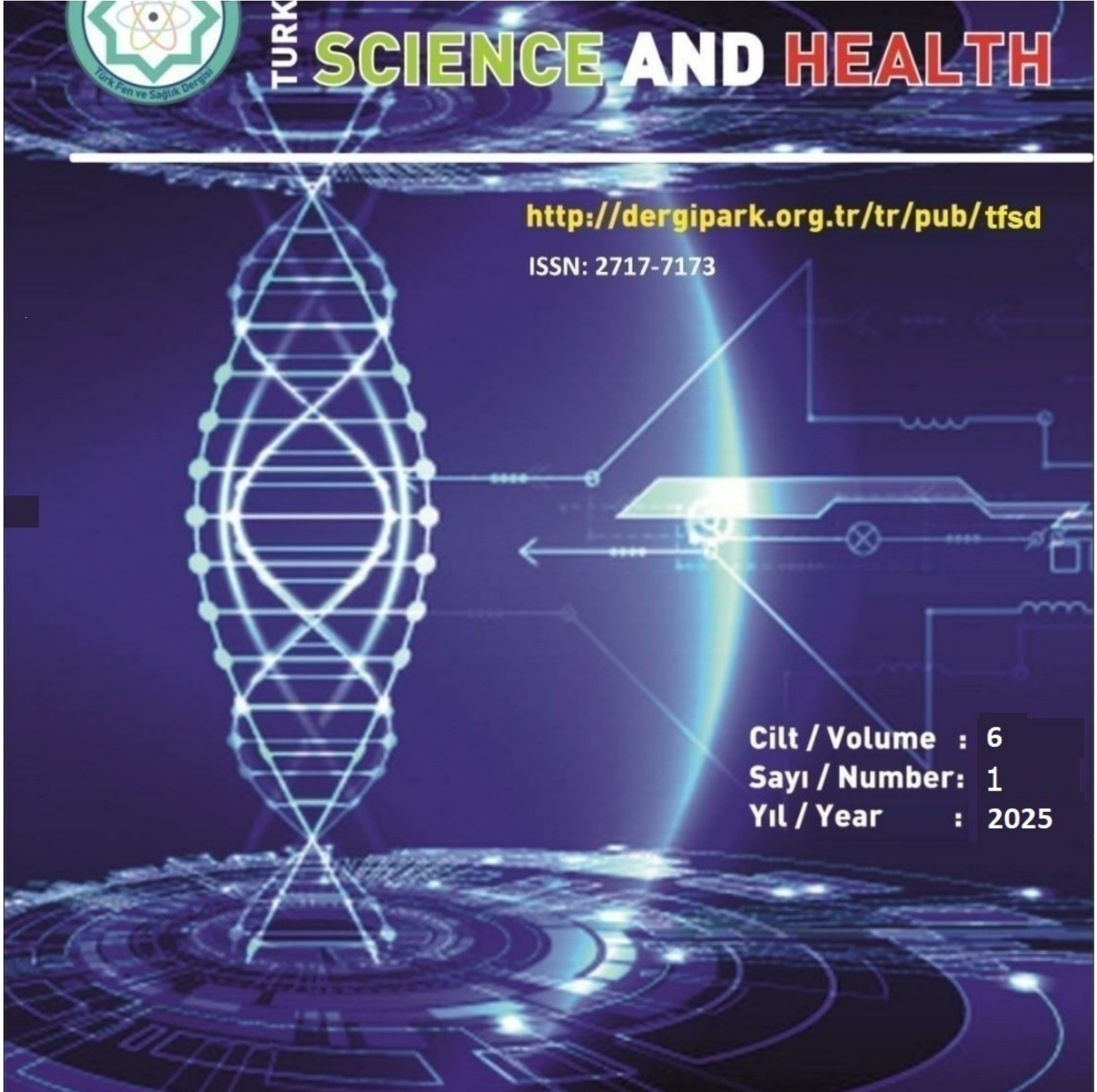
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Assessment of Medical Students' Knowledge Levels on HIV/AIDS: A Single-Center Study**

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ABSTRACT:
Purpose: Medical and dental students in various countries have demonstrated varying levels of knowledge and attitudes towards HIV/AIDS. Although many students are aware of HIV/AIDS, studies show significant gaps in knowledge about transmission modes and prevention techniques. This study assesses the knowledge of HIV/AIDS among medical students at a single institution in Turkey. The aim of the study is to evaluate the knowledge levels and awareness of medical students regarding HIV/AIDS.
Material and Methods: The study included 172 students from Sivas Cumhuriyet University. A questionnaire with 26 questions, including 23 knowledge-based and 3 demographic questions, was administered via Google Forms. Statistical analysis was performed using chi-square tests to evaluate associations between class years and correct responses.
Results: The majority of students demonstrated gaps in knowledge, particularly in the modes of transmission and prevention. For instance, 61% of participants believed incorrectly that mosquitoes can transmit HIV. Only 50% correctly identified that HIV can be transmitted from mother to child. Students in the third year had higher correct response rates compared to other years.
Conclusion: Despite overall awareness of HIV/AIDS, medical students showed significant gaps in their understanding. The medical curriculum should include more extensive education on HIV/AIDS, particularly in terms of transmission, prevention, and treatment.
Keywords: *HIV/AIDS; medical students; knowledge assessment; public health; medical education*

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INTRODUCTION

The Human Immunodeficiency Virus (HIV) is a retroviral agent that specifically infects helper T cells and macrophages inside the immune system. Transmission primarily occurs through the interchange of specific body fluids, particularly blood and semen (Calado et al., 2023). The immune system weakness resulting from HIV is referred to as Acquired Immunodeficiency Syndrome (AIDS). Despite a decline in new infections, the overall population living with HIV has reached 36.9 million individuals (Patel et al., 2021). The main role in preventing AIDS is education, and physicians and other healthcare employees also play a significant role in this education (Health Organization, 2020; Verrastro et al.2020). Healthcare professionals, particularly medical students, significantly contribute to the prevention and management of HIV and AIDS. Consequently, it is essential to provide accurate knowledge regarding HIV transmission, prevention, and appropriate attitudes towards HIV patients among medical student. Medical and dental students' knowledge and attitudes towards HIV/AIDS vary significantly across countries. Studies in Pakistan, Iraq, and Saudi Arabia suggest that while awareness is generally high, gaps exist in

understanding transmission modes and prevention techniques (Ali et al., 2018; Hamid et al 2015; Alwafi et al., 2018). These gaps can have implications for future healthcare professionals, especially those who will provide care to HIV-positive individuals. The study addresses the following two questions: To what extent do our students possess knowledge about HIV/AIDS? How does this knowledge vary across classes or divisions? The objective of this study is to evaluate the knowledge levels of medical students at Sivas Cumhuriyet University regarding HIV/AIDS, to identify areas of misinformation, and to suggest improvements in the medical curriculum.

MATERIAL and METHODS

Purpose and Type of the Study

This study is a single-center, cross-sectional study aimed at evaluating the knowledge levels of medical students regarding HIV/AIDS.

Sampling and participant

This study was conducted among medical students at Sivas Cumhuriyet University. A total of 172 students from the first to fourth years participated in the study. Fifth and sixth-year students were excluded to avoid potential biases due to their more advanced clinical training and experience.

Inclusion Criteria

- Medical students from the first to fourth years.
- Voluntary participation in the survey.

Exclusion Criteria

- Fifth and sixth-year students.
- Incomplete or partially filled surveys.

Data Collection Tools

Data were collected using a 26-question survey distributed via Google Forms. The survey included 23 questions about HIV/AIDS knowledge and 3 demographic questions.

Statistical Analysis

The data has been entered into the SPSS 23 software package. Descriptive statistics such as frequencies and percentages have been provided. For continuous variables, the mean and standard deviation values have been reported. For the comparison of categorical variables, Pearson Chi-Square and Monte Carlo Chi-Square tests were used. A significance level of $p<0.05$ was considered significant for all results.

Ethical Approval

This study was conducted in accordance with the ethical standards of Sivas Cumhuriyet University. Ethical approval was obtained from the Sivas Cumhuriyet University Ethics Committee with approval number 2024/06-23. Informed consent was obtained from all participants, and participation in the survey was voluntary and anonymous.

RESULTS

Out of 172 participants, 49.1% were male and 50.9% were female (Table 1). The average age was 21.19 ± 1.53 years.

Key findings included

Misconceptions about HIV transmission:

A significant portion of students (61%) believed that HIV could be transmitted by mosquitoes. The misconception was consistent across all academic years, with 1st-year students showing the highest percentage (55.6%) of incorrect responses, compared to 4th-year students (65.1%). The p-value for this misconception across academic years was not statistically significant (p=0.840)(Table 2). Regarding blood transmission, the vast majority of students (98%) correctly identified it as a mode of transmission, although only a few students incorrectly believed that HIV could not be transmitted this way (2.3%).

Understanding of HIV Prevention Methods:

Knowledge about pre-exposure prophylaxis was particularly low across all academic years, with only 6.4% of students correctly identifying it as a preventive measure. The percentage of correct responses ranged from 19.4% among 1st-year students to just 2.3% among 4th-year students, showing a significant gap in understanding. This difference was statistically significant (p=0.001)(Table 2).

Table 1. Gender and Academic Year Distribution of Medical Students

Characteristics	n(%)
Gender	
Male	85 (49.1%)
Female	88 (50.9%)
Year of the study	
1st year	36 (20.9%)
2nd year	40 (23.3%)
3rd year	53 (30.8%)
4th year	43 (25.0%)

Table 2. Comparison of Medical Students' Knowledge and Misconceptions About HIV/AIDS Vaccines, Transmission, and Prevention Across Academic Years

Questions	1.	2.	3.	4.	N	p
Is There a Vaccine for AIDS?						
Yes	13(%36,1)	6(%15,0)	4(%7,5)	5(%11,6)	28(%16,3)	0,003**a
No	23(%63,9)	34(%85,0)	49(%92,5)	38(%88,4)	144(%83,7)	
Can The HIV Virus Be Transmitted From Mother To Child?						
Right	20(%55,6)	24(%60,0)	24(%45,3)	18(%41,9)	86(%50,0)	
Wrong	11(%30,6)	13(%32,5)	26(%49,1)	22(%51,2)	72(%41,9)	0,297*a
Undecided	5(%13,9)	3(%7,5)	3(%5,7)	3(%7,0)	14(%8,1)	
Which of the Following Is Not a Preventive Measure for HIV?						
Pre-Exposure Prophylaxis	7 (%19,4)	1 (%2,5)	2 (%3,8)	1 (%2,3)	11 (%6,4)	
Post-Exposure Prophylaxis	10 (%27,8)	9 (%22,5)	2 (%3,8)	10 (%23,3)	31 (%18,0)	0,001***a
Vaccine	13 (%36,1)	28(%70,0)	46(%86,8)	29 (%67,4)	116(%67,4)	
Condom	6 (%16,7)	2 (%5,0)	3 (%5,7)	3 (%7,0)	14 (%8,1)	
Which Is Not a Mode of Transmission for HIV?						
Mosquitoes	20 (%55,6)	23(%57,5)	34 (%64,2)	28 (%65,1)	105 (%61,0)	
Blood	2 (%5,6)	1 (%2,5)	1 (%1,9)	0 (%0,0)	4 (%2,3	0,840b
Breast Milk	13 (%36,1)	16(%40,0)	17 (%32,1)	15 (%34,9)	61 (%35,5)	
Sexual Transmission	1 (%2,8)	0 (%0,0)	1 (%1,9)	0 (%0,0)	2 (%1,2)	

a: Pearson Chisquare, b: Monte Carlo Chi square, *p<0,05, **p<0,01, ***p<0,001

Post-exposure prophylaxis was somewhat better understood, with 18% of students identifying it as a preventive measure, although correct responses varied widely between academic years (p=0.001). For instance, 27.8% of 1st-year students correctly recognized PEP, compared to only 3.8% of 3rd-year students. A surprising 67.4% of students incorrectly believed that a vaccine for HIV exists. The proportion of students holding this belief was notably higher among more senior students, with 86.8% of 3rd-year students and 67.4% of 4th-year students incorrectly identifying a vaccine as a preventive measure (p=0.001).

Mother-to-Child Transmission:

Only 50% of the students correctly identified that HIV can be transmitted from mother to child. The correct response rate decreased as students advanced in their academic years, from 60% in 2nd-year students to just 41.9% in 4th-year students. The difference in knowledge between academic years was not statistically significant (p=0.297)(Table 2).

HIV Treatment and AIDS Progression:

When asked whether HIV could progress to AIDS if untreated, 50.9% of students correctly identified that it could. However, knowledge about preventive treatments, such as pre-exposure prophylaxis and post-exposure prophylaxis, was limited. For instance, while 82% of students knew about post-exposure prophylaxis, only 35.5% of students were aware of pre-exposure prophylaxis, showing a notable gap in understanding of HIV prevention strategies. As seen in Table 3, this lack of knowledge was most pronounced in the earlier years of study, with only 19.4% of 1st-year students identifying PrEP

as a prevention method, and it worsened by the 4th year, where only 2.3% of students knew about it. This difference was statistically significant (p=0.001)(Table 2).

Vaccine Misconception:

A significant misconception was the belief that there is a vaccine for HIV. Across all academic years, 67.4% of students incorrectly believed that a vaccine exists for HIV, with the highest incorrect response rates observed among 3rd-year students (86.8%). This widespread misconception highlights a critical area for educational improvement, especially since more senior students were more likely to hold this erroneous belief (p=0.001)(Table 2).

Attitudes Toward HIV Transmission Modes:

Regarding the mosquito transmission misconception, 61% of students believed that HIV could be transmitted by mosquitoes, a misconception that did not show significant variance across academic years (p=0.840). This highlights a persistent misunderstanding about the basic biology of HIV transmission, even as students progressed through their medical education. Blood transmission was correctly identified by 98% of students, with only a small percentage (2%) failing to recognize it as a mode of HIV transmission. This knowledge appeared consistent across academic years.

Comparative Knowledge Levels by Year (Table 3):

Year 1: Students in the 1st year scored the lowest in terms of overall knowledge, particularly with regard to HIV prevention and transmission. For instance, only 55.6% correctly identified that HIV could not be transmitted by mosquitoes, and only 63.9% knew that there was no vaccine for AIDS. Year 2: Students showed a slight improvement in knowledge, with 70% correctly identifying that there is no HIV vaccine. However, misconceptions persisted, particularly regarding HIV prevention methods like pre-exposure prophylaxis and post-exposure prophylaxis. Year 3: Students in the 3rd year demonstrated the highest level of knowledge, with an average knowledge score of 85 out of 100. However, even among this group, significant gaps remained, especially concerning the existence of an HIV vaccine and mother-to-child transmission. Year 4: Fourth-year students showed slight declines in certain areas of knowledge compared to 3rd-year students. For example, 67.4% incorrectly believed that there was a vaccine for HIV, and only 41.9% correctly identified mother-to-child transmission as a mode of HIV transmission.

Table 3. Distribution of Average HIV/AIDS Knowledge Scores by Academic Year

Year of Study	Average Knowledge Score (Out of 100)
1st Year	65
2nd Year	70
3rd Year	85
4th Year	80

DISCUSSION

It is evident that AIDS remains a crucial health concern globally, having a prevalence rate of 0.64%, and the incidence of the disease is constantly increasing (de et al., 2020). Major modes of transmission of HIV include blood transfusions, organ transplants, contaminated needles and syringes, riskier sexual behaviors, vertical transmission from mother to child, and breastfeeding (Shaw et al., 2012). Despite these well-established mechanisms, misconceptions related to modes of transmission such as shared utensils, meals, handshaking, kisses, or talking persist both among medical students and the general population. Parcaoglu et al. (2017).

The results of our study agree with several studies conducted in many countries that showed that medical students tend to have some information on

HIV/AIDS, though substantial information gaps exist on modes of transmission and prevention. Ali et al., 2018; Hamid Albujeer et al., 2015; Alwafi et al., 2018. In our study, 61% of students believed wrongly that HIV could be passed on through mosquito bites-a myth also observed in previously conducted research (Ali et al., 2018). This reflects the persistence of myths among the public and the failure of education to eradicate such misconceptions. Of paramount importance is the incorporation early and effectively in the curriculum that HIV is only transmitted via a certain few body fluids, which is the biological reality.

Similarly, studies conducted at Atatürk University showed that the final-year students possessed a good overall knowledge but still held misconceptions regarding the modes of transmission, such as mother-to-child and sexual contact (Kesmez Can and Alay, 2021). Our results indicated that 86.8% of third-year students mistakenly believed that there is an HIV vaccine, highlighting that even among advanced students, knowledge gaps persist. These gaps indicate the need to reinforce such topics throughout the curriculum.

Similar trends were also noted in studies at Atatürk University, where medical students had different levels of knowledge. The seniors were generally performing better than the juniors, but there were still misconceptions about HIV transmission, such as mother-to-child and sexual modes of transmission (Kesmez Can and Alay, 2021). In our study, although senior students had higher knowledge levels, as many as 86.8% of third-year students incorrectly believed that a vaccine for HIV exists. This finding identifies the persistent knowledge gaps among even the advanced students and reinforces the need to remind students of these topics throughout the curriculum.

Among students of health sciences in Konya, there was relatively good knowledge regarding modes of transmission of HIV, though misconceptions about methods of testing and treatment prevailed (Maimaiti, Tekin, and Sener, 2018). The study stressed that addressing these persistent gaps in medical education programs is critical, as such misconceptions could impact students' future roles as healthcare providers (Maimaiti et al., 2018). Similarly, other studies in Turkey reported low knowledge levels and substantial misconceptions among university students, particularly dental students. Atas and Yildirim (2020) established a poor level of knowledge on the modes of transmission of HIV among dental students from Fırat and Dicle Universities and their reluctance to treat HIV-positive patients. This situation was further reported to have remained significantly high even after two decades by Yanikoglu et al. (2020) at Atatürk University Dental Faculty (Karalar et al., 2021).

Awareness of new HIV prevention methods, such as pre-exposure prophylaxis, was especially low, with only 6.4% of students in our study aware of it. This suggests that the curriculum does not adequately cover modern prevention strategies. HIV/AIDS education should go beyond mere biological knowledge to include modern treatment and prevention techniques. These gaps are supported by literature to be addressed through the inclusion of effective educational methods, such as interactive workshops and case-based learning, in medical curricula (Maimaiti et al., 2018).

Our findings reflect the global trend. Similar patterns were reported in studies conducted in Croatia, India, and Serbia, indicating misconceptions about HIV transmission and prevention among senior students of medical disciplines (Ljubas, Škornjak, and Boži ević, 2024; Vowa, Jankovic, and Savu, 2015; Patsani et al., 2023). For example, both clinical and preclinical students in Croatia and Serbia had better knowledge, yet misconceptions on transmission, such as through mosquito bites and needlestick injuries, were still at a high level (Ljubas et al., 2024; Vowa et al., 2015). In India, a review underlined that misconceptions about casual contact transmission in young adults were still predominant and underlined the necessity of structured HIV/AIDS education (Patsani et al., 2023). A study conducted in the United Arab Emirates similarly reported that stigmatizing attitudes toward people living with HIV were common, particularly among male students. Haroun, El Saleh, Wood, Mechli, Al Marzouqi, and Anouti (2016).

Our results also showed that third-year students were better informed than other years, reflecting the progressive influence of the medical curriculum.

However, misconceptions like the belief that HIV can be transmitted by mosquitoes underline the fact that even medical students do not fully understand important aspects of the modes of transmission of HIV. In the same trend, the knowledge level among health-related faculty students was also found to be with significant gaps at Istanbul Aydın University by Altinok, Bayazit, and Agacfidan (2022). This necessitates more comprehensive and focused education on HIV/AIDS at earlier periods in medical training. Interestingly, Balıkesir University students were reported to have adequate knowledge and positive attitudes toward HIV/AIDS, with mass media being the primary source of their information. In contrast to this finding by Avcikurt (2014), our findings suggest that there is no improvement in knowledge with the increase in academic year or age of the students, thus a well-structured and regular approach during the entire medical training is required.

The high prevalence of wrong beliefs on the presence of a vaccine for HIV was from the senior students, since as high as 86.8% of students were third-year students. As was not expected, even knowledge gaps among the first year did not minimize among older students. It means constant and serious HIV/AIDS education is definitely called for throughout all years. Despite global awareness campaigns aimed at improving HIV/AIDS knowledge, the gaps identified in this study suggest that societal stigma and taboos surrounding HIV may inhibit access to accurate information. Particularly in developing countries, HIV/AIDS education programs should adopt a more inclusive and comprehensive approach that addresses societal stigma to enhance understanding (Haroun et al., 2016).

CONCLUSION

Our findings, like those reported in Turkey and elsewhere, emphasize the need to further develop HIV/AIDS education for students. While there is an overall high awareness, very important gaps and misconceptions exist in the areas of transmission, prevention, and treatment. These deficiencies need to be specifically addressed in order to competently prepare future generations of medical professionals to take up effective management of HIV/AIDS. Education needs to be strengthened to ensure these gaps are filled, with provision of accurate and up-to-date knowledge, as well as its systematic inclusion throughout curricula.

Limitations

The study has some limitations. First, it was conducted in a single center, which may limit the generalizability of the findings to other medical schools in Turkey or internationally. Additionally, the exclusion of fifth- and sixth-year students, who have more clinical experience, may have resulted in underestimating overall knowledge levels. Furthermore, the use of self-reported surveys may introduce response bias, where students might overestimate their knowledge or provide socially desirable answers.

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Conflict of Interest

The authors declare no conflict of interest.

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Research Article

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The Effect of Nurses' Spirituality and Spiritual Care Status upon Death Perceptions

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ABSTRACT:
Purpose: This study was done to investigate how nurses' spirituality and spiritual care status affected death perceptions.
Material and Methods: The population of this descriptive study was consisted of nurses who worked at palliative care clinic and intensive care unit of a city hospital located in a city. No sampling was made in the study and the study was completed with 91 nurses who volunteered to join the study. This study was conducted in a city hospital in a province between August and October 2019. To collect study data; Information Request Form used to collect characteristics of nurses' socio-demographic characteristics and spiritual care and death concept- and Spirituality and Spiritual Care Rating Scale and Death Attitude Profile Scale were used. To analyze the data; percentages, means, Kruskall Wallis, Mann Whitney-U, and correlation analysis were used.
Results: It was identified that nurses' average age was 31.87±7.0, 67% of them were female, 63.7% of them had undergraduate degree, 37.4% of them had a working period of 6-10 years and 81.3% of them were employed at intensive care units. Among the participant nurses, 64.8% did not receive on-the-job training on spiritual care, whereas 53.8% of them did not receive on-the-job training on the concept of death. Nurses' average total score of Spirituality and Spiritual Care Rating Scale was 42.93±6.08 and average total score of Death Attitude Profile Scale was 108.67±18.08. It was understood that there was a positive and weak correlation between nurses' spirituality, spiritual care status and their attitudes towards death.
Conclusion: According to the study result; it was found that status of nurses' perceiving spirituality and spiritual care concepts and their attitudes towards death were at moderate level. As the level in which nurses perceived spirituality and spiritual care concepts increased, so did their level of positive attitudes towards death. It may be recommended that nurses who are employed at critical units such as palliative care clinics and intensive care units should be given trainings about spirituality, spiritual care and death.
Keywords: *Spirituality; spirituality care; death perceptions; nurse*

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INTRODUCTION

The importance of individuals' spiritual needs has become clear with the adoption of the holistic approach, and new care has arisen in addition to the services used in health care, and due to the strong effect of the spiritual dimension on health-related behaviours and attitudes it has been regarded as the "primary element" of the holistic care philosophy (Erol, 2020; de Diego-Cordero et al., 2022a; de Diego-Cordero et al., 2022b). Spiritual care has been regarded as a critical component of palliative care, which has been recognized by the World Health Organization (WHO)'s definition of palliative care for nearly 15 years and is included in this definition. Spiritual care is of great importance for healthcare professionals who deliver individualized care by addressing the spiritual needs of patients in end-of-life care, and understanding spirituality by nurses will guide the planning of nursing care (Gijsberts et al., 2019; Erol, 2020; Rego et al., 2020). Spirituality, as one of the most fundamental traits of human beings, is a concept that incorporates different meanings and feelings for each person. People are able to attribute spirituality to subjective meanings in their

own experiences and lifestyles (Dossey and Keegan, 2013). Spirituality is a dynamic and internal aspect of humankind in which individuals seek ultimate meaning and purpose and experience important or sacred interactions with themselves, their families, others, their community, society, and nature. Beliefs, values, traditions, and practices are all ways in which spirituality may be expressed (Puchalski et al., 2014; de Diego-Cordero et al., 2022a; de Diego-Cordero et al., 2022b). In this context, spiritual care is particularly important in intensive care units (ICUs) and emergency rooms in assessing the complexity of illnesses, unanticipated changes and severity that cause loss of hope, anxiety, fear, and stress, and the critical condition of patients (de Diego-Cordero et al., 2022a). The significance of spiritual care in such settings has already been confirmed by some studies, which have indicated improvement in stress, self-esteem, and depression, as well as shorter lengths of hospital stays and lower expenses for health care (Riahi et al., 2018; Abu-El-Noor, 2016). It is very important for holistic nursing care that nurses are aware of the spiritual needs of their patients and are able to provide supportive spiritual service no matter what their own attitudes or spiritual thoughts towards death (Kudubeş et al., 2021).

Spiritual care, which has been shown to be beneficial in both the recovery of patients and the functioning of healthcare services, is brought to the forefront for nurses who work in critical care units. When providing care for patients, nurses should be aware of how they perceive spirituality and mortality. The way in which nurses perceive spiritual care and needs, as well as their willingness and sensitivity, all play a significant role in satisfying spiritual needs. In addition to all of these, the delivery of spiritual care is also affected by other factors such as the working environment and circumstances, communication with other healthcare professionals, and the patient's being open to communicate. Studies have indicated that one of the reasons why nurses have low perceptions of the spiritual support available to them is their attitudes towards death (Ergül and Bayık, 2004; Akgün et al., 2010; Daştan and Buzlu, 2010). However, spiritual care is seldom included into routine clinical practices by healthcare professionals. Various reasons, such as lack of understanding of the concept of spirituality among health care professionals, the imposition of their own beliefs on patients or the fear of offending patients, preference for biological topics, and lack of education have been represented as barriers to the incorporation of this care (de Diego-Cordero et al., 2022a). For nurses to be able to cope healthily with the stress, distress, and strain that arise because of frequent encounters with death, nurses must be mentally prepared, primarily for their mental health (Akarslan et al., 2024). The adoption of spirituality and spiritual care by nurses requires them to be aware of how they perceive death and the care they provide for patients. Thus, when nurses provide care to their patients in accordance with spiritual care, which is an element of holistic care, this will improve their perceptions of spiritual care.

MATERIAL and METHODS

Purpose and Type of the Study

The aim of this study is to examine how spirituality and spiritual care of nurses affects their perception of death. The study was conducted as a correlational descriptive study.

Research Questions

1- What is the level of nurses' perception of spirituality and spiritual care and their attitudes towards death?

2- Do the introductory characteristics of nurses affect their perception of spirituality and spiritual care and their attitudes towards death?

3- Do nurses' perception of spirituality and spiritual care affect their attitudes towards death?

Research Time and Setting

This study was conducted in a city hospital in a province between August and October 2019.

Research Population and Sample

The population of this descriptive study consisted of the nurses who worked in intensive care units and palliative care clinics within a city hospital in a province. Any sample selection was not used in the study and it was completed with the participation of 91 nurses who had voluntarily agreed to participate in the study. The data were gathered using a

descriptive characteristics form on the socio-demographic characteristics of nurses and their descriptive characteristics related to the concepts of spiritual care and death as well as Spirituality and Spiritual Care Rating Scale, and the Death Attitude Profile.

Data Collection Tools

Descriptive Characteristics Form: This form includes total 7 questions about nurses' age, gender, educational level, and whether or not they have had training in spiritual care and death (Ergül and Bayık, 2004; Ercan et al., 2018; Işık et al., 2009; Kaya, 2018).

Spirituality and Spiritual Care Rating Scale (SSCRC): McSherry et al., (2002) developed the Spirituality and Spiritual Care Rating Scale. This five point Likert-type scale has a total of 17 items. Its subscales include religiosity (items 4, 5, 13, and 16), spirituality and spiritual care (items 6, 7, 8, 9, 11, 12, and 14), and personalised care (items 1, 2, and 10). Each item is rated between [1] "Strongly Disagree" and [5] "Strongly Agree". On this scale, the first 13 items are scored directly, while the last four items are reversely scored. A total mean score being relatively near 5 signifies that the perception level of the spirituality and spiritual care concepts is high. The highest and lowest scores of the scale are 69 and 17, respectively with 31 for spirituality and spiritual care, 16 for religiosity, and 15 for personalised care. The Cronbach's α value for the scale was 0.64 in the study by McSherry et al.,. Ergül and Temel-Bayık (2007) conducted the validity and reliability study of the scale in Turkey, and the Cronbach's Alpha coefficient was determined to be 0.76 within the scope of internal consistency. Although there are subscales in the original version of the scale, Ergül and Temel-Bayık (2007) recommend an assessment based on the total score in their Turkish adaptation and validity study (McSherry et al.,2002; Ergül and Bayık-Temel, 2007). The Cronbach's Alpha value in this study was determined to be 0.67.

Death Attitude Profile (DAP): Wong et al., (1994) developed the Death Attitude Profile to assess individuals' attitudes towards death. This multidimensional and Likert type scale has 32 items, that are rated between [1] "Strongly Disagree" and [7] "Strongly Agree". The Death Attitude Profile is based on the view that death exists and assesses attitudes towards death with five subscales: fear of death, death avoidance, neutral acceptance, approach acceptance, and escape acceptance. As scores are gotten for each subscale of the scale, the total score of the scale may eventually be obtained. The most important advantage of the Death Attitude Profile is that it can directly assess the type and degree of acceptance of death, rather than assuming that it is a consequence of low death concern (Wong et al., 1994). Işık et al., (2009) conducted the Turkish validity and reliability study of the scale. DAP consists of 26 items. This is a seven point Likert-type scale that is rated from "Strongly Disagree" to "Strongly Agree". The scale includes reverse items (items 2, 3, 6, 7, 9, 12, 13, 14, 15, 17, 18, 20, 21, and 25). The higher the total score achieved on the scale, the more positive the attitude towards death (Işık et al., 2009). The scale was reduced to three subscales in its reliability and validity study. Those subscales are Neutral Acceptance-Approach Acceptance, Escape Acceptance and Fear of Death and Death Avoidance (Işık et al., 2009). The Cronbach's Alpha value in this study was also determined to be 0.81.

Data Collection

The researcher collected data by visiting the unit where they worked, depending on the number of nurses in the unit, their availability, and work schedules. Following the necessary explanations, the volunteer nurses were provided with a form to participate in the study. It took an average of 25-30 minutes to complete the forms.

Data Analysis

The SPSS for Windows 25 software (Statistical Package for the Social Sciences Inc., Chicago, IL, ABD) was used to analyse the data. The data was analysed using numbers, percentages, minimum and maximum values, mean and standard deviations, and since the data were not normally distributed, the Mann Whitney-U test was utilized to compare paired groups, the Kruskal Wallis Analysis was performed to compare multiple groups, and the Spearman correlation analysis was used to compare continuous

variables (Büyüköztürk, 2014). The significance level was accepted as $p<0.05$ in the study.

Ethical Considerations

After acquiring ethical committee approval (30/05/2019-Protocol No: 06/01) from the Human Research Ethics Committee of Erzincan Binali Yıldırım University for the study, formal permission was received from the institution where the study would be conducted (28/08/2019-E 8191). The nurses were informed about the objective and advantages of the study and their verbal consent was acquired. They were assured that their personal data would be kept confidential.

RESULTS

Demographic Characteristics of the nurses

It was determined that the mean age of the nurses was 31.87±7.0, 67% were female, 63.7% had a bachelor's degree, 37.4% worked for 6-10 years and 81.3% worked in the intensive care unit. Among the participant nurses, 64.8% did not receive on-the-job training on spiritual care, whereas 53.8% of them did not receive on-the-job training on the concept of death (Table 1).

It was determined that the SSCRC total mean score of the nurses was 42.93 ± 6.08, and their DAP total mean score was 108.67 ± 18.08 (Table 2).

Table 1. Participant Demographic Characteristics (n=91)

Demographic Characteristics	n	%	
Gender			
Female	61	67.0	
Male	30	33.0	
Educational Level			
High School	8	8.8	
Associate Degree	22	24.2	
Bachelor's Degree	58	63.7	
Master's Degree and Doctorate	3	3.3	
Duration of Working			
0-5 years	26	28.6	
6-10 years	34	37.4	
11-15 years	18	19.8	
16-20 years	7	7.7	
21 years and more	6	6.5	
The Unit They Worked in			
Palliative Care	17	18.7	
Intensive Care	74	81.3	
Status of Receiving In-Service Training on Spiritual Care			
Yes	32	35.2	
No	59	64.8	
Status of Receiving In-Service Training on Death			
Yes	42	46.2	
No	49	53.8	
Age			
Mean SD:	31.87±7.0	Min: 19	Max: 54

SD: Standard Deviation

Table 2. Distribution of Nurses' Scores in SSCRC*, DAP**, and their Subscales (n = 91)

The Scales and their subscales	Min. score to be obtained	Max. to be obtained	Min. score obtained	Max. score obtained	Mean	SD
Spirituality and spiritual care	7.00	31.00	7.00	31.00	13.96	4.81
Religiosity	8.00	20.00	8.00	16.00	15.31	2.92
Personalised care	3.00	15.00	3.00	12.00	5.64	2.01
Total SSCRC	**17.00**	**69.00**	**29.00**	**61.00**	**42.93**	**6.08**
Neutral Acceptance	12.00	84.00	29.00	83.00	58.73	10.83
Escape Acceptance	5.00	35.00	6.00	30.00	19.03	5.28
Fear of Death and Death Avoidance	9.00	63.00	9.00	50.00	30.91	8.66
Total DAP	**3.50**	**5.00**	**49.00**	**141.00**	**108.67**	**18.08**

* SSCRC: Spirituality and Spiritual Care Rating Scale, ** DAP: Death Attitude Profile

When Table 3 was examined, it was found that the difference between the total mean score on spirituality and spiritual care was statistically significant based on the units they worked in, and status of receiving in-service training on spiritual care and death ($p<0.05$, $p<0.001$). The levels of spirituality and spiritual care were not affected by the nurses' gender, age, educational level, and length of service ($p>0.05$) (Table 3).

The difference in the DAP total mean score of the nurses included in the study based on their educational level and duration of working was statistically significant. The nurses' attitude towards death was not affected by their gender, age, the unit, spiritual care, and status of receiving training on spiritual care and death (Table 4). A weak positive correlation was found between nurses' spirituality and spiritual care and their death attitude (Table 5).

Table 3. Comparison of Descriptive Characteristics of the Nurses and their mean scores in the SSCRC and subscales (n=91)

Descriptive Characteristics	n/%	Spirituality and spiritual care		Religiosity		Personalised care		Total SSCRC	
		Mean	SD.	Mean	SD.	Mean	SD.	Mean	SD.
Gender									
Female	61(67.0)	14.33	5.09	15.05	2.82	5.92	2.05	43.49	6.34
Male	30(33.0)	13.20	4.16	15.83	3.10	5.07	1.82	41.80	5.42
		MW-U*=835.5 p=0.499		MW-U=791.0 p=0.222		MW-U=771.5 p=0.086		MW-U=791.0 p=0.294	
Educational Level									
High School	8(8.8)	12.50	4.72	16.00	3.85	6.00	2.73	43.50	6.63
Associate Degree	22(24.2)	13.36	4.35	14.41	2.46	5.95	1.89	41.64	6.16
Bachelor's Degree	58(63.7)	14.47	4.80	15.41	2.87	5.52	1.93	43.36	5.89
Master's Degree and Doctorate	3(3.3)	12.33	9.24	18.00	3.46	4.67	2.89	42.67	9.81
		KW**=1.353 p=0.717		KW=4.987 p=0.173		KW=2.249 p=0.522		KW=1.264 p=0.738	
Duration of Working									
0-5 years	26(28.6)	15.00	4.69	15.50	3.42	5.14	2.38	42.27	6.57
6-10 years	34(37.4)	13.05	4.45	16.00	2.86	5.41	1.69	43.15	5.87
11-15 years	18(19.8)	14.03	4.77	15.79	2.64	6.67	2.00	44.00	6.53
16-20 years	7(7.7)	15.00	5.50	13.89	3.01	6.29	1.80	42.00	5.94
21 years and more	6(6.6)	14.71	5.12	13.86	3.39	4.00	1.26	39.83	5.49
		KW=1.478 p=0.831		KW=7.942 p=0.094		KW=10.231 **p=0.037**		KW=2.687 p=0.612	
The Unit They Worked in									
Palliative Care	17(18.7)	15.29	2.34	14.53	1.97	6.24	0.97	45.18	3.61
Intensive Care	74(81.3)	13.65	5.18	15.49	3.08	5.50	2.16	42.42	6.42
		MW-U=473.0 p=0.110		MW-U=521.5 p=0.270		MW-U=481.5 p=0.127		MW-U=415.0 **p=0.029**	
Status of Receiving In-Service Training on Spiritual Care									
Yes	32(35.2)	11.28	4.28	17.00	3.28	4.53	1.90	40.44	4.66
No	59(64.8)	15.41	4.48	14.39	2.24	6.24	1.81	44.29	6.36
		MW-U=471.0 **p=0.000**		MW-U=518.0 **p=0.000**		MW-U=502.0 **p=0.000**		MW-U=554.5 **p=0.001**	
Status of Receiving In-Service Training on Death									
Yes	42(46.2)	12.02	4.02	16.50	3.16	4.93	1.87	41.05	4.71
No	49(53.8)	15.61	4.86	14.29	2.27	6.24	1.94	44.55	6.67
		MW-U=611.0 **p=0.001**		MW-U=618.0 **p=0.001**		MW-U=664.5 **p=0.003**		MW-U=685.5 **p=0.006**	
Age									
Mean SD: 31.87±7.0 (Min: 19 Max: 54)		r***=0.56 p=0.596		r=-0.219 **p=0.037**		r=0.61 p=0.567		r=-0.003 p=0.981	

* Mann Whitney-U test, ** Kruskal Wallis Analysis, *** Spearman's Correlation Analysis

Table 4. Comparison of Descriptive Characteristics of the Nurses and their mean scores in the DAP and subscales (n=91)

Descriptive Characteristics	n/%	Neutral Acceptance		Escape Acceptance		Fear of Death and Death Avoidance		Total DAP	
		Mean	SD.	Mean	SD.	Mean	SD.	Mean	SD.
Gender									
Female	61(67.0)	60.25	10.33	19.18	5.52	31.49	9.02	110.92	17.53
Male	30(33.0)	55.63	11.33	18.73	4.83	29.73	7.87	104.10	18.61
		MW-U*=751.0 p=0.166		MW-U=838.5 p=0.517		MW-U=789.5 p=0.289		MW-U=715.5 p=0.092	
Education Level									
High School	8(8.8)	62.38	10.61	19.50	6.41	28.63	5.10	110.50	15.17
Associate Degree	22(24.2)	56.86	10.60	18.09	4.40	28.86	10.46	103.82	18.63
Bachelor's Degree	58(63.7)	60.02	10.00	19.53	5.39	32.45	8.04	112.00	16.33
Master's Degree and Doctorate	3(3.3)	37.67	6.81	15.00	6.25	22.33	6.66	75.00	19.16
		KW**=01.248 **p=0.017**		KW=2.427 p=0.489		KW=6.298 p=0.098		KW=9.891 **p=0.020**	
Duration of Working									
0-5 years	26(28.6)	58.91	9.01	21.86	4.48	32.09	6.41	112.86	14.99
6-10 years	34(37.4)	57.06	11.98	18.21	4.76	28.53	10.34	103.79	19.10
11-15 years	18(19.8)	64.28	8.25	19.50	5.08	35.06	6.16	118.83	12.59
16-20 years	7(7.7)	53.57	8.62	16.14	5.43	32.43	5.94	102.14	11.80
21 years and more	6(6.6)	53.33	13.43	13.50	4.09	23.50	7.69	90.33	22.81
		KW=7.523 p=0.111		KW=9.084 p=0.059		KW=6.119 p=0.190		KW=13.394 **p=0.010**	
The Unit They Worked in									
Palliative Care	17(18.7)	59.00	8.40	19.47	4.21	29.35	11.10	107.82	12.73
Intensive Care	74(81.3)	58.66	11.36	18.93	5.52	31.27	8.04	108.86	19.16
		MW-U=626.0 p=0.976		MW-U=608.5 p=0.834		MW-U=576.0 p=0.589		MW-U=574.0 p=0.575	
Status of Receiving Any Training on Spiritual Care									
Yes	32(35.2)	57.22	10.12	19.69	5.11	28.50	8.40	105.41	17.80
No	59(64.8)	59.54	11.19	18.68	5.38	32.22	8.58	110.44	18.13
		MW-U=812.5 p=0.274		MW-U=826.0 p=0.326		MW-U=817.5 **p=0.049**		MW-U=761.0 p=0.128	
Status of Receiving Any Training on Death									
Yes	42(46.2)	57.48	11.55	18.76	4.74	29.52	7.97	105.76	17.39
No	49(53.8)	59.80	10.17	19.27	5.74	32.10	9.11	111.16	18.46
		MW-U=932.0 p=0.440		MW-U=946.0 p=0.508		MW-U=664.5 p=0.092		MW-U=819.5 p=0.095	
Age Mean SD: 31.87±7.0 (Min: 19 Max: 54)		r***=0.56 p=0.597		r=-0.286 **p=0.006**		r=-0.71 p=0.503		r=-0.115 p=0.277	

* Mann Whitney-U test, ** Kruskal Wallis Analysis, *** Spearman's Correlation Analysis

Table 5. Assessment of Correlation between the SSCRC, DAP, and their Subscales (n= 91)

The scales		Spirituality and Spiritual Care	Religiosity	Personalised care	SSCRC
Neutral Acceptance	r*	0.146	-0.105	0.264	0.204
	p	0.167	0.323	**0.011**	0.053
Escape Acceptance	r	0.134	-0.098	0.244	0.161
	p	0.206	0.356	**0.020**	0.127
Fear of Death and Death Avoidance	r	0.224	-0.289	0.300	0.162
	p	**0.033**	**0.005**	**0.004**	0.125
DAP	r	0.234	-0.230	0.373	0.247
	p	**0.026**	**0.028**	**0.000**	**0.018**

*Spearman's Correlation Analysis

DISCUSSION

Nurses who adopt a holistic approach to provide care should identify patients' spiritual needs, address spiritual care, and assess it in their nursing care (Yelen Akpınar and Aşti, 2021). In order to achieve this, nurses should be aware of spirituality and spiritual care, as well as their own death attitudes.

The results of the study revealed that the nurses had moderate perceptions of the concepts of spirituality and spiritual care, as well as moderate attitudes towards death (Table 2). Numerous studies including nurses working in different units indicated that their level of spirituality and spiritual care was moderate to high (Çelik et al., 2014; Uzelli Yılmaz et al., 2019; Dündar, 2021; Polat and Özdemir, 2022). Likewise, nurses' attitudes towards death were found to be moderate in a study conducted with nurses (Kaya, 2018). Nurses who adopt spirituality while providing care and are aware of their attitudes towards death would be more effective in providing holistic care.

Because of the yield of holistic care and the positive effects of spirituality on individuals, it is crucial for nurses to integrate spiritual care into their practices (Erol, 2020). Even though spiritual care has been acknowledged as the foundation of nursing practice and nurses have both the intention and the motivation to deliver spiritual care, the findings of the study indicated that many do not deliver this sufficiently (Burkhart and Schmidt, 2012), and this integral aspect of holistic care is often neglected (Momennasab et al., 2019). In this study, it was determined that the nurses' in-service training on spiritual care and death affected their levels of spirituality and spiritual care, although gender, age, education level, duration of working, and their unit did not. Mamier (2018) claims that the spiritual care practices of nurses who received spiritual care training increased in his study with nurses. The insufficiency of nurses' knowledge about spiritual care in a study conducted with nurses working in inpatient treatment services at a university hospital revealed that training was required on this matter and increasing the number of staff members in the clinic was important for spiritual care (Ercan et al., 2018). In their study, Uslu Şahan and Terzioğlu (2020) determined that more than half of the nurses in the oncology clinic were not trained in spiritual care. In another study, it was noticed that nurses in internal medicine and surgical clinics also had information requirements about spiritual support (Uzelli Yılmaz et al., 2019). Likewise, a study conducted by Dündar (2021) with nurses determined that many variables (gender, marital status, education level, the unit, and duration of professional experience) did not affect nurses' perception of spiritual care. A study by Çelik et al., (2014) with nurses revealed that the total working year, working type, weekly working hours, division, shift type, and past hospitalization did not affect the level of perception of spirituality and spiritual care. Differently from the study's result, another study reported that the age and spiritual well-being of the nurses who were included in the study had a direct and significant correlation with the attitudes that oncology nurses hold toward spiritual care (Khorami et al., 2018). The difference in the results of the study may be attributable to the fact that the nurses work in different units and have different socio-demographic characteristics. Also, the results of this study indicated that the nurses' attitudes towards death were affected by their duration of service and educational level, but gender, age, the unit, spiritual care, and status of receiving training on death did not have an effect on their attitudes towards death. Especially the education level of the nurses and the experiences they have gained during the working period had a positive effect on their attitudes towards death.

Nurses are in continual interaction with individuals of all ages and with different experiences and they are exposed to a variety of crisis circumstances in which patients question the meaning and value of their lives. The spiritual beliefs and values held by both the patient and the nurse affect the capacity to manage crisis circumstances. To cope with spiritually the patient they care, nurses must first be aware of their own spiritual values and have a perspective that can assess the patient's and his/her family's condition, as well as their spiritual coping mechanisms. It is of the utmost importance for nurses to satisfy the spiritual needs of individuals in accordance with holistic care and reflect this onto their nursing care (Erol, 2020). This study revealed that spirituality and spiritual care of nurses affected their attitude towards death. In a study, it was

observed that the positive attitudes of nurses towards death positively affected their perception of spiritual support (Selvi, 2019). In another study, a positive correlation was found between nurses' spiritual well-being and their attitudes towards spiritual care (Khorami et al., 2018). Since spirituality is a concept that incorporates the notion of death, the consideration that nurses devote to spirituality would increase their attitudes towards death.

Limitations

Since this study was conducted in a single center and the nurses who worked in intensive care units and palliative care clinics. The research was conducted in a specific region; thus, it should be repeated in different populations as cultural and social norms may affect the result. More studies are required in order to repeat these research results in countries with different health systems.

CONCLUSION

Consequently, it was determined that the nurses had moderate perceptions of the concepts of spirituality and spiritual care, as well as moderate attitudes towards death. As the nurses' perception level of the concepts of spirituality and spiritual care increased, so did their positive attitude towards death.

In the light of these findings, it may be asserted that providing the nurses who are assigned to critical points, such as palliative care clinics and intensive care units with training on spirituality, spiritual care, and death as well as paying attention to these characteristics when planning the nurse workforce in clinics where end-of-life care is delivered, would improve the quality of nursing care.

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Fatigue, Depression and Quality of Life in Individuals with Hypothyroidism

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ABSTRACT:
Purpose: This research was conducted to examine fatigue, depression and quality of life levels in individuals with hypothyroidism and the relationship between variables.
Material and Methods: The study was conducted with 150 individuals who were treated with a diagnosis of hypothyroidism at the Endocrinology Clinic of a State Hospital located in a province and who met the inclusion criteria for the study. Study data; was collected by face-to-face interview using the Individual Introduction Form, Beck Depression Scale, Piper Fatigue Scale and ThyDQoL-TR Quality of Life Scale. The data were analyzed in a computer environment using appropriate statistical tests.
Results: In the study, it was determined that the fatigue severity of individuals with hypothyroidism was moderate (4.97±1.59), the depression severity was mild (15.43±8.83), and their quality of life was negatively affected (-5.34±8.44) compared to their situation before hypothyroidism was diagnosed. It was determined that there was a moderate positive relationship between the Piper Fatigue Scale subscales and total scale score and the Beck Depression Inventory scores.
Conclusion: The study concluded that individuals with hypothyroidism experience fatigue and superficial depression, and their quality of life is negatively affected after being diagnosed with the disease. In this context, it is recommended to evaluate fatigue, depression and quality of life levels in individuals with hypothyroidism, plan appropriate nursing interventions and raise awareness by organizing training/consultancy programs.
Keywords: *Hypothyroidism; fatigue; depression; quality of life; nursing*

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INTRODUCTION

Thyroid diseases are among the frequently seen illnesses in the world and in our country, and Turkey is considered one of the countries where thyroid diseases are commonly observed. According to studies conducted in our country, it is reported that thyroid diseases are observed in 8-9% of the population (Akarsu et al., 2020). Among thyroid diseases, the most commonly observed pathological hormone deficiency is hypothyroidism. Hypothyroidism is a condition characterized by the deficiency or ineffectiveness of thyroid hormones, resulting in a slowdown of metabolic processes (Gorkhali et al., 2021; Jansen et al., 2023; Wilson et al., 2021). In patients with hypothyroidism, which is not uncommon in the community, various signs and symptoms emerge due to the slowing of metabolism caused by the decrease in hormones. Latergia, apathy, cold intolerance, decreased bowel movements, weight gain, muscle weakness, and fatigue can be counted among these symptoms. One of the most complained physical symptoms among hypothyroidism patients is fatigue (Hegedüs et al., 2022; Jansen et al., 2023; Wilson et al., 2021). Fatigue is defined as an individual perception that affects the entire body, arising from a decrease in the physical, emotional, and mental energy necessary to perform a task. In individuals with hypothyroidism,

prolonged fatigue is reported to have serious effects on health, such as heart diseases, diabetes, hypertension, and digestive disorders (El Najjar et al., 2022; Wilson et al., 2021). Therefore, it is important to determine the level of fatigue and plan interventions to alleviate it.

Although fatigue is a common symptom in patients with hypothyroidism, it is often not adequately evaluated. Some individuals and healthcare workers attribute fatigue to working conditions or psychosocial stressors, not recognizing it as a medical condition. This situation can affect many areas of the patient's life because it delays the diagnosis and intervention process (Wilson et al., 2021). Thyroid hormone disorders cause a range of mood disorders and the occurrence of psychotic conditions, along with physiological symptoms. Forgetfulness, concentration disorder, mental slowing, delirium, dementia, and depressive mood are psychological symptoms observed in patients with hypothyroidism (Ağaçhanlı et al., 2016, Gorkhali et al., 2020; Yontar et al., 2015). Çaklılı (2019) reported in his study that moderate to severe depressive symptoms were observed in 34%-36% of patients with hypothyroidism. Siegmann and others (2018) stated that patients diagnosed with autoimmune thyroiditis have a 3.3 times higher risk of developing depression compared to healthy controls. When evaluating the data obtained from all these studies, it can be said that fatigue and depression are significant symptoms in hypothyroidism. When these symptoms are not identified and effectively addressed, the individual will constantly feel tired, weak, unwilling, and exhausted. It is stated that if low energy and a depressed mood are experienced continuously, the individual's quality of life will be negatively affected (Shivaprasad et al., 2018). Quality of life is one of the most important universal goals that societies aim to achieve (Boylu and Paçacıoğlu, 2016). In studies conducted on hypothyroidism, it has been determined that the patients' quality of life is negatively affected (Kelderman-Bolk et al., 2015; Shivaprasad et al., 2018).

It is known that hypothyroidism is a chronic disease, the symptoms and potential complications threaten the individual throughout their life, and the problems it causes seriously affect both the individual and the society they are part of. Fatigue and depression, although among the most commonly observed symptoms in hypothyroidism, have not been sufficiently addressed as research topics, especially in nursing. However, studies related to the quality of life in individuals with hypothyroidism have been conducted, but often using general quality of life scales that are not disease-specific. Additionally, there are no studies that examine the specified variables in individuals with hypothyroidism and identify the relationships between them. Nurses have important responsibilities such as early diagnosis and monitoring of existing symptoms in patients, providing counseling for symptom management, and raising awareness about the disease in the community and among all healthcare workers. In this context, it is believed that this study will be beneficial in creating awareness on the specified topics, providing a holistic approach to patients with hypothyroidism, and guiding healthcare professionals who will be involved in planning nursing interventions for hypothyroidism and conducting research on the subject. However, the results obtained will contribute to filling the gap in the nursing literature regarding thyroid diseases, which are a common health issue in our country. This research was conducted to determine the levels of fatigue, depression, and quality of life in individuals with hypothyroidism and to examine the relationship between these variables.

MATERIAL and METHODS

Purpose and Type of the Study

This research was conducted to determine the levels of fatigue, depression, and quality of life in individuals with hypothyroidism and to examine the relationship between these variables. The research is descriptive and analytical.

Sampling and participant

This research was conducted in the Endocrinology clinic of a State Hospital located in a province between June 2021 and September 2021. The population of the study consists of individuals diagnosed with hypothyroidism who are being

treated at the specified hospital. The power analysis method was used for sample size calculation, with a sample proportion of 10% and a margin of error of 0.05, resulting in a minimum sample size of 137 patients (95% confidence). In the study, 150 individuals were sampled to account for the possibility of erroneous or incomplete questionnaire forms. *Inclusion criteria:* Individuals aged 18 and over, those who have been diagnosed with hypothyroidism and followed for at least 1 year, those without communication and mental problems that would affect the application of the survey, and those who agreed to participate in the study were included in the research. *Exclusion criteria:* Individuals using medications that affect thyroid hormone synthesis, such as lithium, heparin, or amiodarone, those in the pregnancy and lactation period, and those diagnosed with depression or another psychiatric problem and receiving psychiatric treatment were excluded from the sample.

Data Collection Tools

The research data were obtained using the Introductory Information Form, Piper Fatigue Scale, Beck Depression Scale, and The Underactive-Thyroid-Dependent Quality of Life Questionnaire-TR (THYDQOL-TR) Quality of Life Scale.

Descriptive Information Form

The Descriptive Information Form was prepared by reviewing the relevant literature (Bucvik et al., 2014; Hatiboğlu, 2012). The form consists of 17 questions that inquire about sociodemographic characteristics such as gender, age, marital status, and education level, as well as clinical characteristics such as disease duration, medication treatment, and the presence of chronic diseases.

Piper Fatigue Scale

The Piper Fatigue Scale was developed by Piper et al. (1998) to assess fatigue. The scale, consisting of 22 questions, has four sub-dimensions: behavioral/severity, affective, sensory, and cognitive/psychological. The total score of the scale ranges from 0 to 10. 0 points indicate no fatigue, 1-3 points indicate mild fatigue, 4-6 points indicate moderate fatigue, and 7-10 points indicate severe fatigue. The Turkish validity and reliability study of the scale was conducted by Can, Durna, and Aydiner (2004), and the scale's Cronbach's alpha internal consistency coefficient was reported as 0.98. In this study, the Cronbach's alpha value of the scale was found to be 0.92.

Beck Depression Inventory

Developed by Beck in 1961, this scale was created to measure the severity of depressive symptoms and to determine the risk of depression. In this scale, which consists of 21 questions, individuals are asked to score each item between 0-3. The total score is obtained by summing the scores of each item and ranges from 0 to 63. High scores indicate a high severity of depression. 0-9 points are considered normal, 10-16 points mild, 17-29 points moderate, and 30-63 points severe depression. The adaptation of the scale into Turkish was done by Hisli (1989), and the Cronbach's alpha value of the scale was found to be 0.8.In this study, the Cronbach's alpha value of the scale is 0.74.

ThyDQoL-TR Quality of Life Scale

The disease-specific The Underactive-Thyroid-Dependent Quality of Life Questionnaire (ThyDQoL) scale was developed by McMillan and colleagues in 2004 for use in patients with hypothyroidism. This single scale in the literature for evaluating the quality of life in patients with hypothyroidism was translated into Turkish by Hatipoğlu (2012) and symbolized as ThyDQoL-TR, and it was accepted as a valid-reliable scale for our society, with a Cronbach's alpha value of 0.91. Before conducting the study, the necessary permissions for the use of the scale were obtained from the author. The scale generally consists of two introductory questions (G1) that inquire about the person's current quality of life and the impact of this condition on their quality of life (G2), followed by 18 questions that ask how each aspect of life has changed due to the thyroid condition and the importance of these changes to the individual. Each question consists of two sub-items. The first sub-item (a) evaluates how the disease affects that aspect, and the responses are scored between -3 and +1. The second sub-item (b),

on the other hand, attempts to determine the importance of that aspect for the individual and is scored between +3 and 0 based on the degree of importance. Subsequently, the Weighted Impact Score (WI) is obtained for each item by multiplying these two sub-items, which can vary between -9 and +3 (from maximum negative impact to maximum positive impact). The possible score range is between -9 and +3 (Hatiboğlu 2012). In this study, the scale's Cronbach's alpha value was found to be 0.84.

Statistical Analysis

The data obtained from the study were evaluated using the SPSS (ver:22.0) program. The normality of the scale means was determined using the Kolmogorov-Smirnov test. In the evaluation of the data, in addition to descriptive statistical analyses, the Independent Sample T Test for two independent groups, the Kruskal-Wallis T test for the comparison of more than two variables, and the Pearson correlation coefficient for the assessment of relationships were used. In the application phase, the confidence level for all analyses to be conducted has been set at 95%.

Ethical Approval

To conduct the research, ethical approval was obtained from the Non-Interventional Clinical Research Ethics Committee of a university with the date 19.02.2020 and number 2020-02/50. During the data collection phase, all individuals who agreed to participate in the research were informed about the study and the confidentiality of the data, and their verbal and written consents were obtained. At every stage of the research, the principles of the Helsinki Declaration were adhered to.

RESULTS

The sample group, with an average age of 47.7 ± 12.84, consisted of 74.7% women, 48.0% aged between 31-50 years, 45.3% high school graduates, 78.0% married, 87.2% with children, 52.7% not working in any job, and 42.0% classified as overweight according to BMI. When examining the clinical characteristics of the hypothyroid individuals participating in the study, it was found that 52.0% had a duration of hypothyroidism between 1-5 years, and 56.5% did not have any chronic diseases (Tablo 1).

The mean scores of the Piper Fatigue Scale, ThyDQoL-TR Scale, and Beck Depression Scale of the individuals included in the study are presented in Table 2. When the table is examined; the average subscale scores of the Piper scale were determined as follows: behavior/violence 4.39 ± 1.75, affect 5.10 ± 1.88, sensory 5.13 ± 1.82, cognitive/psychological 4.69 ± 1.50, and the overall average score of the Piper Fatigue Scale was found to be 4.97 ± 1.59. In the same table, the average score of the Beck Depression Scale is 15.43 ± 8.83, and the average score of the ThyDQoL-TR Scale is -5.34 ± 8.44 (Tablo 2).

In Table 3, where the correlation of the Piper Fatigue Scale, Beck Depression Scale, and ThyDQoL-TR Scale scores of individuals with hypothyroidism is examined, the correlation values between the subdimensions of the Piper Fatigue Scale and the total scale score and the Beck Depression Scale scores were found to be significant at the $p < 0.05$ significance level, indicating a moderate positive relationship. No significant relationship was found between the subscales and total score of the Piper scale and the ThyDQoL-TR scale (Tablo 3).

Table 4 presents the scores obtained from the Piper Fatigue Scale, ThyDQoL-TR Scale, and Beck Depression Scale according to some characteristics of the participants. When examining the table, it is observed that the total and subscale scores of the Piper Fatigue Scale and the average scores of the Beck Depression Scale for individuals in the 61-76 age group are significantly higher. The scores on all scales of participants who were obese and morbidly obese were found to be significantly higher compared to those who were of normal weight and overweight. In the comparison made according to the education level, it was determined that the average depression scores of university graduate students were low, while the quality of life scores of high school graduates were significantly high. In the table, it is observed that individuals with a hypothyroidism duration of 11 years and above have significantly higher PIPER Fatigue Scale scores, while those with a disease duration of 1-5 years have

significantly lower Beck Depression Scale scores ($p < 0.001$). Additionally, participants with chron Table 4. Mean Scores of Piper Fatigue Scale, Thydqol-TR Scale and Beck Depression Scale According to Some Characteristics of Participantsic diseases have higher PIPER Fatigue and Beck Depression Scale scores. (Tablo 4).

Table 1. Descriptive Characteristics of the Participants

Descriptive Characteristics	n	%
Gender		
Female	112	74.7
Male	38	25.3
Average Age	47.7±12.84 (min:18, max: 76)	
Age Groups		
18-30 years	18	12.0
31-50 years	72	48.0
51-60 years	35	23.3
61-76 years	25	16.7
BMI average	29.32±5.60 (min:18.30, max:57.30)	
According to BMI;		
18.5-24.9 "Normal weight"	29	19.4
25.0-29.9 "Overweight"	63	42.0
30-39.9 "Obese"	52	34.6
40-49.9 "Morbidly obese"	6	4.0
Education level		
Illiterate	4	2.7
Primary school	43	28.7
High school	68	45.3
Bachelor's degree and above	35	23.3
Duration of hypothyroidism		
1-5 years	78	52,0
6-10 years	61	40,7
11 years and above	11	7,3

Table 2. Participants' Piper Fatigue Scale, Beck Depression Scale, and Thydqol-TR Scale Average Scores

SCALES	Mean	SD.	Min- Max	Cronbach Alpha
PİPER behavior/violence subscale	4,39	1,75	0,30 - 8,75	,878
PİPER affective subscale	5,10	1,88	1,40 - 8,80	,987
PİPER sensory subscale	5,13	1,82	1,40 - 9,80	,895
PİPER cognitive/psychological subscale	4,69	1,50	1,83 - 9,50	,956
Piper Fatigue Scale Total	4,97	1,59	1,63 - 9,07	,906
Beck Depression Scale	15,43	8,83	2,00 –52,00	,745
ThyDQoL-TR Scale	-5,34	8,44	-9,00 - 3,00	,846

Table 3. Correlation of Participants' Scores on the Piper Fatigue Scale with the Thydqol-TR Scale and the Beck Depression Scale

Piper Fatigue Scale		1	2	3	4	5	6	7
ThyDQoL-TR Scale	r	-,086	-,093	-,074	-,070	-,087	1	
	p	,297	,260	,370	,398	,294	-	
Beck Depression Inventory	r	,342**	,341**	,317**	,432**	,368**	,044	1
	p	**,000**	**,003**	**,000**	**,000**	**,000**	,592	-

1-Piper behavior/violence subscale, 2-Piper affective subscale, 3-Piper sensory subscale, 4-Piper cognitive/psychological subscale, 5-Piper Fatigue Scale, 6-ThyDQoL-TR Scale, 7-Beck Depression Scale

Table 4. Mean Scores of Piper Fatigue Scale, Thydqol-TR Scale and Beck Depression Scale According to Some Characteristics of Participants

Descriptive characteristics	Piper Fatigue Scale					ThyDQoL-TR Scale	Beck Depression Scale
	Behavior/violence sub-dimension	Emotion sub-dimension	Sensory sub-dimension	Cognitive psychological sub-dimension	Total Score		
Gender							
Female	5.08±1.67	5.25±1.87	5.26±1.75	4.76±1.38	5.10±1.48	-5.48±9.63	15.07±7.37
Male	4.49±1.89	4.63±1.84	4.75±1.97	4.46±1.80	4.59±1.83	-4.93±2.49	16.47±12.20
Statistical analysis	t=1.77 p=.078	t=1.74 p=.084	t=1.50 p=.136	t=1.07 p=.285	t=1.67 p=.095	t=.34 p=.732	t=-.66 p=.507
Age groups							
18-30 years	3.91±1.6	4.49±1.98	4.85±2.23	4.12±1.42	4.36±1.70	-4.72±2.12	12.28±9.98
31-50 years	4.50±1.42	4.61±1.74	4.68±1.62	4.34±1.36	4.54±1.34	-6.45±11.86	14.32±8.34
51-60 years	5.37±1.78	5.48±1.71	5.47±1.63	4.88±1.28	5.30±1.46	-4.50±2.46	15.63±5.60
61-76 years	6.26±1.76	6.36±1.77	6.15±1.88	5.81±1.63	6.16±1.66	-3.73±1.92	20.60±11.12
Statistical analysis	KW=27.02 **p=.000**	KW=18.84 **p=.000**	KW=13.46 **p=.004**	KW=19.62 **p=.000**	KW=21.86 **p=.000**	KW=8.24 **p=.041**	KW=14.56 **p=.002**
Body Mass Index							
Normal	4.14±1.66	4.39±2.04	4.79±2.1	4.37±1.64	4.44±1.78	-3.89±2.31	18.11±13.86
Overweight	4.40±1.59	4.67±1.68	4.71±1.6	4.11±1.25	4.46±1.39	-4.80±2.48	12.49±7.04
Obese	5.76±1.52	5.82±1.68	5.71±1.7	5.42±1.36	5.70±1.35	-6.84±13.85	17.35±6.74
Morbidly obese	6.67±1.48	6.47±2.41	6.17±2.37	5.89±1.29	6.38±1.56	-4.18±2.53	17.00±4.0
Statistical analysis	KW=30.60 **p=.000**	KW=18.40 **p=.000**	KW=12.85 **p=.005**	KW=27.2 **p=.000**	KW=27.23 **p=.000**	KW=4.98, p=.173	KW=18.31 **p=.000**
Education level							
Illiterate	5.76±2.18	6.05±2.15	6.20±2.13	6.29±2.29	6.08±2.12	-3.31±1.16	16.00±11.97
Primary school	5.47±1.92	5.31±2.21	5.36±2.03	4.88±1.52	5.28±1.77	-4.22±1.88	18.63±9.39
High school	4.83±1.75	5.04±1.68	4.99±1.71	4.74±1.51	4.91±1.53	-6.57±12.24	16.07±8.87
University and above	4.36±1.21	4.82±1.76	5.01±1.70	4.15±1.14	4.58±1.29	-4.53±2.07	10.17±4.72
Statistical analysis	KW=8.91 **p=.030**	KW=2.28 p=.515	KW=2.82 p=.419	KW=7.07 p=.070	KW=5.34 p=.148	KW=8.13 **p=.043**	KW=24.45 **p=.000**
Duration of hypothyroidism							
1-5 years	4.24±1.56	4.65±1.76	4.68±1.74	4.14±1.34	4.42±1.44	-4.96±2.25	13.29±8.76
6-10 years	5.53±1.65	5.44±1.86	5.51±1.76	5.10±1.41	5.43±1.52	-6.00±12.95	17.84±8.44
≥11 years	6.44±1.28	6.31±2.0	6.22±1.85	6.23±1.25	6.31±1.34	-4.39±1.96	17.18±8.19
Statistical analysis	KW=28.05 **p=.000**	KW=10.68 **p=.005**	KW=11.49 **p=.003**	KW=28.07 **p=.000**	KW=22.60 **p=.000**	KW=2.87, p=.237	KW=17.71 **p=.000**
Chronic disease status							
Yes	5.66±1.72	5.58±2.01	5.62±1.87	5.28±1.44	5.55±1.62	-4.26±2.35	18.38±8.77
No	4.39±1.56	4.75±1.68	4.78±1.68	4.23±1.35	4.54±1.39	-6.11±11.07	13.25±8.32
Statistical analysis	t=4.64 **p=.000**	t=2.68 **p=.008**	t=2.83 p**=.005**	t=4.50 **p=.000**	t=4.05 **p=.000**	t=1.30, p=.194	t=3.61 **p=.000**

DISCUSSION

Fatigue is commonly observed in patients with hypothyroidism, yet it is a symptom that is not adequately considered as a medical condition. This situation not only affects the evaluation and diagnosis process but also causes the patient to experience constant fatigue, impacting their daily activities and quality of life (Hegedüs et al., 2022; Raij and Raij, 2024). In this context, conducting assessments and studies to determine fatigue is becoming increasingly important for maintaining the patient's well-being. In this study, the Piper Fatigue Scale was used to determine the fatigue levels of individuals with hypothyroidism, and it was found that the individuals experienced moderate levels of fatigue. According to the subscale scores of the scale, it has been determined that individuals experience the most mental and emotional fatigue. In a study conducted in Netherlands, 81% of hypothyroid patients reported experiencing weakness and fatigue (Jansen et al., 2023). In studies evaluating muscle dysfunction and fatigue in hypothyroid patients, the level of fatigue in the hypothyroid patient group was found to be higher compared to the healthy group (Ruíz-Pacheco et al., 2023; Shah, 2017). In another study conducted with a group of women with hypothyroidism, after the diagnosis of the disease the functional capacity decreased. Fatigue is more commonly observed, and all of this affects daily life activities it has been reported that it reduces the quality of life (Werneck et al., 2018). Although fatigue has been reported in studies conducted with individuals with hypothyroidism in our country and worldwide literature, studies evaluating the severity of fatigue are limited in number. When considering the frequency of occurrence and the level of impact on the individual, it can be said that the fatigue symptom in individuals with hypothyroidism should be evaluated in detail, and nurses should adopt a holistic approach to the patient in collaboration with the entire healthcare team for symptom control.

Depression; especially during the process of chronic illness is a frequently occurring mood disorder, and this condition is also commonly observed in the context of hypothyroidism (Ağaçhanlı et al., 2016; Gorkhali et al., 2020; Özen et al., 2018). Indeed, it was determined in this study that the participants experienced mild levels of depression. It has been reported that depressive symptoms are increased in individuals with hypothyroidism (Basiura et al., 2024; Jansen et al., 2023; Raij and Raij, 2024). In the study by Demartini et al., (2014) it was found that individuals with hypothyroidism had higher depression scores compared to the healthy group. In another study, it was determined that there is a positive correlation between the level of hypothyroidism symptoms and the severity of depression. (Fugger et al., 2018). In the study by Gorkhali et al. (2020), the prevalence of depression in individuals with hypothyroidism was determined to be 36.7%, and it was found that the patients experienced moderate levels of depression. When the literature is examined, it is seen that the study findings support our study results. The relationship between depression and hypothyroidism has been studied for many years, but its pathophysiological mechanism has not been fully proven. It is thought that hypothyroidism slows down serotonergic nerve transmission and reduces adrenergic conductivity (Basiura et al., 2024; Hong et al., 2018; Özen et al., 2018). It is believed that depression, which is not diagnosed and treated early in patients with hypothyroidism, causes serious job losses, social incompatibilities, and prolongs the duration of disease treatment. Considering these results, it is thought that the nurse, physician, and all caregiving staff should adopt a holistic approach to the patient, focusing on both the physical and emotional issues of the patients.

Hypothyroidism is one of the chronic diseases that negatively affect the quality of life due to the symptoms it causes. (Hong et al., 2018). When the literature is examined, it is observed that the quality of life in hypothyroidism is generally evaluated using non-disease-specific general scales. These scales are less sensitive and may be inadequate in measuring small changes because they are not disease-specific (Hatiboğlu, 2012). In this study, the ThyDQoL-TR Scale was used for the first time after the Turkish validity and reliability study, and it was determined that the quality of life of individuals with hypothyroidism was negatively affected compared to their condition before the diagnosis of the

disease. Indeed, studies conducted in our country and around the world also support this conclusion. In studies comparing individuals with hypothyroidism to the general population, it has been found that individuals with hypothyroidism have a lower quality of life (Hegedüs et al., 2022; Kelderman-Bolk et al., 2015; Shivaprasad et al., 2018). When evaluating the results obtained from our study and the findings in the literature; individuals with hypothyroidism it can be said that their quality of life is negatively affected due to the disease process, and planning nursing interventions aimed at improving quality of life is an important professional responsibility. In the study, the average scores of fatigue, depression, and quality of life were compared based on certain characteristics of individuals with hypothyroidism. In the analysis conducted, age was identified as a significant variable for fatigue levels, and individuals aged 50 and above had higher Piper fatigue scale scores compared to other age groups. It is stated that the prevalence of hypothyroidism increases to approximately 10% after the age of 60, and the severity of symptoms also increases with age (Akter et al., 2017). Murpy and Niemiec (2014) obtained similar results in their study with a different patient group. The increase in fatigue with age, the progression of hypothyroidism as one gets older, the slowing of metabolism, and the physiological changes that occur as part of the natural aging process can explain this.

In the study, when the Piper Fatigue Scale scores of patients were examined according to the duration of hypothyroidism, significant differences were found between the total scale and subscale scores. It was determined that as the duration of hypothyroidism increased, the severity of fatigue also increased, and all subscales were more affected. When we look at the literature, it is observed that there has been no study conducted on fatigue and disease duration, and no comparison has been made in this regard. Another finding obtained in this study is that individuals with chronic diseases other than hypothyroidism have higher total scores on the Piper Fatigue Scale and higher scores on all sub-dimensions of the scale. Hirsch and Sirois (2016) reported in their study that fatigue symptoms are frequently observed in chronic illnesses. Bozkurt et al. (2020), in their study, stated that individuals with multiple chronic diseases perceive a higher severity of fatigue. These studies in the literature support our work and highlight the significant impact of chronic illness on fatigue. The study found that advanced age is a determining factor for the level of depression in individuals with hypothyroidism. When the literature is examined, it is seen that there are findings supporting this result (Aytap and Özer, 2021; Loh et al., 2019). In a study conducted on women with hypothyroidism in our country, the depression rate observed in the age group of 53-65 was found to be higher, and it was reported that depression and stress levels increased with age (Çiftçi and Karaca, 2021). When the results are evaluated, most studies emphasize that the rate of depression increases with age. Indeed, with aging. It has been reported that factors such as the increase in chronic diseases, the variety and frequency of medication use, the rise in pain and fatigue levels, the decrease in personal health perceptions, the inadequacy in coping with diseases and problems, and exposure to social isolation, along with biochemical and psychological changes occurring in the hypothalamus-pituitary-thyroid axis, trigger depression (Loh et al., 2019). In the study, it was found that the Beck Depression Inventory scores of obese patients were higher compared to those who were of normal-overweight. In the study conducted by Çiftçi and Karaca (2021) using the Beck Depression Inventory on women with hypothyroidism, it was found that the Beck Depression Inventory scores of individuals with a BMI classified as underweight and normal were lower compared to those classified as slightly overweight and obese. In light of the obtained results, it can be said that in overweight and obese individuals, disease symptoms, negative body perception, and low body image increase the risk of depression.

The Beck Depression Inventory scores of patients with a disease duration of 6-10 years were found to be significantly high. As the duration of chronic illness increases, the symptoms and effects of the disease experienced by individuals may intensify, the disease process may worsen, long-term medication use may lead to more frequent side effects, and feelings of hopelessness and burnout may increase

the risk of depression. In the literature, no study has been found that aims to determine the relationship between the duration of hypothyroidism and depression. In individuals with chronic illnesses, considering that the duration of the disease can increase the period of stress exposure and lead to mood changes, it is believed that providing psychological care services alongside physical care is important in the planning of care. It has been observed that individuals with any chronic illness other than hypothyroidism have higher Beck Depression Inventory scores. In our country, it has been determined that at least 22 million people have one or more chronic diseases, and it has been reported that one in three people diagnosed with a chronic disease experience depression (Akpınar and Ceran, 2019). In the study conducted by Aytap and Özer (2021), moderate depression was detected in 66.5% of individuals with chronic diseases. In the study by Güzel and Ergün (2020), similar results were obtained. In light of the obtained data, it can be considered that chronic diseases lead to an increase in depression scores by causing feelings of helplessness, sadness, anger, withdrawal, decreased self-esteem, fear of death, and anxiety about dependency in individuals. In the analysis conducted to compare the quality of life levels of individuals with hypothyroidism with certain variables, age was identified as an important variable, and the group most affected in terms of quality of life was determined to be the 31-50 age group. In a study where the quality of life of individuals with hypothyroidism was evaluated using the SF-36 scale, the relationship between age and quality of life was found to be significant, with younger patients' physical functions being less affected and older patients' mental functions being more affected (Bukvic et al., 2014). According to a study conducted in our country using the SF-36 Quality of Life scale, a decrease in scale scores with age was found in women with hypothyroidism (Çiftçi and Karaca, 2021). In Hatiboğlu's (2012) study on the Turkish validity-reliability of the ThyDQoL-TR Scale, no significant relationship was found between age and quality of life related to hypothyroidism. These differing results in the literature prevent a clear interpretation of the quality of life related to hypothyroidism and indicate the need for further research on the topic.

In the study, the quality of life of the patient group with a high school education was found to be significantly low. This result may be related to the change in individuals' perception of quality as their education level increases, the rise in their expectations from life, and consequently, their dissatisfaction with their current living conditions. In the study conducted by Çiftçi and Karaca (2021), a positive relationship was found between education level and quality of life scores. In a different study, however, no significant relationship was found between education level and quality of life (Hatiboğlu, 2012).

In the study, the relationship between fatigue, depression, and quality of life scores was examined, and it was found that there is a moderately positive and significant relationship between the level of fatigue individuals feel and their depression scores. The perception of fatigue felt by individuals is influenced by various factors. One of these factors is psychological influences. The relationship between long-term fatigue and depression has been examined in various studies, and a positive correlation has been identified between them (Adın et al., 2022; Fong et al., 2015; Ha Jeong et al., 2018). Just as depression can be triggered in an individual who constantly and severely feels fatigued, a constant state of fatigue can also be observed in depressive individuals (Raij and Raij, 2024). Doğan et al., (2020) reported that symptoms of major depressive disorder were observed in patients with prolonged fatigue symptoms. In a study conducted in our country, it was found that mental fatigue is significantly and positively correlated with depression (Adın et al., 2022). When evaluating the study results, it can be said that fatigue and depression are two interrelated symptoms. It is clear that nurses, who play active roles in the physical and psychosocial care process and are responsible for providing holistic care to patients, can achieve significant improvements in other existing symptoms by effectively managing one of these symptoms.

CONCLUSION

The study found that individuals with hypothyroidism experience moderate fatigue, mild depression, and their quality of life levels are negatively affected compared to their condition before being diagnosed with hypothyroidism, and there is a significant positive relationship between the levels of fatigue and depression. In individuals with hypothyroidism, it is recommended to regularly evaluate the levels of fatigue, depression, and quality of life, for nurses to include these issues during patient assessment, and to make plans addressing these problems. Additionally, increasing awareness among healthcare workers through training and counseling programs related to the topic is suggested. Additionally, providing counseling services to help individuals cope with issues such as fatigue and depression and to improve their quality of life, as well as planning follow-up studies with larger samples to examine the levels of fatigue, depression, and quality of life in these individuals, can be considered.

Limitations of the Study

Since the study was conducted with individuals who applied to a single hospital in a certain time period and accepted to participate in the study, the results can only be generalised to its own population. Another limitation of the study is that the data were collected through self-reporting within a certain period of time.

Conflict of Interest

There are no potential conflicts of interest.

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