri arasında istatistiksel olarak anlamlı farklılıklar bulunamamıştır. Bu sonuç daha fazla mesleki tecrübeye sahip olan diş hekimlerinin eğitimi dönemlerinde probiyotikleri içeren bir lisans dersi almaması gibi faktörlerle ilişkilendirilebilir. Ayrıca uzun yıllar boyunca çalışmış olan deneyimli hekimler, belirli bir zamanda meydana gelen yeni gelişmeleri veya güncel araştırmaları takip etmekte zorlanabilirler. Mesleki deneyim, bazen rutin uygulamaların gölgesinde kalabilir ve probiyotikler gibi dinamik bir alanda yeni gelişmeleri öğrenme fırsatları sınırlanabilir. Buna karşılık mesleki deneyimin hekimlerin probiyotiklerle ilgili bilgilerinin ve farkındalıkları ile pozitif ilişkide olduğunu bildiren çalışma da mevcuttur.[26] Ayrıca sağlık daha fazla bilgiye ve daha yüksek bilgi puanına sahip sağlık profesyonellerinin probiyotiklere karşı daha olumlu tutuma sahip olduklarını ve bunları tavsiye etme konusunda daha iyimser olduklarını bildirilmiştir.

Çalışmamızın güçlü kısmı çocuk diş hekimlerinin probiyotiklerle ilgili bilgilerinin ve tutumlarının değerlendirildiği ve ilk çalışma olmasıdır. Ankete katılan çocuk diş hekimleri uygun örnekleme (elverişlilik) yöntemi ile çalışmaya davet edildiği ve bu nedenle katılımcıların çoğu İstanbul'dan olduğu için çalışmanın örneklemi tüm Türkiye'deki çocuk diş hekimlerinin fikrini yansıtmıyor olabilir. Bu da çalışmamızın bir limitasyonu olarak düşünülebilir.

SONUÇ

Çocukların oral sağlıklarının iyileştirilmesinde probiyotik çalışmalar hız kazanmıştır. Çocuk diş hekimlerinin de probiyotiklerinin kullanımının yaygınlaştırılmasında önemli bir basamak olduğu göz önümde bulundurulmalı ve Türkiye'de çocuk diş hekimlerinin probiyotikler ile ilgili kursların/eğitimlerin geliştirilmesi ve kullanılabilirliği konusunda bilinçlendirilmesinin gerektiği düşünülmektedir.

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Bilgilendirilmiş Onam: Yazılı hasta onamı bu çalışmaya katılan tüm katılımcılardan alınmıştır.

Hakem Değerlendirmesi: Dış bağımsız.

Yazar Katkıları: Fikir-EAŞ ve BK; Kaynaklar-EAŞ ve İG; Veri toplanması ve işlenmesi- EAŞ ve İG; Analiz ve yorum- EAŞ ve İG; Literatür taraması- EAŞ ve İG; Yazıyı yazan- EAŞ; Eleştirel inceleme- EAŞ ve BK.

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THE EFFECT OF FUTURE EXPECTATION ON HAPPINESS AND HEALTHY LIFESTYLE BELIEF IN ADOLESCENTS: A STRUCTURAL EQUALITY MODEL

ERGENLERDE GELECEK BEKLENTİSİNİN MUTLULUK VE SAĞLIKLI YAŞAM TARZI İNANCINA ETKİSİ: BİR YAPISAL EŞİTLİK MODELİ

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ABSTRACT
Objective of this study was to determine the effect of future expectations the happiness and healthy lifestyle beliefs of adolescents. Study used a quantitative-cross-sectional-descriptive survey design method and was conducted with a sample of adolescents studying in one city in the eastern region of Türkiye. Data were collected using included the "Personal Information Form", "Adolescent Future Expectations Scale", "Adolescent Happiness Scale", and the "Healthy Lifestyle Belief Scale for Adolescents". "Adolescent Future Expectations Scale", "Adolescent Happiness Scale", and the "Healthy Lifestyle Belief Scale for Adolescents". Adolescents' future expectations were found to be effective on happiness and healthy lifestyle beliefs. The established structural equation modeling showed a significant relationship between future expectations, happiness, and healthy lifestyle beliefs. The study suggests that various programs should be implemented to raise adolescents' future expectations, which could shape their beliefs about happiness and healthy lifestyles.

Keywords: Adolescent, future expectation, happiness, healthy lifestyle, nursing

ÖZ
Bu çalışmanın amacı, ergenlerde gelecek beklentisinin mutluluk ve sağlıklı yaşam tarzı inancına etkisini belirlemektir. Nicel-kesitsel-tanımlayıcı modelinin kullanıldığı çalışmanın örneklemini Türkiye'nin doğusundaki bir ilde öğrenim gören ergenler oluşturmuştur. Verilerin toplanmasında "Kişisel Bilgi Formu", "Ergen Gelecek Beklentileri Ölçeği", "Ergen Mutluluk Ölçeği" ve "Ergenler için Sağlıklı Yaşam Biçimi İnançları Ölçeği" kullanılmıştır. Ergenlerin gelecek beklentilerinin mutluluk ve sağlıklı yaşam tarzı inançları üzerinde etkili olduğu belirlenmiştir. Kurulan yapısal eşitlik modellemesinde gelecek beklentisi, mutluluk ve sağlıklı yaşam tarzı inancı arasında anlamlı bir ilişki olduğu görülmüştür. Bu çalışmadan elde edilen bulgular ergenlerin mutluluk ve sağlıklı yaşam tarzlarına ilişkin inançlarını şekillendirebilecek gelecek beklentilerini yükseltmek için çeşitli programların uygulanması gerektiğini göstermektedir.

Anahtar kelimeler: Ergen, gelecek beklentisi, mutluluk, sağlıklı yaşam tarzı, hemşirelik

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INTRODUCTION

Adolescence is a complex period that affects the adolescent's thinking and planning about adulthood and future expectations. During this period, important biological changes occur, and the sense of social responsibility increases.[1] Thinking about the future and imagining what they will do in the future affect the adolescent.[2]

Future expectancy is the likelihood of something happening in the future.[3] Having future expectations has positive psychosocial consequences in adolescents. Future expectation is an important protective factor that increases coping capacity in adolescents.[4] Future expectation influences aims and plans, thus directing behavior and development.[5] According to Catalano et al. (2004), those who have positive expectations about the future make long-term plans, have positive thoughts about their jobs, and better social and emotional adaptation abilities.[6] Furthermore, adolescents who expect a negative future are more likely to engage in problematic behaviors such as substance use, delinquency, and sexual risk behaviors.[7] This outcome can be explained by the fact that positive expectations for the future should be maintained among adolescents.

Positive expectations for the future are associated with subjective well-being and happiness in adolescents.[8] Adolescents' life decisions are related to expectations about the future, affecting many aspects of future life, including health lifestyle belief.[9] Adolescents who expect better futures are happier than adolescents with low expectations because they value themselves more, increasing the likelihood of engaging in healthy behaviors. Adolescents with low future expectations may engage in unhealthy behaviors. According to Harris et al.[10] those who are not hopeful future have decreased physical activity and exercise rates. In addition, these people are at increased risk of unhealthy eating behavior.

Previous studies have shown that future expectations are related to social adaptation, socioeconomic status of the family, parent-adolescent relationship, self-esteem, academic success, etc. and it has consequences that affect until adulthood.[6] According to Iovu et al.[5], future expectation affects mental health. Adolescents with high future expectations have positive traits such as self-confidence and hope. Therefore, they are more hopeful and happy in the stressful events.[11] According to Schmid et al.[12] being hopeful about the future has an effect on mental problems such as depression.

In this investigation, the aim was to assess the effect of future expectation on happiness and healthy lifestyle belief in adolescents.

MATERIALS AND METHODS

Design

In this study, a cross-sectional-descriptive questionnaire design was used. The design of the questionnaires was employed a quantitative approach. The study was conducted between June 02, 2023, and Sep 02, 2023.

Universe and sampling

The universe of the research consisted of all adolescents living in one city in the eastern region of Türkiye. To select the sample, public high schools in the city center were classified using a cluster sampling method. From these, three high schools were determined by a random selection method, constituting the sample. The study was completed with 1021 participants. The sample size was calculated using the Open Epi Version 3 program with a large effect size of 0.80, alpha error probability of 0.01, and power (1-β) of 0.80. The minimum sample size was determined to be 968, but we collected and analyzed 1021 data that met the inclusion criteria.

Inclusion criteria

The World Health Organization (WHO) defines individuals between the ages of 10-19 as adolescents. According to the definition adopted by the Convention on the Rights of the Child, those under the age of 18 are considered children.[13] The study involved all teenagers between the ages of 14 and 18.

Exclusion criteria

Individuals who declined to participate in the study or did not provide complete responses to the questionnaire and scale questions were excluded.

Data collection tools

The data of the study were collected by the researcher using the "Personal Information Form", the "Adolescent Future Expectations Scale", the "Adolescent Happiness Scale", and the "Healthy Lifestyle Belief Scale for Adolescents".

Personal information form

The form prepared by the researcher consists of seven questions such as the gender, age, family type, continuing grade, education status of parents and income level of the family.

Adolescent Future Expectations Scale

Adolescent Future Expectations Scale (AFES) is a scale that determines the future expectation of adolescents. It is a 7-point Likert-type scale with 25 items and four sub -dimensions. The items of the scale, which are evaluated on the lowest 1 and the highest 7 points, are in the form of "1" (I strongly do not believe) and "7" (I strongly believe). High scores obtained from the scale indicate that the future expectation of adolescents increases. A minimum score of 25 and a maximum score of 175 can be obtained from the scale. AFES was adapted into Turkish by Tuncer.[14] According to Tuncer's study[14], the Cronbach alpha internal consistency coefficient of the scale was 0.92. In this study, the Cronbach alpha internal consistency coefficient of the scale was found to be 0.89.

Adolescent Happiness Scale

Adolescent Happiness Scale (AHS) was developed by Işık and Atalay.[15] There are 15 items in AHP. There is no reverse scored item. The AHP has a single factor structure consisting of 15 items and does not have an inverse item. It is a five-point Likert type: "1" (strongly disagree), "5" (mostly agree). A minimum of 15 and a maximum of 75 points can be obtained from the scale. A high score indicates that adolescents are high in happiness. The Cronbach alpha coefficient was calculated as 0.92 in the explanatory factor analysis study and as 0.91 in the confirmatory factor analysis study. In this study, the Cronbach's alpha coefficient was found to be 0.88.

Turkish Version of the Healthy Lifestyle Belief Scale for Adolescents

Healthy Lifestyle Belief Scale for Adolescents (HLBS) by Melnyk et al.[16] developed. Akdeniz Kudubes and Bektas[17] conducted the Turkish validity and reliability study. The scale describes various aspects of maintaining a healthy lifestyle. It has a total of 16 items and three sub-dimensions. The sub-dimensions of the scale are

"health belief", "physical activity" and "nutrition". "Health Belief" sub-dimension 4, 5, 6, 11, 12, 13 and 16, "physical activity" sub-dimension 2, 7, 9, 14 and 15, "nutrition" sub-dimension 1, 3, it creates items 8 and 10. The five-point Likert scale is answered as "1" (strongly disagree), "5" (strongly agree). A minimum of 16 and a maximum of 80 points can be obtained from the scale. An increase in the score obtained from the scale indicates that adolescents' belief in healthy life increases. The Cronbach's alpha coefficient of the scale is 0.90. The factor loadings of the items vary between 0.49-0.86. In this study, the Cronbach alpha coefficient of the scale was found to be 0.90.

Data collection process

A survey form created using the "Google Forms" application was used to collect the study data. The aim is to reach more people. The Google Forms includes information about the purpose of the study, the details required for participation and the necessity of parental consent. In this way, the participants were informed. It was stated that both parental and adolescent consent was required to start the study and that they could participate in the study after receiving confirmation that they were approved. At the time of data collection, participants did not ask for personal data. Data were obtained from people who participated in the online survey in accordance with data privacy principles. To ensure data integrity and prevent multiple responses, the questionnaire was designed to allow each participant to fill it out only once. Survey responses were stored anonymously, and the data was securely stored in Google Forms.

Statistical analyses

Data were analyzed with the Statistical Package for the Social Sciences-SPSS (Version 23, Chicago IL, USA) program. It was determined whether the data were suitable for normal distribution ($p>0.05$).[18] Descriptive statistics were used for sociodemographic and categorical variables. Kruskal Wallis-H test, independent-sample t-test, and Mann-Whitney-U test were used to evaluate the difference in scale scores depending on sociodemographic characteristics. The Games-Howell test was conducted to examine pair wise comparisons between the three and more than three variables. The Games-Howell test proved to be a valuable tool in this study, accommodating the unequal sample sizes and variances across groups. Its ability to provide accurate post hoc comparisons in situations where assumptions of equal variances and sample sizes are violated enhances the robustness of the study's conclusions. Correlation analysis was relationship to determine the sociodemographic characteristics with scale scores. In addition, analyses included path analysis and structural equation modeling (SEM) conducted using the AMOS 23 (IBM Corp., Armonk, NY, USA) package program.

Ethical approval

Research and Publication Ethics Committee of a University (Date: 15.11.2022, No: E.85072). Official permission was also obtained from the Directorate of National Education (Date: 02.06.2023, No: 110102). In this research, ethical rules were followed throughout the process. Data were collected on a voluntary basis. Confidentiality of the participants was given importance. The research was completed in line with the ethical principles of the Declaration of Helsinki.

RESULTS

In this study, 50.5% of the participants were female and 72.2% were in the nuclear family structure, 42.8% of their mothers were primary school graduates and 35.7% of their fathers were secondary school graduates, and 74.4% of them had moderate income. The mean age of the adolescents was found to be 15.8±2.1 (Table 1).

The difference between AHS and HLBS total scores by gender was statistically significant ($p<0.05$; Table 1). Although there was no difference between male and female adolescents in terms of AFES total scores, the difference in AFES "work and educational attainment", "the community via sports and faith community", and "leadership expectations" sub-dimensions was found statistically significant ($p<0.05$; Table 1). Comparing adolescents, by family type, found no significant difference in any of the scales based on the total score of the scale. However, the difference in AFES "leadership expectations", HLBS "physical activity" and HLBS "nutrition" sub-dimensions was found to be statistically significant ($p<0.05$; Table 1).When the mean scores of the scales were compared according to the education status of the mother and father, in the mothers' AHS total scores, HLBS "physical activity" and HLBS "nutrition" sub-dimensions and HLBS total scores; the difference in AFES "health belief", HLBS "physical activity" sub-dimensions, AHS total scores and HLBS total scores in fathers was found to be statistically significant ($p<0.05$; Table 1). It was found that the increase in the income level of the adolescent in the family had a significant effect on the scores obtained from the AFES "work and education attainment", "the community via sports and faith community", "leadership expectations" sub-dimensions, the AHS total score, and the means obtained from the HLBS total and all sub-dimensions ($p<0.05$; Table 1). As a result of the conducted correlation analysis, it was determined that there was a positive correlation between of AFES total score and AHS total score, and HLBS total score ($p<0.05$; Table 2).

In the data analysis, firstly, the measurement models of the dimensions were evaluated. It was determined that the fit values in the measurement models were within the desired limits. The fit index values of the measurement model were CMIN/DF=2.503; RMSEA=0.091; GFI=0.964 was found. All path coefficients were found to be statistically significant. The non-standardized analysis results of all path coefficients obtained are shown in Table 3. The constructed structural model was found to be compatible, and the model fit index value was within the desired range. The pathways coefficients among all scales were considered statistically significant ($\beta=11.313$, $p<0.001$; $\beta=25.979$, $p<0.001$; $\beta=59.92$, $p<0.001$) (Figure 1; Table 3).

DISCUSSION

The individual's future expectation depends on his relationships with other people (family members or friends, etc.). Supportive and trusting interaction increases hope for the future. There are many factors that affect the future expectation in adolescents. These are gender, economic, demographic parameters, academic parameters, and social factors.[19]

Gender is a demographic factor in determining future

Table 1. Comparison of the Mean Scores of Students From AFES, AHS and HLBS According to Some Demographic Characteristics.

Some demographic characteristics of the participants	n	%	AFES-1 Work and educational attainment Mean±SD	AFES-2 Expectations for marrying and having children Mean±SD	AFES-3 Participation in the community via sports and faith community Mean±SD	AFES-4 Leadership expectations Mean±SD	AFES Total Mean±SD	AHS Total Mean±SD	HLBS-1 Health belief Mean±SD	HLBS-2 Physical activity Mean±SD	HLBS-3 Nutrition Mean±SD	HLBS Total Mean±SD
Gender												
Male	505	49.5	40.6±12.2	30.4±8.0	11.5±3.6	15.2±4.8	100.1±22.6	36.2±11.8	14.4±4.6	12.8±4.0	8.8±3.3	38.9±0.8
Female	516	50.5	44.0±13.1	30.3±8.6	12.5±3.8	16.3±5.0	101.0±23.8	38.8±14.4	14.8±5.9	12.7±4.8	9.4±4.2	39.9±14.5
Test value			t*=2.862 p=**0.000**	t*=2.008 p=0.786	t*=1.426 p=**0.000**	t*=0.837 p=**0.000**	t*=0.102 p=0.554	t*=22.178 p=**0.002**	t*=33.718 p=0.235	t*=16.449 p=0.899	t*=31.731 p=**0.018**	t*=40.094 p=0.209
Family Type												
Nuclear family	737	72.2	41.8±12.4	30.6±8.5	12.1±3.8	15.6±5.0	100.3±22.9	37.1±14.5	14.7±5.2	13.0±4.4	9.3±3.8	38.3±13.5
Extended family (grandparents. etc.)	284	27.8	43.9±13.7	29.9±8.1	11.9±5.0	16.3±4.8	101.4±24.0	37.7±12.8	14.5±5.7	12.2±4.5	8.8±3.8	39.9±12.5
Test value			Z**=-2.15 p=0.031	Z**=-0.77 p=0.441	Z**=-0.580 p=0.056	Z**=-2.183 p=**0.029**	Z**=-1.061 p=0.289	Z**=-1.152 p=0.249	Z**=-0.580 p=0.562	Z**=-2.241 p=**0.025**	Z**=-2.268 p=**0.023**	Z**=-1.153 p=0.125
Academic success												
Good[1]	278	26.7	43.0±13.3	30.3±8.3	12.2±3.5	16.0±4.8	101.4±25.0	37.8±12.5	14.8±5.5	12.8±4.1	9.3±3.9	38.9±11.6
Moderate[2]	419	40.2	43.3±15.5	30.7±8.3	12.3±3.9	15.7±5.1	100.0±21.2	37.6±14.4	14.8±5.5	12.8±4.7	9.3±4.1	39.8±13.8
Bad[3]	345	33.1	41.0±12.4	30.0±8.3	11.5±3.7	15.5±4.8	100.3±23.5	37.2±12.7	14.3±4.9	12.6±4.4	8.9±3.4	36.6±13.4
Test value			X***=8.020 p=**0.018** 2>1=3	X***=1.836 p=0.399	X***=9.455 p=**0.009** 1=2>3	X***=1.089 p=0.580	X***=0.788 p=0.674	X***=0.462 p=0.794	X***=1.338 p=0.512	X***=0.675 p=0.714	X***=1.281 p=0.527	X***=0.877 p=0.645
Mothers' education status												
No education[1]	212	20.8	42.1±13.3	29.0±7.5	11.6±3.7	16.6±4.8	101.0±23.7	36.3±13.8	14.3±5.4	12.2±4.3	8.9±3.7	38.2±13.0
Primary school[2]	437	42.8	42.9±12.9	30.7±8.3	12.1±3.7	15.9±4.8	100.5±23.3	36.1±12.7	14.2±5.2	12.5±4.5	8.9±3.8	38.5±13.0
Secondary school[3]	240	23.5	42.4±12.4	30.9±8.3	11.9±3.7	15.8±5.2	100.6±24.4	39.5±13.1	15.2±5.1	13.4±4.3	9.6±3.9	41.0±12.1
University[4]	132	12.9	41.4±12.5	30.4±9.4	12.4±3.9	14.9±5.1	100.4±21.3	39.6±13.2	15.2±5.1	13.4±4.3	9.3±3.9	41.2±12.5
Test value			X***=1.021 p=0.907	X***=7.618 p=0.107	X***=5.859 p=0.210	X***=4.368 p=0.358	X***=1.022 p=0.906	X***=14.821 p=**0.005** 3=4>1=2	X***=9.740 p=**0.045** 3=4>1=2	X***=16.254 p=**0.003** 3=4>1=2	X***=6.142 p=0.189	X***=16.064 p=**0.003** 3=4>1=2
Fathers' education status												
No education[1]	48	4.7	42.2±13.9	29.9±8.4	12.8±3.7	15.9±4.9	104.2±28.0	38.5±15.9	15.1±6.3	12.6±5.4	9.3±4.2	39.5±15.9
Primary school[2]	359	35.2	42.8±12.8	30.1±8.1	12.0±3.6	16.4±4.5	99.1±22.8	35.5±13.0	14.1±5.5	12.2±4.6	8.8±3.8	37.9±13.6
Secondary school[3]	365	35.7	42.6±12.7	30.6±7.9	11.7±3.6	15.0±4.9	102.0±23.4	38.1±13.2	14.7±4.9	12.7±4.1	9.2±3.7	39.6±11.7
University[4]	249	24.4	40.9±12.3	30.4±9.2	12.1±4.0	15.7±4.8	100.2±23.0	39.1±12.7	15.0±5.2	13.5±4.3	9.3±3.9	40.8±12.4
Test value			X***=4.604 p=0.330	X***=0.686 p=0.953	X***=5.241 p=0.263	X***=18.283 p=0.741	X***=5.538 p=0.236	X***=11.499 p=**0.021** 4>1=3>2	X***=6.394 p=0.172	X***=14.579 p=**0.006** 4>1=3>2	X***=3.969 p=0.410	X***=11.158 p=**0.025** 4>1=3>2
Income												
Low[1]	225	22.0	41.4±12.5	30.2±8.3	11.7±3.6	15.0±6.8	100.1±23.2	36.3±12.6	14.3±5.0	12.6±4.3	8.9±3.6	38.7±12.3
Moderate[2]	759	74.4	44.7±13.1	30.8±8.3	12.9±3.7	15.5±4.8	100.6±23.0	39.3±13.2	15.2±5.8	12.9±4.7	9.4±4.1	40.6±13.8
High[3]	37	3.6	45.7±14.4	31.6±9.6	13.0±4.9	16.7±4.9	101.4±26.6	50.7±18.1	17.4±5.9	15.5±4.4	10.5±4.0	46.7±13.6
Test value			X***=14.411 p=**0.001** 3>2>1	X***=1.498 p=0.473	X***=23.116 p=**0.000** 3>2>1	X***=9.705 p=**0.008** 3>1=2	X***=0.050 p=0.975	X***=28.851 p=**0.000** 3>1=2	X***=9.883 p=**0.007** 3>2>1	X***=14.377 p=**0.001** 3>1=2	X***=6.889 p=**0.032** 3>2>1	X***=13.753 p=**0.001** 3>2>1

*Student t test, **Mann-Whitney-U test, ***Kruskal Wallis-H test, AFES: Adolescent Future Expectations Scale, AHS: Adolescent Happiness Scale, HLBS: Healthy Lifestyle Belief Scale for Adolescents, Min.: Minimum, Max.: Maximum, SD: Standard deviation.

Table 2. The Relationship Between Total Mean Scores From AFES, AHS, and HLBS.

Scale	r	p
AFES Total<-> AHS Total	0.586ⱡ	0.017
HLBS Total<-> AHS Total	0.640†	0.000
AFES Total<-> HLBS Total	0.417¥	0.026

ⱡModerate positive association and correlation is significant at the 0.01 level, †Strong positive association and correlation are significant at the 0.01 level, ¥Weak positive association and correlation are significant at the 0.01 level, r: Pearson correlation, AFES: Adolescent Future Expectations Scale, AHS: Adolescent Happiness Scale, HLBS: Healthy Lifestyle Belief Scale for Adolescents.

Table 3. Fit indices of the Structural Equation Model.

Scale			β1	β2	SE	Test values	p
HLBS	<-->	AFES	12.215	11.313	1.301	8.694	<0.001
AHS	<-->	HLBS	26.412	25.979	1.885	13.783	<0.001
AHS	<-->	AFES	61.125	59.92	5.14	11.657	<0.001

β1: Standard coefficient, β2: Non-standardized coefficient, SE: Standard error, AFES: Adolescent Future Expectations Scale, AHS: Adolescent Happiness Scale, HLBS: Healthy Lifestyle Belief Scale for Adolescents.

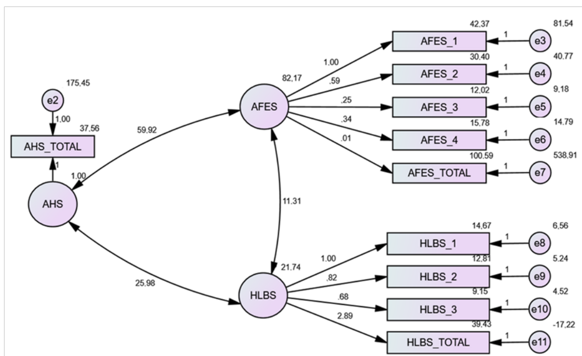

Figure 1: Standardized Path Coefficients
CMIN: Chi-square fit statistics, DF: Degree of freedom, RMSEA: Root mean square error of approximation, CFI: Comparative fit index, AFES: Adolescent Future Expectations Scale, AHS: Adolescent Happiness Scale, HLBS: Healthy Lifestyle Belief Scale for Adolescents.

expectations and quality of life. There are various findings about this in the literature. According to Silverman et al.[20] that girls worry more than boys. Brown et al.[21] reported that girls have more positive future expectations than boys. Adolescents' thoughts such as hope and happiness affect their future expectations positively.[22] In this study, female adolescents' future expectations were found to be lower. According to Kim and Kim[23] that adolescents with low future expectations have an unhealthy lifestyle. It was found to male adolescents with lower scores on AFES, including sub-dimension means, had lower mean HLBS scores. Further research should be done to investigate the reveal whether future expectation is associated with traditional gender roles.[21]
The development of an individual's future expectations is dynamically linked to his or her relationships with significant others (e.g. family members or friends). Adolescents' perception of warm, supportive, and reliable interactions between themselves and their parents provides models of positive behaviors that youth later incorporate into their own self-concepts, which in turn informs their hopes for the future.[24] Dubow, Arnett, Smith, and Ippolito[25] concluded that parental support predicted increases in positive future expectations in a sample of disadvantaged inner-youth. Ryan, and Pryor[26] found that a higher level of family connectedness was associated with adolescent well-being, including future orientation. In this study, AFES in adolescents living in extended family type "leadership expectations" sub-dimension mean scores were found to be higher. These results suggest that strong family relationships increase adolescents' positive perceptions of the future.
Previous research has shown that academic success is associated with future expectation. As the success of the course increases, the future expectation also increases. Cuhadar et al.[27] have been reported that the academic success of high school students is significantly different from their future expectations. Chykina[28] reported that perceived academic success is associated with future expectation. In addition, it has been suggested that future expectation increases academic success. It has conclusively been shown that adolescents with low academic performance scored low on all scales. A difference was found between AFES "work and education attainment", "the community via sports and faith community" sub-dimension means. These differences were statistically significant. The findings from this study compatible to the current literature.
The educational status of parents is directly linked to living standards.[19] According to Tuncer[29] that there was no significant difference between the education status of parents and the future expectations of the adolescents. Baumann et al.[30] have been reported that the level of education status is effective in the quality of life of adolescents. It has been reported that the future expectation of adolescents whose parental education status is below the university is affected. It was found to the level of parental education status did not affect the adolescent's future expectation. However, it was found to that adolescent whose parents were university degree had high means in all AFES sub-dimensions. There was a difference between the mean scores in terms of AHS and HLBS total scores. The evidence from this study suggests that the increase in the education status of the parents positively affects the happiness and healthy lifestyle beliefs in adolescents.
It has been reported that future expectations with male adolescents in neighborhoods with poor families were found to be negative. In addition, it was reported that adolescents thought of themselves as disadvantaged people. As a result, negative thinks about the future occur.[31] It has been reported that African-American and Latino low income youth adolescents hopelessness about the future.[32] Not to be of future expectation makes negative behaviors common among adolescents. Stress and hopelessness reason to alcohol, substance use, and addiction.[33] In this study, adolescents were found living in low-income families had lower scores on AFES "work and education attainment", "the community via sports and faith community", "leadership expectations" sub-

dimensions, AHS total score, HLBS total and all subdimensions. Low income is thought to cause unhappiness. This is critical because it directly affects the accuracy of future expectation and belief in a healthy lifestyle. The findings from this study compatible to the current literature.

CONCLUSIONS

We have shown that adolescents' future expectations are associated with hope and healthy lifestyle beliefs. These results are consistent with those of other studies and suggest that adolescents' future expectation, healthy life belief and health status are interrelated. More research is needed to better understand when examine the factors that shape the future expectations of adolescents. Policies should be designed to help build positive future expectations in adolescence period.

In future, studies can be designed to include multiple centers, include a pre-/post-test for knowledge and future expectations of adolescents can be examined with in-depth interview techniques.

There are some limitations to this study. These results of the study can only be generalized to the study population. The sample was taken from one city, not all adolescents can be represented. Our cross-sectional design does not allow us to test for causal relationships. In addition, the research was conducted in one center.

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A REVIEW ON HEALTHCARE QUALITY INDICATORS AND UNEXPECTED EVENTS APPROACHES IN GERMANY AND TÜRKİYE
ALMANYA VE TÜRKİYE'DE SAĞLIKTA KALİTE İNDİKATÖRLERİ VE BEKLENMEYEN OLAY YAKLAŞIMLARI ÜZERİNE BİR DERLEME

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ABSTRACT
Evaluation of quality studies in order to ensure patient safety is possible by measuring quality. "Quality Indicators" are used for this. In order to determine indicators and for realistic measurements, detecting and reporting unexpected events that have arisen on the basis of these indicators reveal invaluable results for the development of health systems. Germany, which is a developed country and a member of the European Union, and Türkiye, which is a developing country on the way to the European Union, were compared in the focus of quality indicators and unexpected events in focus of "Quality Practices in Healthcare" in study. It is aimed to recognize the Quality of Health Care as a result of comparative evaluation, to discuss the positive and negative aspects of the two countries' quality indicators and their approaches to unexpected events, and to suggest alternative methods for application updates. In conclusion; In Germany, the Quality Program can be defined as a "Data-Based Quality Program with Wide Participation". Hospitals are encouraged for Unexpected Event Notifications in Germany, they are directed towards quality, and quality competition which created in healthcare services. However, when the payments and financial concerns are taken into consideration, it is felt that this competition cannot be achieved only by publishing the quality indicators to the public. Although a very good level has been achieved in the system that will enable the use of quality indicators in Türkiye, there are problems in unexpected event notification, use of quality indicators and sharing of results.

Keywords: Health care quality, health care quality indicators, unexpected event

ÖZ
Hasta güvenliğini sağlamak amacıyla kalite çalışmalarının değerlendirilmesi kalitenin ölçülmesi ile mümkün olmaktadır. Kalitenin ölçülmesi için "Kalite İndikatörleri" kullanılmaktadır. Kalite indikatörlerinin belirlenmesi ve gerçekçi ölçümlerin yapılabilmesi için ise bu indikatörler temelinde ortaya çıkmış olan beklenmeyen olayların tespit edilmesi ve bildirilmesi neticesinde kalitenin ölçülmesinin mümkün hale gelmesi sağlık sistemlerinin geliştirilmesi için çok değerli sonuçlar ortaya koymaktadır. Bu çalışmada "Sağlıkta Kalite Uygulamaları" kalite indikatörleri ve beklenmeyen olaylar odağında, Avrupa Birliği üyesi ve gelişmiş ülke konumundaki Almanya ile Avrupa Birliği yolunda ilerleyen ve gelişmekte olan bir ülke konumundaki Türkiye karşılaştırılmıştır. Çalışmada Sağlıkta Kalite Uygulamalarının karşılaştırmalı değerlendirme neticesinde tanınması, iki ülkenin kalite indikatörleri ve beklenmeyen olaylara yaklaşımlarının olumlu ve olumsuz yönlerinin tartışılması ve uygulama güncellemeleri için alternatif olabilecek yöntemler önerilmesi amaçlanmıştır. Sonuç olarak; Almanya'da Kalite Programı "Geniş Katılımlı Veri Temelli Kalite Programı" olarak tanımlanabilir. Almanya'da Beklenmeyen Olay Bildirimleri için hastaneler özendirilmekte, kaliteye yöneltilmekte, sağlık hizmetinde kalite rekabeti oluşturulmaktadır. Ancak ödemeler ve finansal kaygılar göz önüne alındığında bu rekabetin sadece kalite göstergelerinin halka ulaştırılmasıyla sağlanamayacağı hissedilmektedir. Türkiye'de kalite indikatörlerinin kullanılmasını sağlayacak sistemde çok iyi bir seviye yakalanmış olmasına rağmen beklenmeyen olay bildirimi, kalite indikatörlerinin işletilmesi ve sonuçların paylaşılması hususlarında aksaklıklar hissedilmektedir.

Anahtar kelimeler: Sağlıkta kalite, sağlıkta kalite indikatörleri, beklenmeyen olay

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INTRODUCTION

One of the most important focuses of quality management in health services is patient safety and medical errors. In order to ensure safety, it is necessary to prevent medical errors and ensure patient safety by continuously evaluating the structure, process and output based on the understanding of "To Err is Human".

Quality and patient safety issues are a universal reality of healthcare delivery. Every year, an estimated 15,000 to 35,000 in-hospital deaths occur as a result of medical error in USA. Despise trends of quality and safety are reported frequently at level of national or international as cost and error, understanding relationship and challenges of quality and safety is more important and more obligatory.[1]

Patient safety can be defined as "protection from unintentional and preventable injuries caused by medical care," and it has been a critical component of the healthcare system and quality for a long time. However, data suggest that patient safety behaviors can be taught and improved in terms of medical professionals and teams. But same data has shown that these behaviors can be forgotten in one year as well. According to recent researches, consolidating patient safety improvement through instilling a patient safety culture among hospital healthcare professionals as well as enhancing an organizational culture focused on learning from mistakes and avoiding a blame culture is critical.[2]The level of healthcare quality is critically dependent on patient safety. To consistently improve the level of care, health organizations need to improve own safety cultures.[3] Patient safety culture, as defined by the Joint Commission, is "the product of individual and group beliefs, values, attitudes, perceptions, competencies and patterns of behavior that determine the organization's commitment to quality and patient safety".[2]

Evaluation of quality processes in order to ensure patient safety is possible by measuring quality. Although the measurement of quality varies from country to country, health systems, reimbursement systems, service delivery steps and structure of demographic also shape "Quality Indicators" in healthcare area. In order to determine the quality indicators and to make realistic measurements, it is possible to measure the quality as a result of detecting and reporting the unexpected events that have arisen on the basis of these indicators, revealing very valuable results for the development of health systems.

In patient care, critical incidents (CIs) are unexpected events that may reach patients and thus threaten "Patient Safety". Therefore, unexpected events are important to report .Instead of blaming culture, Critic Incidents Reporting System (CIRS) is the most process for safety culture. CIRS data provides an overview of the characteristics of reported incidents, their contributing factors, their consequences, and their actions taken to prevent future incidents.[4]

In this study, Germany, which is a member of the European Union and a developed country, and Türkiye, which is a developing country on the way to the European Union, were compared in the focus of quality indicators and unexpected events in "Quality Practices in Healthcare", which vary according to health policies and health systems. We aimed to recognize the Quality of Healthcare as a result of comparative evaluation, to discuss the positive and negative aspects of the two countries' healthcare quality indicators and their approaches to unexpected events in health practices and to suggest alternative methods for application updates for healthcare quality indicators by comparison.

MATERIAL AND METHOD

In this study, we examined the data that have been reported and reached in the last 20 years by OECD, federal and national statistic corporations and health service providers and obtained from scientific studies on this subject. In addition, the literature and the publications of governmental and non-governmental organizations on the healthcare quality were examined, thus a compilation study focused on quality indicators and unexpected events in healthcare services.

We used OECD Health Data and filtered for only Healthcare Quality Indicators shared by Germany and Türkiye. We considered the data that was fully shared by both countries, which would give us an idea about information sharing on Healthcare Quality Indicators. Moreover, our motivation for selecting the data and selection details was explained in the section which was compared the two countries.

Although the most important priority in the provision of healthcare services is to provide healthcare services without harming to patients, it is a fact that patients expose to many adverse events during healthcare in health centers. These events should not be ignored, should be recorded, measured, analyzed and fixed.

It is undeniable that the first step of a safe health service delivery is the creation of a leadership and patient safety culture. But patient safety doesn't just mean reducing medical errors.

RESULTS

Quality of healthcare

According to World Health Organization (WHO) "Quality of Healthcare" is to increase the probability of improving healthcare services to the desired level for individuals and communities. This must be based on absolutely evidence-based knowledge.[5]

While US National Academy of Sciences Institute of Medicine defines the quality of healthcare as "safety, effectiveness, patient-centeredness, timeliness, efficiency and equity", US Agency for Healthcare Research and Quality defines it as "doing the right thing at the right time, with the right method, to achieve the best possible outcome for the right patient".[6]

Quality indicators

Quality is a phenomenon that is evaluated qualitatively but expressed quantitatively. It can be analyzed and evaluated using specified quality indicators. Quality Indicators are one of the tools used to monitor and control the effectiveness of the quality management system on the basis of "accurate measurement and continuous quality improvement".[7] Healthcare Quality Indicators serve for users such as patients, service providers and health policy makers to make decisions based on the quality of care. Single indicators measure quality from specific aspects, whereas measuring quality as a whole requires a multidisciplinary study and the creation of indicator sets.[8]

Unexpected Event (Sentinel Event)

The most serious medical errors to be reported in the field of patient safety are unexpected events. When we look at the accreditation criteria developed by Joint Commission International (JCI) for hospitals, it is seen that the unexpected event (sentinel event) is related to many standards of the "Quality and Patient Safety" section, and there are many measurable standards that directly cover the unexpected events in this section. According to JCI, the central management should have a process for identifying and managing sentinel, adverse, non-hazardous and near miss events to deal with system problems that could cause harm to patients, staf for visitors in health care centers. s. It is important to focus on system-level factors that contribute to the development of the event rather than on individual error.[9]

It is the fact that; despite the principle of "Primum Non Nocere (First Do No Harm) in medicine, healthcare professionals know that events that cause harm to the patients occur every day in healthcare providers. These events should not be ignored, they should be recorded, measured, analyzed and fixed.[10]

Unexpected events, that are critical incidents in patient care, are related in quality of medical care, because of threatening patient safety. By allowing reporting and analysis of such events, critical incident reporting systems are expected to induce organizational learning from these events and near misses to improve the safety of healthcare organizations before a sentinel event happens.[4] "Incident Reporting In Healthcare" refers to collecting health care incident data with the aim of improving quality of patient safety. Standardization and reporting are the main challenges in quality improvements.[4,11] This occurs due to the fear of legal ramifications, blame, shame or guilty of punishments, lack of time for reporting, loosing of details with time and as a result of not having an easy reporting system. It is recommended to implement comprehensive Reporting System in health services in all developing countries in order to drive good medical practice and to ensure patient safety and the quality of care. This should begin with the development of an incident reporting policy for each county and upper hand has to be taken centrally by establishing quality governance unit at the Ministry of Health.[11]

We should know that; Though Donabedian establish own quality theory as "Structure, Process and Outcome", he defined high quality of healthcare as remaining of "well-being of patients" after taking into account whole income and other expenses.[12] Express of "well-being of patients" has been used for emphasizing on not only healthiness situation but also patient safety.

Germany's Approach to Quality of Healthcare Based on Quality Indicators and Unexpected Events

System of healthcare quality in Germany as a European Union member

The European Union (EU) referred to the modern, sensitive and sustainable health system by addressing the issue of "Quality in Health" in order to increase the effectiveness of investing in health in the member states council meeting held for the first time in 2011 under the leadership of Hungary. As a result of this guidance, member states agreed in 2014 that they could play a greater role in healthcare services and investing by improving knowledge on how to measure and evaluate the performance of the health system. They founded the "Group of Experts" aiming to develop the "Health System Performance Evaluation". Group of Experts started to work openly to all EU member countries, European Free Trade Association (EFTA) countries consisting of Iceland, Liechtenstein and Norway, OECD, WHO European Regional Office and the European Observatory of Health Systems and Policies. This expert group allowed each country to present the health care quality system adopted according to its own experience, rather than attempting a unique definition and study of health care quality in EU member states. However, he wanted each country to adopt the general health service quality study and measurement methods of OECD countries as a reference point within the framework of their own experiences.[13] As a result of this process, the UN reached the following conclusions;

Quality Indicators do not measure quality, they show whether the service delivery is high, sufficient or insufficient quality. This express requires quality indicators to be understood in a broad context and means that no single indicator should be evaluated on its own.

1. Process indicators and result (output) indicators must be evaluated together.
2. The use of old data may reduce the explanatory power and the period of the data should be in intervals that allow comparison.
3. Data must be based on health information system.

Eventually, EU accepted definition of quality, which was developed by Donabedian (1919-2000) and accepted by the OECD, consisting of "Structure, Process and Output" components. In the report prepared by the "Expert Group" for the European Union, as the quality components in the structure that should be taken as a basis within the scope of the "Health System Performance Evaluation"; Effectiveness, Safety, Responsiveness, Patient Centeredness, Accessibility, Efficiency and Equity were accepted. The structure simplified by the OECD with six dimensions as Effectiveness, Efficiency, Accessibility, Patient-Centered, Safety and Equity has been widely accepted in EU countries (Figure 1).

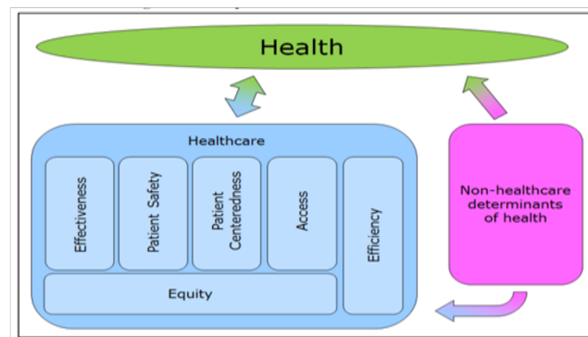


Figure 1: Simplified Form of the OECD Health Services Performance Evaluation Structure.[13]

In member countries, quality standards have been used for different purposes, and Germany initially used quality standards to investigate and prevent undesirable results by establishing and following some diagnosis-related hospital reimbursement plans. In Germany, doctors, dentists, hospitals and the "Federal Joint Committee", which is the most important decision-making body

of the health reimbursement system and supervised by the Federal Ministry of Health, 1clearly did not accept the use of the quality model in all its details.

The German Federal Joint Committee limited the efficiency and equity dimensions of the 6 dimensions in the concept of Donabedian.[8] Therefore, the equality dimension in Germany is considered outside the working area of the Federal Joint Committee. It may also mean that Quality Indicators are evaluated by the Federal Joint Committee only as the main components of "Structure, Process and Output". Germany is an example that keeps its Quality Indicators constant in order to make time-dependent comparisons among EU, but makes updates over time according to newly developing clinical and diagnostic situations.

Unique Quality indicators and unexpected event approaches in healthcare for Germany

Germany has focused more on improving the quality of health services with its recent laws such as the "Law for Further Improvement of Quality in Financial Structures and Statutory Health Insurance" in 2014 and the "Law on Strengthening of Health Services" in 2015.[14]

In Germany, "Association of the Scientific Medical Societies in Germany" (Arbeitsgemeinschaft der Wissenschaftlichen Medizinischen Fachgesellschaften-AWMF), "German Medical Association" (Bundesärztekammer-BÄK) and "National Association of Statutory Health Insurance Physicians" (Kassenärztliche Bundesvereinig-KBV) are working together for publishing National Care Guide (Nationale Versorgungsleitlinien-NVL). This guide is especially aimed at increasing the quality of treatment of diseases such as asthma, diabetes, Chronic Obstructive Pulmonary Disease, Congestive Heart Failure. AWMF publishes the "Oncology Guide Program'' working with the "German Cancer Aid Association", to improve the quality of cancer treatment.[15]Furthermore, there are "Disease Management Programs", which are submitted by the studies from AWMF together with other scientific and medical professional organizations for other chronic diseases and different patient care activities. These programs contend demands and studies that will play a role in improving the quality of care and treatment for each disease group.

The AWMF is represent for 182 medical occupational association and KBV is represent for almost 185,000 medical workers such as physicians, experts, dentists etc. in 2023. In Germany AWMF and KBV are the most important and comprehensive occupational associations represented in Federal Joint Committee (FJC).

FJC (Gemeinsamer Bundesausschuss, G-BA), was founded according to modernization law in health in 2004, control federal and state self-governing partners according to laws and account to Federal Health Ministry (Figure 2).[16]

FJC (G-BA) determine and conduct requirement of hospital education and expertism education of medical personnel such as physicians, dentists and nurses. FJC determine require ments of reducing complex procedures in health system as well. Patient safety, prevent of no socomial infections, expert level outpatient services, requirement of disease quality programs, quality regulation of processes, evaluation of new treatment, medicine and drug to hold circumstances for negotiations to reimbursement systems and processes, determine procedures for rehabilitation are some of FJC's responsibilities.

Thanks to these comprehensive responsibility and authority, FJC has the ability to provide quality assurance at expert level through a multi-participant organization.

Plenum of FJC, as a general board, consists of representatives from healthcare providers (Associations of hospitals, physicians, dentists etc.), representatives from statutory health insurance providers, patient representatives and impartial members (Figure 3).

One of impartial members is assigned by FJC as chairman. The chairman conducts Plenum with other impartial members. There are nine subcommittees as Subcommittee on Drug Therapy, Non-Drug Therapy, Hospital Treatment, Methods and Quality Assurance, Vaccination, Disease Management Programs, Organ Transplantation, Hospital Hygiene and Infection Prevention, Medical Devices.[17]

Germany has been buying service on quality assurance, quality framework, evaluation of new treatment models, developing, implementing and evaluating of new quality indicators, developing and implementing healthcare providers and patient surveys, data managing services since 2010. Institute for Applied Quality Improvement and Research in Health Care (AQUA) was the first corporation which worked on quality improvement for FJC until 2016.[18] In 2016, due to certain legal requirements, FJC found own foundation company named "Institute

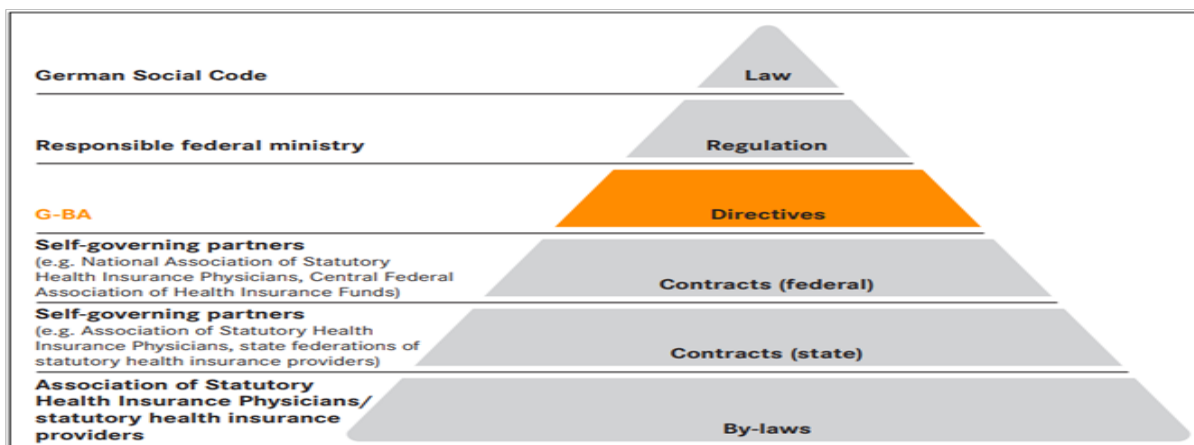


Figure 2: Statutory Status of FJC (G-BA).[6]

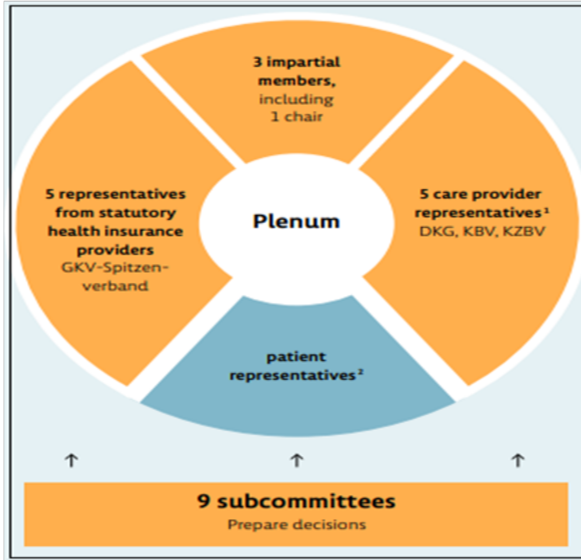


Figure 3: Plenum Organization of FJC.[17]

for Quality Assurance and Transparency in Health Care" (IQTiG).[19] Managing Board of IQTiG consists of representatives from healthcare providers and representatives from statutory healthcare insurance providers. The activities of IQTig are conducted independently by FJC officers and other autonomous members. Hence IQTiG provides comprehensive and scientific source for healthcare quality to FJC and Federal Ministry of Health.[20]

Starting in IQTiG, Healthcare Quality Process continue with arrangements in FJC, and National Care Guide is published with contribute by AMWF. This guide includes mostly chronic disease such as asthma, diabetes, COPD and Congestive Heart Failure. Apart from, AMWF studies for a number of diseases managing programs with specialty groups for submitting to FJC.

Hospitals, both as providers of quality recommendations and as data providers, are the basic units in the quality system with the participation of all components from management to departments, from employees to patients. From this point on, data collection and transmission, in the healthcare quality process, are sent to State Quality Assurance Management Offices in 16 states, and if legally possible, to AQUA offices in the State. The unsuitable data analyzed here is sent back to the source, while the appropriate results are shared with hospitals through the State Administration Offices. Analyses in Federal Level are carried out in IQTiG and are shared with FJC. Thus, FBK reports and enforces the results of implementation and evaluation of Federal Level Quality Standards to each unit providing health care (Figure 4).

As we mentioned before in this data evaluation and analysis process, FJC does not consider the dimensions of efficiency and equity within its scope of duty. Since "efficiency" is not seen as a diagnosis-related dimension, it is included in the evaluation indirectly for the quality system. And "equity" plays a indirect role in the quality program due to be included of the Risk Assessment model.[17] This difference valid for development end improving of healthcare quality indicators as well. FJC, making decisions continually on clinical areas, treatment processes and diseases, applies a process with three steps in carrying out indicators. In first step, international publics are searched, the second step is the RAND/UCLA multidisciplinary application.

In final of panel, indicators are evaluated, developed and adapted giving different on demographic change and risk evaluations. This application also allows the regional comparison of hospitals.[17]

More than 400 Quality Indicators are used in 30 clinical areas in Germany. Chosen 11 indicators on Breast Surgery, Obstetric and Gynecologic Surgery are used performance evaluation of hospitals at once of the year.[21] Performances of over 1600 hospitals are published publicly in three system though internet; these systems are Qualitatssicherung mit Routinedaten (QSR), Initiative Qualitatsmedizin (IQM) and Qualitatskliniken.[22]

Performance uses for an ideal aim as quality improver in Germany. Hospitals which are determined and published low performance, are interaction and dialogued by quality authorities and they can keep an opportunity for improving their healthcare quality, and are controlled more frequently.[23]

"Türkiye's Approach" Based on Quality Indicators and Unexpected Events

Healthcare quality system covers all of the healthcare providers in Türkiye, whether government or private. System is in force all for three level health services as outpatient, hospital and higher. With the Health Trans-

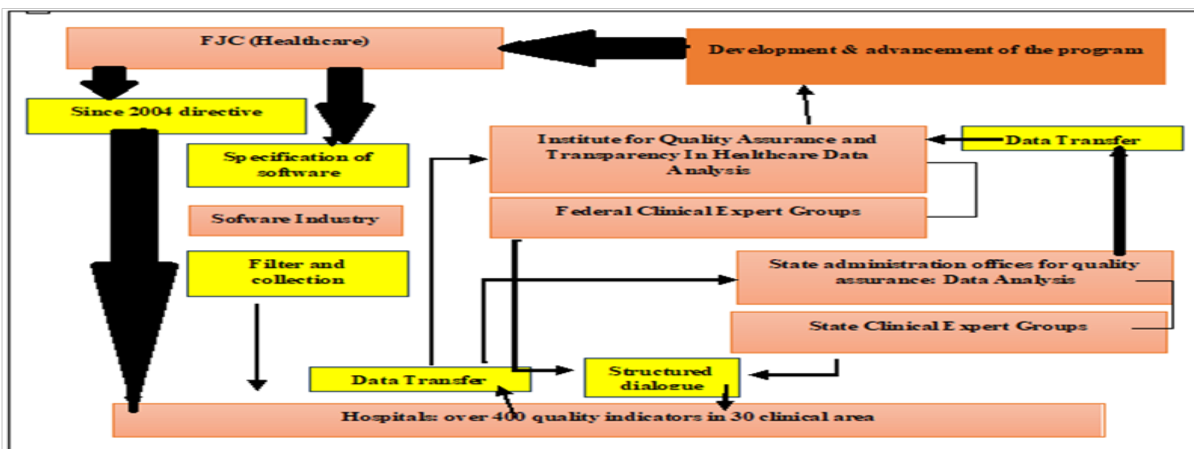


Figure 4: Germany Data-Based Quality Assurance Program Process

formation Program in Türkiye, Ministry of Health has focused on "Quality in Health" since the 2000s, referring to the sixth dimension of this program (Figure 5).

After "2003 Performance System on Additional Wage" and "2005 Corporation Performance System and Improvement of Quality Studies", in Türkiye, "Health Services Basic Law No. 3359"was published by The Grand National Assembly of Türkiye this law ordered quality in healthcare and forced Ministry of Health on Regulating Quality and Standardization for whole health corporations in articles 3th and 9th. Ministry of Health published "Health Performance and Quality Directive" in 2010. This directive contained only health corporation of ministry and quality was evaluated with performance in this directive. In 2011, was published Regulation on ensuring Patient and Employee Safety. This regulation had evaluated quality of healthcare just in terms of safety.

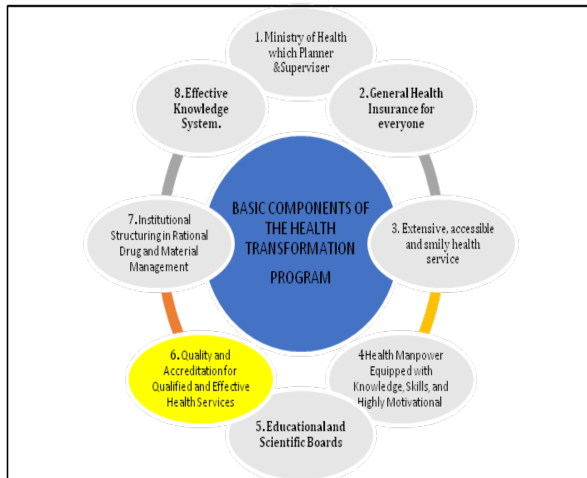


Figure 5: Basic components of the health transformation program inTürkiye

Regulation on Evaluating and Improvement of Quality of Healthcare Services was published in 2013, and it contained" Sets of Standards of Quality on Health (SQH)-Hospital, Oral and Dental Health Center, Ambulance Services, Dialysis". Eventually, Regulation on Evaluating and Improvement of Quality of Healthcare Services was updated in 2015. Today, whole regulation of healthcare quality is managed by General Directorate of Health Services of Ministry of Health, Department of Health Quality, Accreditation and Employee Rights.[24]

"Continually Quality Improvement in Healthcare" was targeted in "Health Transformation Program" by Ministry of Health in Türkiye. Furthermore, in order to determine the current situation and measure clinical quality, Ministry launched "Clinical Quality Program of Türkiye" in 2012. Program contained only public hospital initially, but by time, it covered all type (private, University etc.) hospitals and healthcare corporations.[12] There are three frameworks for healthcare quality system in Türkiye. These are Clinical Quality, Health Service Quality and Corporate Structure. From Ministry of Health to Provincial Health Department, whole corporate structure is built according to this framework. Clinical Quality differ from public health laboratory services and ambulance services in terms of evaluation of quality.[25] Clinic Quality consist of definition, measurement, evaluation, improvement and regulation. Moreover, it is a gradual process. This gradual process forms technologic framework of hospital information management system, decision support systems, statistics modules and health literacy form the basis of data flow systems.[12] Clinic quality of outpatient services is evaluated by provincial quality commission, while second and third level healthcare provider's clinic quality is evaluated by quality directorate and clinic quality committee in control of chef physician of hospital. All of evaluations are transmitted to "Ministry of Health General Directorate of Health Services Department of Quality in Health, Accreditation and Employee Rights" as central authority by Provincial Coordinator of Healthcare Quality.[25]

Within the scope of healthcare service quality, Standards of Healthcare Quality (SHQ) and Standards of Clinic Quality (SCQ) indicators are developed by experts from Ministry of Health Services. Development process cover to platforms of comments and suggestions on clinic and healthcare. And these platforms are important dimension for developing of SHQ Sets. Standard sets are developed on ambulance services, home health, dialysis, laboratory services etc. separately. Standards are prepared on the basis of current scientific resources, policies and priorities, in line with international standard development algorithms.

Türkiye has determined the SHQ Targets to include the WHO's patient safety targets in the Health Quality Standards as patient safety, patient focused, healthy working life, continuity, efficiency, effectiveness, productivity, relevance, timeliness, fairness.[26]

Quality measurements and unexpected (sentinel) event reporting are made in "Corporate Quality System" as intranet system. Although the data entry periods are determined by the institutions, the analyses is determined separately according to the characteristics of each indicator in this system. When there are deviations from target values, "Root Cause Analysis" is performed, and corrective actions are initiated by health corporations. In light of all these, the targeted success in quality studies is achieved by increasing the level of quality and efficiency in all health facilities across the country. In this process, data processors, statisticians, relevant specialist physicians, relevant managers and healthcare professionals work together under the coordination of the Ministry of Health in Türkiye.[12]

Comparison of Türkiye and Germany In Terms Of Healthcare Service Quality Indicators and Unexpected Event Approaches

Publication of hospital quality results in Germany, open accessible, contributes to the quality improvement of hospitals with low quality levels, while it has the opposite effect in healthcare institutions with high quality levels. Hospitals with average quality tended to show minor changes. It has been observed that financial profitability is also effective in the motivation created by the disclosure of quality results. In addition to the publication of quality results, financial motivation was also considered to be important in studies.[23]

When we look at OECD statistics, it is seen that Turkiye published the results of Health Care Quality indicators in the years 2015-2017, and Germany regularly published indicators related to patient safety and patient experience, as well as health care indicators from 2011

to 2020. We filtered OECD healthcare quality data as 2015 and 2017 because of both of country has shared fully healthcare indicators in these years. For these years, both Türkiye and Germany had shared primary care data for 15 years old and over patients with Asthma, COPD, Congestive Heart Failure, Hypertension and Diabetes, thus we consider about these group and illnesses. We filtered OECD statistics table for these situations.

As indicators of Healthcare Quality in 2015 and 2017, the number of Asthma, COPD, Congestive Heart Failure, Hypertension and Diabetes patients who applied to the hospital in primary care were shared. Asthma and COPD patients applied to the hospital more frequently in primary care in Türkiye, but this figure was higher for Germany in patients with Congestive Heart Failure, Hypertension and Diabetes. This can be interpreted in different ways, from taking more responsibility in primary care for Asthma and COPD in Türkiye to more testing, diagnosis and treatment opportunities for heart diseases and endocrinological disorders in primary care in Germany (Table 1 and 2).

However, quality measurement is not just a measurement consisting of numbers; it is the conclusions that can be reached as a result of analyses with multidisciplinary evaluations. The indicators reported by Türkiye in

Table 1: Comparison for Türkiye and Germany on Primer Healthcare Quality Indicators for five diseases in 2015 (Per 100,000 patients).[26]

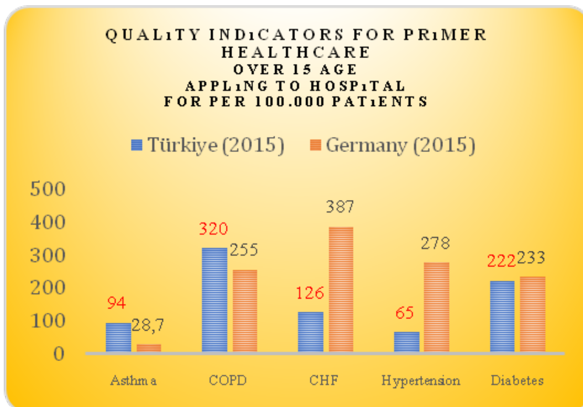
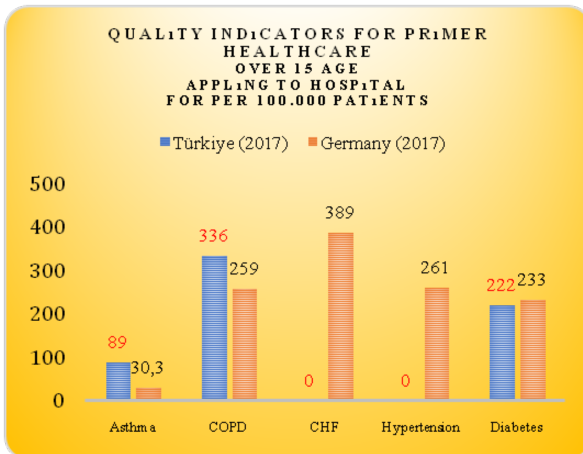


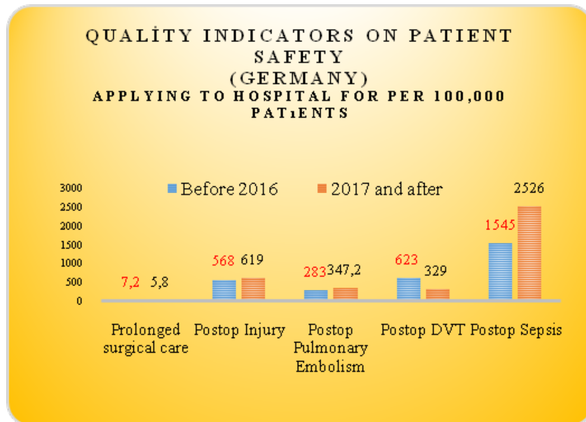
Table 2: Comparison for Türkiye and Germany on Primer Healthcare Quality Indicators for five diseases in 2017 (Per 100,000 patients).[26]



primary care are both limited to the years 2015-2017 and do not seem to include the reporting of structural and process-oriented criteria such as patient safety and patient experiences.

Germany has made progress in patient safety by recording a decrease in postoperative prolonged surgical events, pulmonary embolism and postoperative deep vein thrombosis (DVT) after 2016, when legal regulations were made regarding the publication of unexpected events and health care quality indicators in the country. However, Germany failed to progress in postoperative injuries and postoperative sepsis events. In fact, the possibility that injury and sepsis events are more likely to be included in unexpected event reports should also be carefully considered. However, Türkiye does not seem to share data on these issues in OECD statistics (Table 3).

Table 3: Quality indicators on patient safety of Germany before 2016 and after 2017.[27]



In Türkiye, as independent on healthcare quality publications, in 2022 “Series of Patient Safety” published by ministry of health healthcare services general directorate, it was published that DVT was emerged approximately 10-40% for inpatients.[25] This rate is 9-10 times higher than inpatient DVT cases reported in Germany.

In Germany, an average of 3.2 million unexpected events were reported from 1557 hospitals using 434 and 416 indicators respectively in 2013 and 2014. This rate corresponds to approximately 20% of the total number of hospitalized patients.[21] Furthermore, results of healthcare quality measures also are published as regularly and officially through website of AWMF in Germany.

In Türkiye, generally unexpected events carry out due to inadequate number of physicians, number of nurses and time of medical examinations. However, these events are expressed as statistics of healthcare such as “number of physician, nurse and hospital bed per a patient”.

Authority of Germany Healthcare include healthcare quality systems whole partners of health system in the country such as healthcare providers, healthcare quality corporations and nongovernmental unions of medical workers or patients, while Türkiye Ministry of Health include only official departments such as patient rights and occupational rights departments, however medical occupational nongovernmental corporations or unions have not been included to activities adequately.

While Türkiye use 10 healthcare quality standards as

patient safety, patient focused, healthy working life, continuity, efficiency, effectiveness, productivity, relevance, timeliness, fairness, Germany consider Efficiency and Equity out of healthcare quality standards. Germany healthcare quality system suggest that efficiency affecting economic situation, equity affecting risk evaluation affect healthcare quality system indirectly.
Healthcare quality indicators are updated once of year regularly in Germany and there are approximately 400 indicators. However, every indicator has got a timeline and period for being updated in Türkiye. Indicators are evaluated by official and scientific partners when it comes to evaluating period. Evaluating and updating of healthcare quality indicators is the living process in both Germany and Türkiye.

DISCUSSION

Healthcare quality system is identified as "Data-Based Quality Program with Wide Participation" in Germany. From the determination of the quality indicators to data acquisition, data flowing, data analysis, being used of data and updating, this system is carried out by the Federal Joint Commission under the German Federal Ministry of Health. FJC's structure provides participation of all representatives of the health sector, especially health care providers, insurance and reimbursement institutions, patients. Hospitals and other health providers are encouraged for healthcare quality applies and notices of unexpected events in Germany.[28] Thanks to publishing of these results on quality, patients are leaded to the most quality services for themselves. And these activities carry out competition in health services and sector. However, considering the payments and financial concerns, it is also felt in Germany that this competition can't be achieved only by publishing result of quality indicators to the public, and it is seen that there is an increase in the probability that financial concerns can prevent unexpected event notifications and quality data sharing.
It is seen that a very good level has been achieved in the creation of quality data that will enable the use of quality indicators, recording of data, and theoretical planning of the quality system in health in Türkiye. However, there are negative aspects about data entry, unexpected event notification and sharing of results.
If measures are not taken to encourage quality and SHQ operation for the employees and the groups that operate the system, it seems likely that the disruptions will make data collection and sharing more and more impossible in a short time due to the snowball effect in Türkiye. Fortunately, Ministry of Health of Republic of Türkiye activates healthcare institutions and employees on healthcare quality, thanks to a comprehensive department organization that addresses service quality, accreditation and employee safety issues as a whole under the most comprehensive general directorate organization, the General Directorate of Healthcare Services. The planning, organization, direction, information systems and control infrastructure of this planning and supervisory department encourages all health institutions in the country to share quality data recently.
In both Germany and Türkiye, unexpected event notifications and healthcare quality results should be evaluated independent from financial concerns.

CONCLUSION

Both Germany and Türkiye have got systematic, applicable, based on structure, process standardized output and continuous healthcare quality system. Both of countries use quality sets and indicators which are accepted internationally. Goals have been achieved in reporting of adverse events and quality of care errors in both of them. It has been observed that in both countries, errors in areas where there were problems in notification could not be corrected. It is evaluated that the phenomenon of quality in healthcare services has matured in the historical process in both Germany and Türkiye, and is accepted as an important health issue, but more intensive studies are needed to encourage healthcare professionals in unexpected event reporting and patient safety.

Ethics Committee Approval: Not need due to the methodology of study.
Informed Consent: Informed consent was obtained from all adolescents and their parents who participated in this study.
Peer-review: Peer-Review was completed.
Author Contributions: Conceptualization–OÖ, HSTİ; Design–OÖ, HSTİ; Supervision–HSTİ; Sources–OÖ; Materials–OÖ; Data Collection and/or Processing–OÖ; Analysis and/or Interpretation–OÖ; Literature Review–OÖ; Written by–OÖ, HSTİ; Critical Review–HSTİ.
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INVESTIGATION OF THE EFFECT OF A PHYSIOTHERAPY AND REHABILITATION PROGRAM IN A CASE WITH CONGENITAL CENTRAL HYPOVENTILATION SYNDROME AND CEREBRAL PALSY: A CASE REPORT

KONJENİTAL SANTRAL HİPOVENTİLASYON SENDROMU VE SEREBRAL PALSİLİ OLGUDA FİZYOTERAPİ VE REHABİLİTASYON PROGRAMININ ETKİSİNİN İNCELENMESİ: BİR OLGU SUNUMU*

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ABSTRACT

Congenital Central Hypoventilation Syndrome is a rare genetic disorder that presents from birth and prevents automatic control of respiration. Our aim in this study was to examine the effectiveness of a six-month physical therapy program applied to a patient with Congenital Central Hypoventilation Syndrome and cerebral palsy. A six-month-old patient who was diagnosed with Congenital Central Hypoventilation Syndrome and subsequently developed Cerebral Palsy due to asphyxia was included in the study. The case was enrolled in a physical therapy program for two days a week for six months in the home environment where they lived. The case was evaluated before and after treatment. In our case, the Modified Ashworth Scale, the Alberta Infant Motor Scale, the Hammersmith Infant Neurological Examination, Test of Sensory Functions in Infants, and the Face, Legs, Activity, Cry, Consol ability scale were used. In our case, pre-treatment and post-treatment scores were as follows, respectively: Alberta Infant Motor Scale score 3-8, Hammersmith Infant Neurological Examination score 6-17, Test of Sensory Functions in Infants score 2-9, and Face, Legs, Activity, Cry, Consol ability scale score 8-3. In our case, there was a significant improvement in Modified Ashworth Scale scores before and after treatment. Additionally, at the conclusion of the study, it was noted that the heightened pain and sensitivity resulting from the patient's extended stay in the intensive care unit reduced with the treatment. We believe that the administered physiotherapy and rehabilitation program offered support to the patient in achieving neuro-motor and sensory integration, underscoring the essential role of physiotherapy in rare diseases.

Keywords: Early intervention, congenital central hypoventilation syndrome, cerebral palsy.

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ÖZ

Konjenital Santral Hipoventilasyon Sendromu, doğumdan itibaren ortaya çıkan ve solunumun otomatik kontrolünü engelleyen nadir bir genetik hastalıktır. Bu çalışmadaki amacımız Konjenital Santral Hipoventilasyon Sendromu ve serebral palsili bir hastaya uygulanan altı aylık fizik tedavi programının etkinliğini incelemekti. Çalışmaya Konjenital Santral Hipoventilasyon Sendromu tanısı alan ve sonrasında asfiksi nedeniyle serebral palsi gelişen altı aylık hasta dahil edildi. Olgu yaşadığı ev ortamında altı ay boyunca haftada iki gün fizik tedavi programına alındı. Olgu tedavi öncesi ve tedavi sonrası değerlendirildi. Olgumuzda Modifiye Ashworth Skalası, Alberta İnfant Motor Skalası, Hammersmith İnfant Nörolojik Muayenesi, Bebeklerde Duyusal Fonksiyon Testi ve Yüz, Bacaklar, Aktivite, Ağlama, Avutulabilme ölçeği kullanıldı. Olgumuzda tedavi öncesi ve tedavi sonrası skorlar sırasıyla Alberta İnfant Motor Skalası skoru 3-8, Hammersmith İnfant Nörolojik Muayenesi skoru 6-17, Bebeklerde Duyusal Fonksiyon Testi skoru 2-9 ve Yüz, Bacaklar, Aktivite, Ağlama, Avutulabilmeölçeği skoru 8-3 idi. Olgumuzda tedavi öncesi ve sonrası Modifiye Ashworth Skalası skorlarında önemli gelişme oldu. Ayrıca çalışma sonucunda hastanın yoğun bakımda uzun sure kalması sonucu artan ağrı ve hassasiyetin tedaviyle azaldığı kaydedildi. Uygulanan fizyoterapi ve rehabilitasyon programının hastaya nöromotor ve duyu entegrasyonunun sağlanmasında destek sağladığına ve nadir hastalıklarda fizyoterapinin önemli rolünün altını çizdiğine inanıyoruz.

Anahtar kelimeler: Erken müdahale, konjenital santral hipoventilasyon sendromu, serebral palsi.

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INTRODUCTION

Congenital central hypoventilation syndrome (CCHS) is a rare and lifelong condition characterized by abnormal respiratory control.[1] In 2003, it was discovered that mutations in the Paired-like homeobox 2b (PHOX2B) gene on chromosome 4p12 are responsible for this syndrome. The PHOX2B gene, located on chromosome 4p12, plays a key role in the development of autonomic nervous system reflex circuits in mice.[2] The main clinical manifestations of CCHS are adequate ventilation while awake, but alveolar hypoventilation during sleep. CCHS severely affects infants due to the lack of automatic control of breathing during sleep. This causes infants with CCHS to be exposed to progressive hypercapnia and hypoxia while asleep and also to continue to sleep without feeling dyspnea. This is because the respiratory neurons lack appropriate responses to hypercapnia and hypoxia, which leads to infants with CCHS being exposed to progressive hypercapnia and hypoxia while asleep.[3] Children with CCHS lack the perception of dyspnea and are unable to increase ventilation to meet the demands when faced with respiratory difficulties such as infection. Therefore, the goal of treatment is to provide adequate gas exchange using assisted ventilation during sleep. The American Thoracic Society recommends positive pressure ventilation via tracheostomy as a treatment option for patients with CCHS during their first few years of life. CCHS is a rare condition that may be under diagnosed. Since 1970, more than 1000 cases of CCHS have been reported globally.[4] The estimated incidence of CCHS is approximately one in 148,000 to 200,000 live births.[5]

Cerebral Palsy (CP), on the other hand, develops in the fetal or infant brain, causing movement and posture disorders as well as activity limitation. In children with CP, motor impairments are often accompanied by cognitive dysfunctions, sensory problems, communication and perception problems, and behavioral disorders or seizures or both.[6] The present case is a term male infant who was admitted to the hospital with respiratory distress, underwent multiple resuscitation due to respiratory arrest.

After being diagnosed with CCHS and the case was subsequently diagnosed with CP due to hypoxic ischemic encephalopathy. Treatment of the infant includes respiratory support via tracheostomy, medical treatment, and physiotherapy and rehabilitation. Rehabilitation applications are limited for CCHS because it is a rare disease and there is insufficient evidence to support the effectiveness of physiotherapy. This study, which was conducted to determine the framework of the physiotherapy and rehabilitation program to be applied to patients with CCHS and CP and to contribute to the intervention, reveals the results of a 6-month physiotherapy and rehabilitation program in a patient with CCHS and CP.

CASE REPORT

The male case was born with C/S from healthy pregnancy of a 30year-old mother as G1P1Y1, with a birth weight of 3750 g, a gestational age of 40 weeks+4 days, and an APGAR score of 8/9/10. There was no consanguinity between the parents. Due to respiratory distress and 90% oxygen, the patient was admitted to the neonatal intensive care unit and was followed up with nasal continuous positive airway pressure. Several attempts were made to wean it from mechanical ventilation (MV), but extubation was unsuccessful as the patient continued with episodes of desaturation during sleep and wakefulness. Brain Magnetic Resonance (MRI) and diffusion MRI were reported as normal according to the brain MRI results on day 18. Gene analysis sent on day 103 due to continued desaturations during sleep was defined as congenital central hypoventilation syndrome (PHOX2B+). Cardiopulmonary resuscitation was applied to the patient, who was connected to MV during sleep, due to sudden respiratory arrest on day 120.Hypoxic ischemic encephalopathy findings were observed in the patient who responded after the 5th adrenaline administration. In brain MRI results after respiratory arrest (on day 132), it was reported that cortical atrophy at the supratentorial level, thinning of the corpus callosum calibration, and signal enhancement areas (deep hypoxic ischemia) compatible with cytotoxic edema were observed at the corpus callosum genu splenium, at bilateral globuspallidus level. According to the control cranial and diffusion MRI results taken on day 147, the fourth ventricle was prominent in the midline and the subarachnoid spaces were increased in the posterior fossa. The third and lateral ventricles were slightly dilated. At the supratentorial level, diffuse cortical edema in both cerebral hemispheres and cortical signal enhancement areas consistent with cortical laminar necrosis were noted on T1W imaging. When compared with the cranial MRI examination on day 132, it was reported that there was atrophy and volume loss at the supratentorial level and there was no significant cytotoxic edema in this imaging.

This study is not within the scope of research that requires ethics committee approval. However, the family was informed about the study and all necessary permissions were obtained.

The case was evaluated with the following evaluation scales before starting the physiotherapy and rehabilitation program and after 6 months of treatment. Evaluation scales were administered by a specialist physiotherapist experienced in pediatric rehabilitation.

Behavioral status of the baby was taken into consideration during the evaluations. If our case was hungry, sleepless, or restless, the evaluations were interrupted. Two hours after feeding, evaluations were made with the family in a room where the light and temperature were comfortable. In cases where appropriate conditions could not be met, evaluations were terminated and they were conducted within the same week.

Modified Ashworth Scale (MAS): Used to assess muscle tone due to upper motor neuron damage, this scale has 5 levels. 0 indicates no tone increase, while 4 shows rigid tone in flexion and extension.[7] Assessment occurred supine, relaxed, with passive, rapid joint movements, scored accordingly.

Alberta Infant Motor Scale (AIMS): This reliable test measures motor performance delay (0-18 months) and progress before/after treatment. Child's movements scored: 1 for doable, 0 for not. 58 parameters assess weight transfer, posture, and movements against gravity in various positions. Compares baby's motor performance to peers using norm reference. An increasing

score indicates better motor development in the baby. Test lasts 20-30 mins.[8] Room conditions optimized (light, temperature, sound). Mother present during AIMS evaluation. Child's safety ensured. Spontaneous movements observed on treatment bed.

Hammersmith Infant Neurological Examination (HINE): This test assesses neurological disorder risk in preterm and term babies. It has 3 parts: motor neurologic exam, functional development, behavior evaluation. Predicts potential neurological issues, acting as a preventive battery. Applicable from birth to 24 weeks. Checks cranial nerves, posture, movement, tone, reflexes, abnormal signs, orientation, behavior. An increasing score indicates a decreased risk of CP. The maximum achievable score for HINE is 78. The optimal score for 9-12-month-old babies is 73, while for 6-month-old babies, it's 70. Scores below 57 for each month indicate a high-risk condition for CP diagnosis.[9] An experienced pediatric rehabilitation specialist conducted the HINE in suitable settings. Test items administered sequentially, supine and sitting positions.

Test of Sensory Functions in Infants (TSFI): This sensory function test assesses sensory defense behaviors in infants (4-18 months) through 5 subsections and 24 items. TSFI requires interaction with materials like plush toys, puppets, balls, tape, string, and A4 paper. Scores range 0-49, with norms for different age groups. The total score ranges from 0 to 49. An increase in the score indicates better sensory development in the baby. Scores between 44 and 49 indicate good sensory function in 10-12-month-old babies, scores between 41 and 43 indicate a risky condition, and scores between 0 and 40 indicate sensory processing problems.[10] Items applied and scored using standard materials. Test avoided when baby hungry or restless, considering emotional state.

Face, Legs, Activity, Cry, Consolability (FLACC): This scale assesses pain in non-communicative children aged 2 months to 7 years. Scores range from 0 (calm and relaxed) to 10 (Severe discomfort or pain). As the score increases, the sensation of pain and discomfort also increases. It has 5 criteria, scored 0, 1, or 2 each.[11] Baby's wakefulness noted during evaluation. Observed and scored over 1-5 minutes.

The case was enrolled in a 2-day-per-week, 30-45 minutes per session physical therapy program for 6 months in their home environment. The goal was to prevent postural issues, contractures, and promote normal motor development. The program included massage, intramuscular stretching, and functional activities in a supported sitting position, focusing on midline orientation, sitting, trunk control, and sensory development. Toys with different textures and swings for vestibular stimulation were used, along with ball activities. Neurodevelopmental treatment involved targeted activities for positioning, balance, motor development, transitions, and daily tasks.[12] The family was educated on the program's content, goals, and implementation.

Care was taken to ensure that the patient remained awake during the intervention. The session was interrupted, and the patient was connected to mechanical ventilation if there was a tendency to become drowsy. No additional respiratory support was required while the patient was awake and during the intervention, but vital signs were constantly monitored.

Difficulties were encountered during the interventions when working in the prone positions due to the patient's feeding through a Percutaneous Endoscopic Gastrostomy. Therefore, modified prone positions were used.

The parents' primary concern was that their baby was very sensitive to sensory stimuli and overreacted to position changes by crying. Therefore, the family visited the physiotherapy and rehabilitation program. The case, who spent the first 6 months of his life in the intensive care unit, had sensitivity to touch and position changes and did not experience sitting or prone positions during this period. In our case, there was no extremity movement, head-trunk control, or eye tracking. He was crying in response to the activity. During physical examination, severe stiffness was observed in the right arm and leg. The tone of the upper and lower extremity muscles, as assessed by the MAS, was increased. According to the MAS scores: elbow flexors right 3, left 2; hip flexors bilaterally 2; knee flexors right 4, left 3; and, plantar flexors 4 on the right and 2 on the left. The AIMS score used to assess motor skills was found to be 3, the HINE score used for neurological status assessment was 6, the FLACC score used for pain was 8, and the TSFI total score used to assess sensory functions was 2.After 6 months of physiotherapy and rehabilitation program, the following scores were obtained: elbow flexors right 2, left 1+; hip flexors right 1+, left 1+; knee flexors right 3, left 2; plantar flexors right 3, left 2; AIMS score 8; HINE 17; FLACC 3; and, TSFI score 9 (Table 1).

In the current developmental stage of our case, short-

Table 1. Pre-treatment and post-treatment results of our case

		Before Treatment		After Treatment	
		RIGHT	**LEFT**	**RIGHT**	**LEFT**
MAS (min-max) (1-5)	Elbow Flexors	3	2	2	1+
	Hip Flexors	2	2	1+	1+
	Knee Flexors	4	3	3	2
	Plantar Flexors	4	2	3	2
AIMS (min-max) (0-58)		3		8	
HINE (min-max) (0-78)		6		17	
FLACC (min-max) (0-10)		8		3	
TSFI (min-max) (0-49)		2		9	

Abbreviations:
MAS: Modified Ashworth Scale
AIMS: Alberta Infant Motor Scale
HINE: Hammersmith Infant Neurological Examination
FLACC: Face, Legs, Activity, Cry, Consolability
TSFI: Test of Sensory Functions in Infants

term head and neck control was achieved in the gross motor area. His ability to follow objects in the visual field for a short time improved, his negative reactions to activities and tactile stimuli decreased and no improvement was achieved in fine motor skills.

DISCUSSION

In our case, a physiotherapy and rehabilitation program was applied to facilitate motor development, prevent contractures and eliminate sensory problems and pain. The effectiveness of the 6-month physiotherapy and rehabilitation program was evaluated with appropriate test batteries before and after the treatments. At the end of the treatment, reductions in limb spasticity and pain and improvements in motor performance, neurological status, and sensory functions were observed in our case. Post-intervention scores were indicative of clinical improvement compared to the pre-intervention scores.

Ventilation is normally controlled automatically during sleep. When autonomic control is impaired, patients forget to breathe when they fall asleep. The pathophysiological mechanism of CCHS is unknown, but the mechanisms that integrate chemoreceptor inputs into respiratory centers are thought to be impaired.[13]Diagnosis and treatment of this disease is very difficult due to the rarity of the disease and limited diagnosis with specific genetic tests. Survival and quality of life can be improved with early tracheostomy and gastrostomy planning, efficient discharge process, access to home care programs, and even the possibility of diaphragmatic pacemaker implantation.[14]

As a result of a comprehensive literature search, we found that there was no other case of CCHS who developed CP due to asphyxia. However, there was one case of CCHS in which white matter damage was detected, although he did not experience asphyxia.[15]A lack of literature on the physiotherapy and rehabilitation program of individuals with CCHS was observed. The coexistence of CCHS and CP in our case further complicated the treatment of the case. Considering the clinical findings and the course of the disease, physiotherapy and rehabilitation intervention was planned to support motor development and solve sensory problems. According to our literature review, it is the first study to examine the effects of a physiotherapy program in a case with CCHS and CP.

Lee et al. evaluated the effect of physiotherapy and rehabilitation practices on spasticity in patients with CP. In the study, it was concluded that regular physical therapy reduces spasticity in children with CP.[16] The results obtained in our case show parallelism with the literature.

When the early-stage physiotherapy and rehabilitation practices are reviewed, it has been reported that high-risk infants with low birth weight or brain damage achieved more motor and behavioral progress in the treatment group, in which early-onset physiotherapy and rehabilitation applications and the control group who received only medical support were compared.[17] The results we obtained after the physiotherapy and rehabilitation program we applied in our case show parallelism with the results of these studies.

AIMS, which we used to evaluate motor performance in our study, is one of the frequently used early neurodevelopmental test batteries with proven validity and reliability that evaluates the quality of movement and changes in motor skill.[18] It has been reported in studies that it is useful in determining the neurological risk in the early period.[19,20]In our study, we evaluated the neurological status of our case with the HINE. When the studies are examined, we see that the HINE is mostly used to predict neurodevelopmental disorders such as CP in the early period. When the HINE is used together with General Movements and neuroimaging methods, it can be predicted whether neurodevelopmental disorders such as CP will develop. This test battery has optimal scores by months. At 9 or 12 months, scores equal to or higher than 73 are considered optimal, while at 3 and 6 months, 67 and 70 points and above, respectively, are considered normal values. Less than 57 points per month predicts CP by 90%.[9] For this reason, we used these test batteries with proven validity and reliability to evaluate our case in our study.[9,20] In our study, we found that the AIMS and HINE scores were very low, which showed us that the exposure was severe. The increase in HINE and AIMS scores after treatment was promising for treatment.

Our treatment approach incorporated sensory integration principles and utilized sensory strategies in enriched environmental settings. Studies have reported that sensory problems affect motor and cognitive development.[21,22] In our case, there were improvements in the results of the post-treatment TSFI evaluation in line with the literature.[23]

Since it was assumed in the past that babies do not feel pain, their pain status has generally not been questioned. The reason for this is thought to be the neurological development status of the babies and the lack of myelination of the central nervous systems. However, it has been reported that starting from the 26th week of pregnancy, babies begin to feel pain and, in some cases, experience even more intense pain for various reasons.[24] Babies who spend their initial days in neonatal intensive care units often undergo numerous painful invasive procedures. It has been reported that hospitalized infants experience an average of 14 painful procedures per day during the first 2 weeks of their lives.[25] All these processes improved pain sensitivity in our case. Our case, who responded by crying to touch and position changes, was able to tolerate position changes and exercises with decreased response after treatment.

The rehabilitation program we applied to our case included exercises such as weight bearing in different positions, massage for sensory and pain input, gradual weight bearing in sitting position, and spending time in prone position. The case was also encouraged to select and use visual, somatosensory, and vestibular inputs. Post-intervention scores were indicative of clinical improvement, compared with scores before the physiotherapy program. The lack of assessment of the patient's field of vision and communication skills is among the limitations of our study. Although HINE and AIMS scores do not constitute thresholds for clinically significant changes, the results of the study reveal improvements in HINE, AIMS, FLACC and TSFI scores after the rehabilitation program.

In conclusion, it was observed that our case with CCHS and CP showed a general improvement in motor skills,

sensory sensitivity, and pain after 6 months of physiotherapy and rehabilitation. Consequently, we hold the belief that physiotherapy and rehabilitation programs can be effective for patients with advanced levels of involvement, as seen in the present case.

Ethics Committe Approval: The Helsinki Declaration was adhered to in the study.
Informed Consent: Signed consent forms were obtained from the family.
Peer-review: Externally peer-reviewed.
Author Contributions: Conceptualization–MB; Design –MB, SE; Supervision–BE; Sources–MB; Materials–MB, SE; Data Collection and/or Processing–MB, SE; Analysis and/or Interpretation–MB, SE; Literature Review–MB, SE; Written by–MB, SE; Critical Review–BE.
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Erciyes Üniversitesi Sağlık Bilimleri Dergisi Yayın Kuralları ve Genel Bilgiler

Erciyes Üniversitesi Sağlık Bilimleri Enstitüsü yayını olan Sağlık Bilimleri Dergisi yılda üç defa olmak üzere dört ayda bir yayınlanır. Tıbbın çeşitli dallarındaki klinik ve deneysel araştırma yazıları, orijinal olgu sunumları ve literatür derlemeleri daha önce herhangi bir yerde yayınlanmamış ve yayın için başka bir dergiye gönderilmemiş olmak koşuluyla kabul edilir. Araştırma makalelerinin yayınlanabilmesi için projelerinin ilgili kurumun etik kurulunca onaylanmış olduğu ve insanla yapılan çalışmalarda, çalışma öncesinde hasta ya da gönüllülere bilgilendirme yapılıp onay alındığı belirtilmelidir.

Dergide yazılar Türkçe ve İngilizce olarak yayınlanır. Türkçe yazılarda Türk dilinin bütünlüğü korunmalı, İngilizce yazılar anlaşılır ve hatasız olmalıdır. Yazılar dört örnek (biri orijinal, diğerleri fotokopi) olarak editöre gönderilmeli veya şahsen teslim edilmelidir. Gönderilen yazı ve resimlerin kaybından editörlük sorumlu tutulamaz. Gönderilen yazılar yayınlansın veya yayınlanmasın iade edilmez, yalnız yayınlanmayan resimler veya şekiller istek üzerine yazarına gönderilebilir. Gönderilen yazıların dergi kurallarına göre düzenlenmiş ve basıma hazır hale getirilmiş olması gerekir. Yazıların yayınlanmasındaki gecikmenin en önemli nedeni makalelerin yazım kurallarına göre hazırlanmamasıdır. Yayın kurulu yazım kurallarına uymayan yazıları yayınlamamak, düzeltmek üzere yazara iade etmek yada şekil açısından yeniden düzenlemek yetkisindedir. Yazılarda savunulan fikirlerin sorumluluğu yazara aittir. Yayınlanan yazıların telif hakkı dergiye ait olup derginin izni olmadan kısmen de olsa aktarılamaz.

Editöre çeşitli konularda ve dergide yayınlanan yazılarla ilgili mektuplar yazılabilir ve yazarlarından cevaplandırması istenebilir. Bunların dergide yayınlanıp-yayınlanmaması editörün yetkisindedir. Ayrıca dergide tıp alanındaki ulusal veya uluslararası bilimsel toplantıların tarihi, konusu ve konuşmacıları duyurulmak amacı ile yayınlanır.

Yazım Kuralları

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Orijinal makalelerde başlık sayfası, özet, giriş, gereç ve yöntem, bulgular, tartışma, kaynaklar; olgu sunumlarında özet, giriş, olgu(ların) sunumu, tartışma ve kaynaklar bölümleri yer almalıdır.

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Author AA, Author BB, Author CC, et al. Title of article. Abbreviated Journal Title. Year; Volume (Issue): Page-Page.

Bond AE, Eshah NF, Bani-Khalid M, et al. Who uses nursing theory? A univariated escriptive analysis of five years' research articles. *Scand J Caring Sci*. 2011;25(2):404-409. doi:xx.xxxx/xxxxxxxxxxxxxx.

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Davidson Baer E. Keyideas in nursing's first century. *Am J Nursing*. 2012;112(5):48- 55. http://journals.lww.com/ajnonline/Abstract/2012/05000/Key_Ideas_in_Nursing_s_First_Century.27.aspx Published May 2012. Accessed September 23, 2012.

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Saver, Cynthia. *Anatomy of Writing for Publication for Nurses.* Indianapolis, IN: Sigma Theta Tau International; c2011:31-33.

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RAPOR, KONGRE VB İÇİN;

Çevrimiçi Rapor

Author AA. Title of Report. URL. Published/Updated/ Revised date. Accessed date.

International Monetary Fund. World economic out look update. http://www.imf.org/ external/pubs/ft/weo/2012/update/02/. PublishedJuly 16, 2012. Accessed September 19, 2012.

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Cronin C. Memoing: An activetool in research. Poster presented at: RCN Annual International Nursing Research Conference; April 23, 2012. London, UK. http://www.rcn.org.uk/_data/assets/pdf_file/0005/445802/Research2012Mo01.pdf. Accessed September 23, 2012.

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If there are six or fewer authors: Özcan NN, Özçam G, Koşar P, Özcan A, Başar H, Kaymak Ç. Correlation of computed tomography, magnetic resonance imaging and clinical out come in acute carbonmonoxide poisoning. Braz J Anesthesiol. 2016; 66(5): 529-32. doi: 10.1016/j. bjane.2014.05.006

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