EISSN 2791-7940
Volume 3 • Issue 1 • April 2023

KIBRIS TÜRK HEMŞİRELER VE EBELER BİRLİĞİ
CYPRUS TURKISH NURSES AND MIDWIFES ASSOCIATION
2017

Mediterranean Nursing and Midwifery

galenos Publishing House

www.mediterr-nm.org

Publisher Contact
Address: Molla Gürani Mah. Kaçamak Sk. No: 21/1 34093 İstanbul, Turkey
Phone: +90 530 177 30 97
E-mail: info@galenos.com.tr/yayin@galenos.com.tr
Web: www.galenos.com.tr **Publisher Certificate Number:** 14521

Online Publishing Date: April 2023

EISSN: 2791-7940

International periodical journal published three times in a year.

AIMS AND SCOPE

Mediterranean Nursing and Midwifery is an international, scientific, open access, online-only periodical published in accordance with independent, unbiased, and double-blinded peer-review principles. The journal is official publication of the Cyprus Turkish Nurses and Midwives Association and published triannually in April, August, and December. The publication language of the journal is English.

Mediterranean Nursing and Midwifery aims to contribute to the literature by publishing manuscripts at the highest scientific level in nursing and midwifery. The journal publishes original articles, reviews, case reports, editorial comments, and letters to the editors that are prepared in accordance with ethical guidelines. The scope of the journal includes but not limited to nursing and midwifery research, practice, education, and management.

The target audience of the journal includes nurses, midwives, academicians, clinical researchers, medical/health professionals, students, nursing professionals and related professional and academic bodies and institutions.

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Open Access Statement

You can find the current version of the Instructions to Authors at: https://mediterr-nm.org/en/instructions-to-authors-106

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Webpage: www.galenos.com.tr

Mediterranean Nursing and Midwifery

CONTENTS

ORIGINAL ARTICLES

CASE REPORT

REVIEWS

Mediterranean Nursing and Midwifery

Mediterr Nurs Midwifery 2023; 3(1): 1-9 DOI:10.4274/MNM.2022.22128

ORIGINAL ARTICLE

The Use of Complementary Medicine Methods by the Nurses Working During the COVID-19 Pandemic

COVID-19 Pandemi Sürecinde Çalışan Hemşirelerin Tamamlayıcı Tıp Yöntemlerini Kullanma Durumları

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Abstract

Objective: This study aimed to determine the use of complementary medicine methods by nurses working on the front line during the Coronavirus disease-2019 (COVID-19) pandemic.

Method: The study was planned as a descriptive and cross-sectional type and carried out in a training and research hospital in İstanbul with 208 nurses. Nurse Identification Form and Complementary and Integrative Health Assessment for Health Practitioners Scale were used to collect data. Descriptive statistics, Mann-Whitney U test, Kruskal-Wallis test were used to evaluate the data.

Results: The mean age of the nurses was 34.25±6.3 years. 86.5% were women, 76% had a bachelor's degree, 37% had been working for ten years or more, and 68.8% used complementary medicine methods during the pandemic. In the study, the use of complementary medicine methods was higher in the nurses with a bachelor's degree, those with an average economic status, those with a family member over the age of 65 who had a chronic disease, those who received training on complementary medicine methods, used complementary medicine methods during the pandemic, and those who recommended complementary medicine methods to their relatives and patients.

Conclusion: Complementary integrative health assessment scores of the nurses were above average. The majority used complementary medicine methods and they had an increasing interest in integrating these methods into their professional practices.

Keywords: COVID-19, nursing, pandemic, complementary medicine methods

Öz

Amaç: Bu çalışma Koronavirüs hastalığı-2019 (COVID-19) pandemi sürecinde çalışan hemşirelerin tamamlayıcı tıp yöntemlerini kullanma durumlarını belirlemek amacıyla planlandı.

Yöntem: Tanımlayıcı ve kesitsel tipte yapılan bu araştırma, İstanbul'da bir eğitim araştırma hastanesinde 208 hemşire ile yürütüldü. Veri toplama aracı olarak hemşire tanılama formu ve sağlık profesyonelleri için tamamlayıcı ve bütüncül sağlık değerlendirme ölçeği kullanıldı. Verilerin değerlendirilmesinde tanımlayıcı istatistikler, Mann-Whitney U testi, Kruskal-Wallis testi kullanıldı.

Bulgular: Yaş ortalaması 34,25±6,3 yıl olan hemşirelerin, %86,5'i kadın, %76'sı lisans mezunu, %37'si on yıl ve üzeri çalışmakta, %68'i pandemi süreci boyunca tamamlayıcı tıp yöntemlerini kullanmaktaydı. Çalışmada lisans mezunu hemşirelerde, ekonomik durumu orta olanlarda, ailesinde 65 yaş üstü kronik hastalığa sahip birey bulunanlarda, tamamlayıcı tıp yöntemleri hakkında eğitim alanlarda, pandemi sürecinde tamamlayıcı tıp yöntemi kullananlarda, tamamlayıcı tıp yöntemlerini yakınlarına ve hastalara önerenlerde tamamlayıcı tıp yöntemlerini kullanma durumlarının daha yüksek olduğu bulundu.

Sonuç: Hemşirelerin tamamlayıcı ve bütüncül sağlık değerlendirme puanları ortalamanın üstündeydi. Hemşirelerin çoğunluğu tamamlayıcı tıp yöntemlerini kullanmaktaydı ve bu yöntemleri mesleki uygulamalarına entegre etme konularında ilgilerinin arttığı görüldü.

Anahtar Kelimeler: COVID-19, hemşirelik, pandemi, tamamlayıcı tıp yöntemleri

*This study was presented as an oral presentation at 9th International Gevher Nesibe Health Sciences Conference between 10-12 June, 2022.

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Received: November 16, 2022
Accepted: December 15, 2022

Cite this article as: Tepe A, Karabuğa Yakar H. The Use of Complementary Medicine Methods by the Nurses Working During the COVID-19 Pandemic. Mediterranean Nursing and Midwifery. Mediterr Nurs Midwifery 2023; 3(1): 1-9

Introduction

Coronavirus disease-2019 (COVID-19) is a global crisis that threatens people. Due to the mild course and even the absence of symptoms, it spread rapidly and had a great impact on health, economy and social domains globally (1). Throughout history, people have used natural resources to protect their well-being or fight emerging dangers. Standing the test of time, this practice may vary by place and time. Research and demands for complementary medicine methods have increased with the COVID-19 pandemic, as in past epidemics (2,3).

Clinical studies have reported that complementary medicine methods have positive effects on COVID-19, that its use alongside modern western medicine will be beneficial and that it is effective in managing the symptoms of COVID-19 (4-9).

The use of complementary medicine methods mainly aims at physiological resilience and psychological relaxation. Complementary medicine is therefore specifically important for groups at risk, but anyone can benefit from it during the pandemic. COVID-19 has affected the chronically ill people, the elderly, children and undoubtedly many healthcare professionals (10-12). Nurses, in particular, who are in constant contact with the patient, were physically and psychologically burdened (13-16).

During the pandemic, nurses sought alternative options for protecting, improving and developing their physical and mental health. One of them is complementary medicine methods, which have recently been the focus of attention of people. Nurses have turned to the complementary medicine also in the past to reduce the stress and anxiety they experience, to protect their health and to protect themselves from diseases more than other healthcare professionals (17,18). During the COVID-19 pandemic, nurses are physically and psychologically more vulnerable compared to the general population (19,20). According to the literature, the most common problems the nurses experience were fear of being infected, change in family order, caring for the patient with fear, social stigma, difficulty working with personal protective equipment, physical injury caused by the equipment, changing practice guidelines, loneliness, fear of getting the disease, and fear of transmitting the disease to family members (21-23). Given the problems the nurses go through, it is inevitable that they resort to complementary medicine methods (24). We believe it is important to determine the use of complementary medicine methods by nurses, who are pioneers in community education and spend the longest time with the patient. This study was conducted to determine the use of complementary medicine methods by nurses working during the COVID-19 pandemic.

Main Points

- Nurses use complementary medicine methods; recommend it to patients and their families.
- It is very important that nurses, who are at every step in the development and improvement of the health of the society, are informed about the purpose of use, risks, side effects, patient follow-up, and patient education of complementary medicine methods.

Material and Methods

Type of Research

This study was done in a descriptive and cross-sectional design.

Research questions

- How are the use of complementary medicine methods by nurses working during the COVID-19 pandemic process?

- Does the use of complementary medicine methods by nurses differ according to the introductory characteristics of nurses?

- Does the use of complementary medicine methods by nurses differ according to the nurses' views on the COVID-19 process?

- Does the use of complementary medicine methods by nurses differ according to the nurses' views on complementary medicine methods?

Study Population

The research was carried out between December 2020 and May 2021 in a training and research hospital on the Anatolian side of İstanbul, affiliated to the Provincial Health Directorate. The population of the study covered 268 nurses providing care to COVID-19 patients in the same hospital between the study dates. While the aim was to reach all nurses, the study was completed with 208 nurses who provided care to COVID-19 patients independently, agreed to participate in the study and filled out the data collection forms completely. Data were collected by face-to-face interview method.

Measuring Tools

"Nurse identification form" and "complementary and integrative health assessment for practitioners scale" were used to collect data.

Nurse Identification Form: The form was prepared by the researcher and includes 34 questions examining nurses' personal details and professional characteristics, their views on COVID-19 and on complementary medicine methods (25-27).

Complementary and Integrative Health Assessment for Practitioners Scale (CIHAP): It was developed by Berger and Johnson (4,28). The scale assesses practitioners' current knowledge of complementary and integrative health and their interest in integrating them into their practice. It was adapted into Turkish by Hançerlioğlu et al. (29). The Turkish version of the scale has 12 items and a five-point Likert-type rating ranging from 1 to 5 as "I strongly agree

(5)" and "I strongly disagree (1)". There are two subscales, namely openness to complementary and integrative health (OCIH) (4,6-10) and intentional practices (IP) (1-3,5,11,12). The lowest score that can be obtained from the scale is 12 and the highest is 60. Item 6 is reverse scored. Higher scores from the scale indicate practitioners' increased knowledge on complementary and integrative health and increased interest in integrating them into their practice. The internal consistency coefficient was 0.93 in the Turkish adaptation study of the scale. In this study, the total, IP and OCIH subscale internal consistency coefficients were 0.85, 0.77 and 0.81, respectively.

Statistical Analysis

Statistical analyzes of the data obtained from the study were performed using the NCSS (Number Cruncher Statistical System) 2007 (Kaysville, Utah, USA) software. Descriptive statistical methods (mean, standard deviation, median, frequency, percentage, minimum, maximum) were used in evaluating the study data. The fit of the quantitative data to normal distribution was tested with the Shapiro-Wilk test and graphical examinations. The Mann-Whitney U test was used for comparisons between two groups of quantitative variables without normal distribution, and the Kruskal-Wallis test was used for comparisons between more than two groups of quantitative variables without normal distribution. Bonferroni test was used for multiple comparisons. Statistical significance was set at $p<0.05$.

Ethical Considerations

Ethical approval was obtained from the Ethics Committee of the Marmara University (16.11.2020-98) where the study was conducted, in accordance with the Declaration of Helsinki, and institutional permission was obtained from the hospitals where the study would be conducted. Written informed consent was obtained from each participant before the study.

Results

Nurses' scores from the OCIH subscale ranged from 6 to 30, with a mean score of 21.95±3.73. Their scores from the IP subscale ranged from 6 to 30, and their mean score was 19.28±4.16. Their total score from CIHAP ranged between 12 and 55 and their mean score was 41.23±6.98 (Table 1).

Of the nurses participating in the study, 86.5% were female and 13.5% were male. Their mean age was 34.25±6.31 years. 60.1% were married and 76% had a bachelor's degree. 52.9% had a family member over 65 years of age with a chronic disease. 69.7% had average economic status. 33.7% were smokers, 20.2% used alcohol and 19.2% had a chronic disease. As for the units they worked, 45.2% were working in the clinics (Table 2).

According to the answers given by the nurses to the questions about the COVID-19 pandemic, 76% gave care to patients diagnosed with COVID-19, 51.9% were diagnosed with COVID-19, and 62% were afraid of being diagnosed with COVID-19. As the causes of fear, 64.9% told that they feared infecting their family and loved ones (Table 2).

23.1% of the nurses described that they received training on complementary medicine, and 68.8% used complementary medicine methods during the pandemic. Of the nurses using complementary medicine methods, 74.1% used vitamins, 67.8% prayed, 33.6% used herbs, and 50% recommended complementary medicine methods to their relatives and patients during the pandemic. 70.2% of the nurses said that they did not recommend complementary medicine methods because they did not have enough information. 50.5% told that they used complementary medicine methods during the COVID-19 pandemic because they strengthened the immune system (Table 2).

By level of education, nurses with a bachelor's degree had higher scores from the IP subscale compared to those with a master's degree or higher ($p=0.036$; $p<0.05$) (Table 2). The total scores of the nurses with a bachelor's degree from the scale were higher than those with a master's degree or higher ($p=0.029$; $p<0.05$) (Table 2).

The nurses with a family member over 65 years of age with a chronic disease had higher scores from the OCIH subscale than those with a family member over 65 years of age without a chronic disease ($p=0.033$; $p<0.05$) (Table 2).

By their economic status, the nurses with average economic status had higher scores from the IP subscale than those with good economic status ($p=0.018$; $p<0.05$) (Table 2).

The total scores of the nurses who used alcohol from the CIHAP scale were higher than those who did not ($p=0.034$; $p<0.05$) (Table 2).

Table 1.
Distribution of Total and Sub-Scores of the Complementary and Integrative Health Assessment for Practitioners Scale (n=208)

CIHAP scale	Number of questions	Mean ± standard deviation	Median (min-max)
Openness to complementary and integrative health	6	21.95±3.73	22 (6-30)
Intentional practices	6	19.28±4.16	20 (6-30)
CIHAP total scale	12	41.23±6.98	42 (12-55)

CIHAP=complementary and integrative health assessment for practitioners scale

There was no difference between the OCIH and IP subscales of the CIHAP scale and the total scores the nurses received from the scale by whether they provided care to a COVID-19 patient, were diagnosed with COVID-19 or were afraid of being diagnosed with COVID-19 (p>0.05) (Table 3).

When the results from the comparison of the total and subscale scores of the CIHAP scale according to the views of the nurses about complementary medicine methods are examined, nurses who received complementary medicine training were found to have higher scores from the IP subscale of CIHAP than those who did not receive complementary medicine training (p=0.001; p<0.01) (Table 4).

The total scores of the nurses who received complementary medicine training from the CIHAP scale were higher than those who did (p=0.013; p<0.05) (Table 4).

Nurses who used complementary medicine methods during the pandemic had higher total scores from the CIHAP scale and their scores from the OCIH and IP subscales were also higher than those who did not use complementary medicine methods (p=0.003, p=0.003, p=0.007; p<0.01) (Table 4).

Nurses who recommended complementary medicine methods to their relatives or patients during the pandemic had higher scores from the CIHAP scale and their scores from the OCIH and IP subscales were also higher (p=0.003, p=0.003, p=0.007; p<0.01) (Table 4).

Discussion

The COVID-19 pandemic is physically and psychologically threatening for many people and nurses, who work during the pandemic and are in constant contact with the patient, are undoubtedly among the most vulnerable groups. During the pandemic, nurses sought alternative options for protecting, improving and developing their physical and mental health. In our study, the use of complementary medicine methods by nurses, who are pioneers in the education, protection and development of public health, was investigated.

Table 2.
Comparison of Total and Sub-dimensional Scores of the Complementary and Integrative Health Assessment for Practitioners Scale According to Nurses' Descriptive and Professional Characteristics (n=208)

Characteristics	n (%)	Openness to complementary and integrative health	Intentional practices	CIHAP total scale
		Mean ± standard deviation median (min-max)	Mean ± standard deviation median (min-max)	Mean ± standard deviation median (min-max)
Gender				
Female Male	180 (86.5) 28 (13.5)	21.92±3.86; 22 (6-30) 22.11±2.78; 23 (16-29)	19.37±4.30; 20 (6-30) 18.75±3.07; 19 (12-26)	41.29±7.22; 42 (12-55) 40.86±5.35; 42 (28-50)
Test value (p)		[a]0.843	[a]0.285	[a]0.626
Marital status				
Married Single	125 (60.1) 83 (39.9)	22.14±3.60; 22 (14-30) 21.66±3.92; 22 (6-30)	19.18±4.18; 19 (10-30) 19.43;4.14; 20 (6-28)	41.32±6.88; 42 (26-55) 41.10±7.18; 43 (12-55)
Test value (p)		[a]0.638	[a]0.557	[a]0.931
Education status				
Vocational school Bachelor's degree ≥Master programme	18 (8.6) 158 (76.0) 32 (15.4)	22.06±2.53; 23 (17-26) 22.13±3.98; 22 (6-30) 20.97±2.83; 22 (15-25)	19.56±2.75; 19 (15-26)[1] 19.54±4.32; 20 (6-30)[2] 17.84±3.75; 18 (11-28)[3]	41.61±4.37; 42 (32-49) 41.68±7.39; 43 (12-55) 38.81±5.61; 39.5 (29-51)
Test value (p)		[b]0.166	**[b]0.043*; 2>3**	**[b]0.035***
Family with chronic disease over 65 years of age				
Yes No	110 (52.9) 98 (47.1)	22.35±3.47; 23 (6-30) 21.50±3.97; 22 (10-30)	19.44±4.03; 20 (6-28) 19.11±4.31; 19 (8-30)	41.78±6.62; 43 (12-55) 40.61±7.36; 41 (18-55)
Test value (p)		**[a]0.033***	[a]0.439	[a]0.162
Economical situation				
Good	47 (22.6)	21.89±3.67; 23 (10-30)	17.89±3.76; 19 (8-25)[1]	39.79±6.85; 41 (18-52)
Average Poor	145(69.7) 16 (7.7)	21.94±3.84; 22 (6-30) 22.19±2.99; 23 (17-26)	19.77±4.30; 20 (6-30)2 18.94±3.04; 19.5 (11-23)3	41.71±7.23; 43 (12-55) 41.13±4.36; 42.5 (32-47)
Test value (p)		[b]0.909	**[b]0.021*; 2>1**	[b]0.274

As a result of this study, which was conducted to determine the use of complementary medicine methods by nurses working in the COVID-19 pandemic, it was seen that the nurses scored above the average in the subscales of the scale and in total (Table 1).

This is the first study conducted in our country to evaluate nurses' knowledge of complementary and integrative health assessment and their interest in integrating it into their practices. For this reason, the results of the study were compared with the results of the studies conducted with healthcare professionals in different disciplines using different scales. Gör and Duru Aşiret (30), Ilori et al. (31) and Teke et al. (32) and Yesse et al. (33) reported that nurses, medical students and healthcare workers had positive attitudes towards complementary medicine methods for COVID-19.

Nurses in our study differed in using complementary and integrative health assessment by their education, economic status, whether they had a family member over 65 years of age with chronic diseases, received training on complementary medicine methods, used complementary medicine methods during the pandemic and recommended complementary medicine methods to their relatives and patients (Tables 2-4).

The nurses with a bachelor's degree had higher scores from the CIHAP and from the IP subscale than those with a master's degree or higher (Table 2). Differently, in the study of Teke et al. (32), university graduate health workers had more positive attitudes towards complementary medicine methods than vocational school graduates. In the study of Cinar et al. (34), senior nursing students had a negative attitude towards complementary medicine practices compared to first-year nursing students. From the results of the study, it was concluded that the approach to complementary medicine methods differed by education level (35).

In our study, most of the nurses had not received training on complementary medicine methods, but more than half of them used complementary medicine methods (Table 4). The fact that nurses' attitudes are differed by their education

Table 2.
Comparison of Total and Sub-dimensional Scores of the Complementary and Integrative Health Assessment for Practitioners Scale According to Nurses' Descriptive and Professional Characteristics (n=208) (Continued)

Characteristics	n (%)	Openness to complementary and integrative health Mean ± standard deviation median (min-max)	Intentional practices Mean ± standard deviation median (min-max)	CIHAP total scale Mean ± standard deviation median (min-max)
Unit of work				
Administration	13 (6.3)	23.38±3.20; 24 (14-27)	21.00±4.06; 21 (12-27)	44.38±5.03; 44 (37-52)
Service (clinical area)	94 (45.2)	22.04±3.35; 23 (14-30)	19.53±4.00; 20 (10-30)	41.57±6.39; 42 (26-55)
Policlinic	21 (10.1)	21.10±3.35; 21 (16-30)	18.76±4.00; 19 (13-28)	39.86±6.30; 38 (32-52)
Intensive care unit	31 (15.0)	22.35±3.78; 23 (10-29)	19.71±3.60; 20 (8-26)	42.06±6.94; 43 (18-55)
Emergency department	27 (13.0)	22.04±3.75; 23 (15-29)	18.52±4.58; 19 (11-28)	40.56±7.32; 42 (26-53)
Other (blood collection unit, endoscopy etc.)	22 (10.6)	20.82±5.44; 20 (6-30)	18.05±5.05; 19.5 (6-26)	38.86±9.83; 40 (12-55)
Test value (p)		[b]0.098	[b]0.298	[b]0.219
Smoking				
Yes	70 (33.7)	22.57±4.02; 23 (6-30)	70.00±19.26; 4.3 (20-6)	41.83±7.49; 43 (12-55)
No	128 (61.5)	21.59±3.52; 22 (10-30)	128.00±19.29; 4.2 (20-8)	40.88±6.81; 42 (18-55)
Left	10 (4.8)	22.10±4.04; 23 (16-30)	10.00±19.40; 2.2 (19,5-16)	41.50±5.74; 42.5 (32-54)
Test value (p)		[b]0.137	[b]0.987	[b]0.476
Alcohol use				
Yes	42 (20.2)	22.19±5.00; 23 (6-30)	20.07±5.20; 21 (6-29)	42.26±9.50; 45 (12-54)
No	165 (79.3)	21.87±3.36; 22 (14-30)	19.08±3.85; 19 (10-30)	40.96±6.21; 42 (26-55)
Test value (p)		[a]0.129	[a]0.054	[a]**0.034**
Presence of chronic disease				
Yes	40 (19.2)	22.15±4.06; 22 (14-30)	18.28±4.28; 19 (10-25)	40.43±7.40; 42 (26-54)
No	168 (80.8)	21.90±3.66; 22 (6-30)	19.52±4.10; 20 (6-30)	41.42±6.89; 42 (12-55)
Test value (p)		[a]0.708	[a]0.151	[a]0.502

*[a] Mann-Whitney U test, [b] Kruskal-Wallis test, *p<0.05, CIHAP=complementary and integrative health assessment for practitioners scale*

level and that nurses who did not receive training tended to use complementary medicine methods more suggest a risk for uninformed use. In our study, the nurses with a master's degree were more aware of their risks and side effects, which was the reason they used these methods less. It is therefore important to inform nurses about the use of complementary medicine methods within the scope of university curricula and in-service training programs in clinical settings during nursing education.

The nurses in our study who had an average economic status had higher IP subscale scores than those with

Table 3.
Comparison of Total and Sub-dimensional Scores of the Complementary and Integrative Health Assessment for Practitioners Scale According to Nurses' Views on the COVID-19 Process (n=208)

Characteristics	n (%)	Openness to complementary and integrative health	Intentional practice	CIHAP total scale
		Mean ± standard deviation median (min-max)	Mean ± standard deviation median (min-max)	Mean ± standard deviation median (min-max)
Caring for a patient diagnosed with COVID-19				
Yes	158 (76.0)	21.82±3.81; 22 (6-30)	19.18±4.05; 20 (6-29)	40.99±6.94; 42 (12-55)
No	50 (24.0)	22.36±3.48; 22.5 (14-30)	19.62±4.49; 20 (10-30)	41.98±7.13; 43.5 (27-54)
Test value (p)		[a]0.378	[a]0.521	[a]0.332
Diagnosed with COVID-19				
Yes	108 (51.9)	21.78±3.53; 22 (10-30)	19.08±4.06; 19 (8-30)	40.86±6.43; 42 (18-55)
No	100 (48.1)	22.13±3.95; 23 (6-30)	19.50±4.27; 20 (6-28)	41.63±7.55; 43 (12-55)
Test value (p)		[a]0.287	[a]0.298	[a]0.170
Fear of being diagnosed with COVID-19				
Yes	129 (62.0)	22.09±3.31; 22 (14-30)	19.06±3.85; 19 (11-30)	41.16±6.19; 42 (26-55)
No	79 (38.0)	21.71±4.34; 22 (6-30)	19.65±4.61; 20 (6-29)	41.35±8.16; 43 (12-54)
Test value (p)		[a]0.697	[a]0.265	[a]0.450

[a] Mann-Whitney U test, COVID-19=Coronavirus disease-2019, CIHAP=complementary and integrative health assessment for practitioners scale

Table 4.
Comparison of Total and Sub-dimensional Scores of the Complementary and Integrative Health Assessment for Practitioners Scale According to Nurses' Views on Complementary Medicine Methods (n=208)

Characteristics	n (%)	Openness to complementary and integrative health	Intentional practices	CIHAP total scale
		Mean ± standard deviation median (min-max)	Mean ± standard deviation median (min-max)	Mean ± standard deviation median (min-max)
Training in complementary medicine				
Yes	48 (23.1)	22.27±3.98; 23 (10-30)	20.75±4.15; 22 (8-28)	43.02±7.47; 44 (18-55)
No	160 (76.9)	21.85±3.66; 22 (6-30)	18.84±4.07; 19 (6-30)	40.69±6.76; 42 (12-55)
Test value (p)		[a]0.399	**[a]0.001***	**[a]0.013***
The situation of using complementary medicine methods in the pandemic process				
Yes	143 (68.8)	22.43±3.42; 23 (10-30)	19.85±3.95; 20 (8-30)	42.28±6.28; 43 (18-55)
No	65 (31.3)	20.89±4.17; 21 (6-30)	18.03±4.34; 18 (6-28)	38.92±7.89; 38 (12-55)
Test value (p)		**[a]0.003***	**[a]0.007***	**[a]0.003***
Recommendation of complementary medicine methods				
Yes	104 (50.0)	23.01±3.47; 23 (10-30)	20.51±4.06; 21 (8-30)	43.52±6.44; 44 (18-55)
No	104 (50.0)	20.88±3.70; 21 (6-30)	18.06±3.89; 18.5 (6-27)	38.94±6.78; 40 (12-52)
Test value (p)		**[a]0.001***	**[a]0.001***	**[a]0.001***

*[a] Mann-Whitney U test, *p<0.05, CIHAP=complementary and integrative health assessment for practitioners scale*

good economic status (Table 2). Gökçe and Gürdoğan (36) reported that lower-income hypertension patients had a more positive attitude towards complementary medicine. It appears from the study results that individuals with low income use complementary medicine methods more and have a more positive attitude towards these methods (36).

More than half of the participants in this study had a family member over the age of 65 with a chronic disease (Table 2). These nurses had higher scores from the OCIH subscale of CIHAP than those who did not have a family member over the age of 65 with a chronic disease (Table 2). Ejaz et al. (37), emphasized the importance of disease management in individuals with chronic diseases such as hypertension, cardiovascular diseases, diabetes, malignancy, COPD and asthma during the COVID-19 period and stressed that they should take preventive measures to protect themselves as their lives may be at stake if they get COVID-19. Another supportive study by Fernandez et al. (38) found higher mortality rates for patients over the age of 65 who were hospitalized due to COVID-19. Individuals over the age of 65 with chronic diseases are a vulnerable group for COVID-19. Nurses can use complementary medicine methods to support and improve the health of both them and their families.

Again, more than half of the participants stated that they used complementary medicine methods during the pandemic (Table 4). The most used complementary medicine methods were vitamins by the majority, followed by prayer used by more than half of them. Higher scores were found in both subscales of CIHAP for participants who used complementary medicine methods during the pandemic compared to those who did not (Table 4). There are differing results regarding the use of complementary medicine methods by nurses. Gör and Duru Aşiret (30) conducted a study across Turkey to determine the attitudes of nurses towards complementary medicine methods for COVID-19 and found that the use of complementary medicine methods was low, contrary to our findings. The reason for the low rate was attributed to the uncertainty regarding COVID-19. According to Midilli et al. (39), herbs was the most commonly used method among healthcare professionals. Similarly, Lafçı and Kara Kaşıkçı (40) listed herbs as the most frequently used method by healthcare personnel. The differences in the most used methods can be affected by the cultural structure and level of development of the country. The reason for the high demand for herbs may be because they have been used therapeutically in all civilizations from the past to the present and are also easily accessible.

Participants who recommended complementary medicine methods to their relatives or patients during the pandemic had higher scores from the OCIH and IP subscales of CIHAP than those who did not (Table 4). While half of the participants in the study did not recommend complementary medicine methods to their relatives or patients during the pandemic, the other half recommended complementary medicine methods to their relatives or patients during the pandemic. Jones et al. (35) reported that more than half of the nurses recommended complementary medicine methods to others, but almost all of them had received formal training. It has been stated in many studies that the reason why nurses who take active roles in all areas such as the development, improvement and rehabilitation of public health do not recommend and use complementary medicine is their lack of knowledge (25,26,41,42).

The participants who received complementary medicine training scored higher in the IP subscale of CIHAP than those who did not (Table 2). Nurses' need for complementary medicine education is a fact supported by the literature (25,41,42). The willingness of the society to use complementary medicine methods and their actual use of them are increasing. Zeighami and Soltani-Nejad (27) emphasized that nurses should have comprehensive knowledge about complementary medicine methods to be able to advise patients about the risks and side effects of these methods and to answer their questions. 95% of the nurses agree with this and think that they should have knowledge about complementary medicine methods.

Study Limitations

The research was conducted in a single centre. A high number of nurses were diagnosed with COVID-19 and were therefore on medical leave, which adversely affected the data collection process.

Conclusion

Nurses had above average scores from the complementary and integrative health assessment for practitioners scale. The majority of them were using complementary medicine methods and their interest in integrating these methods into their professional practices has increased. Most of the nurses stated that they used vitamins, prayed and benefited from herbs as complementary medicine methods.

Recommendations

Planning in-service training for nurses in clinical settings will contribute to ensuring the competence of nurses in this regard and addressing this issue in the content of the nursing curriculum in undergraduate education will contribute to developing awareness in nursing students. The duties, authorities and responsibilities of nurses about complementary medicine methods should be clearly defined and guides should be created, and nurses should be able to access these guides.

Ethics Committee Approval: Ethical approval was obtained from the Ethics Committee of the Marmara University (16.11.2020-98) where the study was conducted, in accordance with the Declaration of Helsinki, and institutional permission was obtained from the hospitals where the study would be conducted.

Informed Consent: Written informed consent was obtained from each participant before the study.

Peer-review: Externally peer-reviewed.

Author Contributions: Conception – A.T., H.K.Y.; Design – A.T., H.K.Y.; Supervision – A.T., H.K.Y.; Fundings – A.T., H.K.Y.; Materials – A.T., H.K.Y.; Data Collection and/or Processing – A.T., H.K.Y.; Analysis and/or Interpretation – A.T., H.K.Y.; Literature Review – A.T., H.K.Y.; Writing – A.T., H.K.Y.; Critical Review – H.K.Y.

Declaration of Interests: No conflict of interest was declared by the authors.

Funding: The authors declared that this study received no financial support.

References

1. Chen B, Tian EK, He B, Tian L, Han R, Wang S, et al. Overview of Lethal Human Coraviruses. Signal Transduct Targeted Ther 2020;5(1):89. [Crossref]
2. Mulder L, Busch M, Kristoffersen AE, Hök Nordberg J, van der Werf ET. Prevalence and predictive factors of complementary medicine use during the first wave of the COVID-19 pandemic of 2020 in the Netherlands. BMC Complementary Medicine and Therapies 2022;22(1):43. [Crossref]
3. Tural Büyük E, Uzşen H, Koyun M, Lezgioğlu H, Sarı T, Çakır Z. Ailelerin Covid-19 Pandemisi Sürecinde Çocuklarının Sağlığını Korumak ve Geliştirmek İçin Başvurdukları Geleneksel Tamamlayıcı Alternatif Tedavi Yöntemleri (GETAT). Samsun Sağlık Bilimleri Dergisi 2022;7(1):99-112. [Crossref]
4. Uçar D, Tayfun K, Müslümanoğlu AY, Kalaycı MZ. Coronavirus ve Fitoterapi. Bütünleyici ve Anadolu Tıbbı Dergisi 2020;1(2):49-57. [Crossref]
5. Dai YJ, Wan SY, Gong SS, Liu JC, Li F, Kou JP. Recent advances of traditional Chinese medicine on the prevention and treatment of COVID-19. Chin J Nat Med 2020;18(12):881-889. [Crossref]
6. Liang F, Litscher G. Covid-19 (Coronavirus Disease-19): Traditional chinese medicine including acupuncture for alleviation– A report from Wuhan, Hubei Province in China. OBM 2020;5(1):9. [Crossref]
7. Wang Z, Yang L. Chinese herbal medicine: Fighting SARS-CoV-2 infection on all fronts. Journal of Ethnopharmacology 2021;270. [Crossref]
8. Shahsuvaryan ML. Apitherapy in COVID-19-Related Conjunctivitis. Dose-response 2021;19(4):15593258211066694. [Crossref]
9. Yousefi B, Banihashemian SZ, Feyzabadi ZK, Hasanpour S, Kokhaei P, Abdolshahi A, et al. Potential therapeutic effect of oxygen-ozone in controlling of COVID-19 disease. Medical Med Gas 2022;12(2):33-40. [Crossref]
10. Smith GD, Ng F, Ho Cheung Li W. COVID-19: Emerging Compassion, Courage and Resilience In The Face of Misinformation and Adversity. J Clin Nurs 2020;29(910):1425-1428. [Crossref]
11. Haktanir A, Seki T, Dilmaç B. Adaptation and evaluation of Turkish version of the fear of Covid-19 Scale. Death Stud 2022;46(3):719-727. [Crossref]
12. Ornell F, Schuch JB, Sordi AO, Kessler F. Pandemic fear and COVID-19: Mental health burden and strategies. Braz J Psychiatry 2020;42(3):232-235. [Crossref]
13. Labrague LJ. Pandemic fatigue and clinical nurses' mental health, sleep quality and job contentment during the Covid-19 pandemic: The mediating role of resilience. J Nurs Manag 2021;29(7):1992-2001. [Crossref]
14. Lai J, Ma S, Wang Y, Cai S, Hu J, Wei N, et al. Factors associated with mental health outcomes among health care workers exposed to coronavirus disease 2019. JAMA Netw Open 2020;3(3):e203976. [Crossref]
15. Preti E, Di Mattei V, Perego G, Ferrari F, Mazzetti M, et al. The psychological impact of epidemic and pandemic outbreaks on healthcare workers: Rapid review of the evidence. Curr Psychiatry Rep 2020;22(8):43. [Crossref]
16. Gómez-Ochoa SA, Franco OH, Rojas LZ, Raguindin PF, Roa-Díaz ZM, Wyssmann BM, et al. COVID-19 in Health-Care Workers: A Living Systematic Review and Meta-Analysis of Prevalence, Risk Factors, Clinical Characteristics, and Outcomes. Am J Epidemiol 2021;190(1):161-175. [Crossref]
17. Lorenc A, Blair M, Robinson N. Personal and professional influences on practitioners' attitudes to traditional and complementary approaches to health in the UK. Journal of Traditional Chinese Medical Sciences, 2014;1(2):148-155. [Crossref]
18. Bahall M, Legall G. Knowledge, attitudes, and practices among health care providers regarding complementary and alternative medicine in Trinidad and Tobago. BMC Complement Altern Med 2017;17(1):144. [Crossref]
19. Galanis P, Vraka I, Fragkou D, Bilali A, Kaitelidou D. Nurses' burnout and associated risk factors during the COVID-19 pandemic: A systematic review and meta-analysis. J Adv Nurs 2021;77(8):3286-3302. [Crossref]
20. Al Maqbali M, Al Sinani M, Al-Lenjawi B. Prevalence of stress, depression, anxiety and sleep disturbance among nurses during the COVID-19 pandemic: A systematic review and meta-analysis. J Psychosom Res 2021;141:110343. [Crossref]
21. Gordon JM, Magbee T, Yoder LH. The experiences of critical care nurses caring for patients with COVID-19 during the 2020 pandemic: A qualitative study. Appl Nurs Res 2021;59:151418. [Crossref]
22. Häussl A, Ehmann E, Pacher A, Knödl K, Huber T, Neundlinger L, et al. Psychological, physical, and social effects of the COVID-19 pandemic on hospital nurses. Int Nurs Rev 2021;68(4):482-492. [Crossref]
23. Cakıcı N, Avşar G, Çalışkan N. Covid-19 hastalarına bakan hemşirelerin zorlukları: Nitel bir çalışma. Bütüncül Hemşirelik Uygulaması 2021;35(6):315-320. [Crossref]
24. Admi H, Eilon-Moshe Y, Ben-Arye E. Complementary medicine and the role of oncology nurses in an acute care hospital: The gap between attitudes and practice. Oncol Nurs Forum 2017;44(5):553-561. [Crossref]
25. Hall H, Leach M, Brosnan C, Collins M. Nurses' attitudes towards complementary therapies: A systematic review and meta-synthesis. Int J Nurs Stud 2017;69:47-56. [Crossref]
26. Shorofi SA, Arbon P. Complementary and alternative medicine (CAM) among Australian hospital-based nurses: knowledge, attitude, personal and professional use, reasons for use, CAM referrals, and socio-demographic predictors of CAM users. Complement Ther Clin Pract 2017;27:37-45. [Crossref]
27. Zeighami M, Soltani-Nejad S. Knowledge, attitude, and practice of complementary and alternative medicine: A survey of Iranian Nurses. J Res Nurs 2020;25(4):380-388. [Crossref]
28. Berger CC, Johnson KF. Complementary and integrative health assessment for practitioners scale: Initial development and validation. Journal of Mental Health Counseling 2017;39(4):305-319. [Crossref]
29. Hançerlioğlu S, Toygar İ, Çinar D. Validity and reliability of the complementary and integrative health assessment

for practitioners scale: CIHAPTR. TMR Integrative Nursing 2021;5(2):70-76. [Crossref]

30. Gör F, Duru Aşiret G. Hemşirelerin COVID-19'a yönelik tamamlayıcı ve alternatif tedavi kullanım durumu ve tutumu. DEUHFED 2022;15(2):117-127. [Crossref]
31. Ilori T, Akintayo AD, Adewale BA, Oyetola EO. Knowledge, attitude and practıce of Nıgerıan medıcal students towards complementary and alternatıve medıcıne in COVID-19 management. Ann Ib Postgrad Med 2021;19(Suppl 1):S22-S30. [Crossref]
32. Teke N, Özer Z, Bahçecioğlu Turan G. Analysis of health care personnel's attitudes toward complementary and alternative medicine and life satisfaction due to COVID-19 pandemic. Holist Nurs Pract 2021;35(2):98-107. [Crossref]
33. Yesse M, Muze M, Kedir S, Argaw B, Dengo M, et al. Assessment of knowledge, attitude and practice toward COVID-19 and associated factors among health care workers in Silte Zone, Southern Ethiopia. PLoS One 12021;6(10):e0257058. [Crossref]
34. Cinar N, Akduran F, Kose D. The attitudes of nursing students regarding the complementary and alternative medicine. Rev Eletr Enf 2016;18:e1174. [Crossref]
35. Jones J, Rayner S, Logue S, Imray E, Stewart DC, Leslie SJ. National Health Service healthcare staff experience and practices regarding complementary and alternative medicine: An online survey. Int J Complement Alt Med 2017;5(4):159. [Crossref]
36. Gökçe H, Gürdoğan EP. Complementary and alternative therapy usage status and attitudes of hypertension patients. Euras J Fam Med 2019;8(2):59-68. [Crossref]
37. Ejaz H, Alsrhani A, Zafar A, Javed H, Junaid K, Abdalla AE, et al. COVID-19 and comorbidities: Deleterious impact on infected patients. J Infect Public Health 2020;13(12):1833-1839. [Crossref]
38. Fernandez R, Lord H, Halcomb E, Moxham L, Middleton R, Alananzeh I, et al. Implications for COVID-19: A systematic review of nurses' experiences of working in acute care hospital settings during a respiratory pandemic. Int J Nurs Stud 2020;111:103637. [Crossref]
39. Midilli TS, Baysal E, Akarsu G, Korkmaz E. Complementary and alternative medical methods: Attitude, knowledge and use by health personnel. 2016;6(1):39-47. [Crossref]
40. Lafçı D, Kara Kaşıkçı M. Yataklı sağlık kuruluşunda görev yapan sağlık personelinin tamamlayıcı ve alternatif tedavi yöntemlerini bilme ve kullanma durumları. Gümüşhane Üniversitesi Sağlık Bilimleri Dergisi 2014;3(4):1114-1131. [Crossref]
41. Orkaby B, Greenberger C. Israeli nurses' attitudes to the holistic approach to health and their use of complementary and alternative therapies. J Holist Nurs 2015;33(1):19-26. [Crossref]
42. Siedlecki SL. Complementary and alternative therapies (CAT) in academic programs and nursing practice: Is more education is needed? Complement Ther Clin Pract 2021;43:101327. [Crossref]

Mediterranean Nursing and Midwifery

Mediterr Nurs Midwifery 2023; 3(1): 10-17 DOI:10.4274/MNM.2022.22116

ORIGINAL ARTICLE

Knowledge and Opinions of Turkish Parents About the Human Milk Bank

Türk Ebeveynlerinin Anne Sütü Bankasına İlişkin Bilgi ve Görüşleri

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Abstract

Objective: This study am is to determine the knowledge and opinions regarding human milk banks among Turkish parents with babies in the neonatal intensive care unit.

Method: The data of the study were collected using a questionnaire created to determine the socio-demographic characteristics of the parents, and their knowledge levels and opinions about the human milk bank the chi-square test was used for categorical assessments, the Student's t-test for comparisons of two-group averages, and One-Way Analysis of Variance -with Tukey test- for comparisons of three or more groups for analysing data.

Results: The mean knowledge score of the parents about the human milk bank was 33.33±18.84, and for the mothers and fathers, scores were 32.93±19.69 and 33.73±18.05 respectively. It was determined that the parents were generally indecisive in their views regarding the human milk bank.

Conclusion: It was determined that the parents' level of knowledge about human milk banks were low. In line with the results, it is recommended that health personnel inform the society about breast milk banks.

Keywords: Human milk, milk bank, knowledge, opinion, mother, father

Öz

Amaç: Bu çalışma, yenidoğan yoğun bakım ünitesinde bebekleri olan Türk ebeveynlerin anne sütü bankalarına ilişkin bilgi ve görüşlerini belirlemek amacıyla yapılmıştır.

Yöntem: Araştırmanın verileri, ebeveynlerin sosyo-demografik özelliklerini, anne sütü bankası hakkındaki bilgi düzeylerini ve görüşlerini belirlemek amacıyla oluşturulan anket formu kullanılarak toplanmış, kategorik değerlendirmeler için ki-kare testi, Student t-testi -iki grup ortalamalarının karşılaştırılması testi ve verilerin analizi için üç veya daha fazla grubun karşılaştırılması için- Tukey testi ile Tek Yönlü Varyans Analizi testi kullanılmıştır.

Bulgular: Anne ve babaların anne sütü bankası bilgi puan ortalaması 33,33±18,84, anne ve babaların bilgi puan ortalaması sırasıyla 32,93±19,69 ve 33,73±18,05'tir. Ebeveynlerin anne sütü bankasına ilişkin görüşlerinde genel olarak kararsız kaldıkları belirlendi.

Sonuç: Anne ve babaların anne sütü bankaları ile ilgili bilgi düzeylerinin düşük olduğu belirlendi. Sonuçlar doğrultusunda sağlık personelinin anne sütü bankaları hakkında toplumu bilgilendirmesi önerilir.

Anahtar Kelimeler: Anne sütü, süt bankası, bilgi, görüş, anne, baba

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Received: October 31, 2022
Accepted: December 22, 2022

Cite this article as: Sürmeli Y, Vefikuluçay Yılmaz D. Knowledge and Opinions of Turkish Parents About the Human Milk Bank. Mediterr Nurs Midwifery 2023; 3(1):10-17

Introduction

The World Health Organization recommends that babies receive only human milk for the first 6 months after birth, start liquid and solid additional foods from the sixth month, and continue to receive human milk with these foods until at least two years of age (1). Because breastfeeding supports healthy brain development and protects babies from many diseases such as infections and obesity (2). However, not every baby is born and raised under the same circumstances, and therefore, some cannot receive breast milk. Furthermore, in the presence of various diseases of the mother and/or baby, breastfeeding may not be possible or recommended (3-5). For this group of infants who cannot receive breast milk and is not recommended to be taken, the need for breast milk is met through milk sharing or milk banks.

In the past, women who did not have breast milk or could not breastfeed required a means to address this problem, which is among the reasons for the development of traditional wet nursery (6). With its broad definition, wet-nursing is defined as a traditional practice that emerged as a necessity due to numerous reasons, including the death of mothers during or immediately after birth, lack of sufficient milk for their babies if they were alive; or the possible dangers of breastfeeding due to illness. In other words, in this application, the baby is directly breastfed by another woman who is not the mother of the baby. The practice of wet nursing dates back 5.000 years. It has been prevalent in many regions from Europe to China, from the Islamic geography to Jewish culture (7). However, when the history of wet nursing is examined, it is seen that it is actually more common in the Arab-Islamic society (6). In our age, although the practice of wet-nursing has all but disappeared with modern life, it is known that it is still encountered infrequently, usually limited to small regions and social surroundings. In this context, the study by Fouts et al. (8), which included 258 communities based on the human relations area files database, it was reported that babies were continuing to be breastfed by someone other than the mother in 97 of the 104 communities examined. Since unofficial milk sharing is done with wet nursing through interpersonal relationships, risks such as disease transmission may be relevant (9). For this reason, it is emphasized that it may be preferable to meet the milk need from milk banks implemented in western countries in recent years, since the risks are less.

Main Points

- 52.6% of mothers and 51.6% of fathers agreed with the statement "Breast milk banks should definitely be established in our country.
- 36.8% of the mothers and 35.8% of the fathers did not agree with the statement that feeding the baby with milk taken from the breast milk bank is a sin according to my religious belief.
- It was found that fathers who do not want someone else to breastfeed their baby have a higher and significant mean of knowledge about breast milk bank.
- It was determined that the mean score of knowledge about the breast milk bank of the mothers who stated that their milk siblings could marry was high and significant.

Human milk banks (also known as breastmilk banks) which support breastfeeding and are usually non-profit organizations that collect breast milk from volunteer donors, analyse it, ensure its safety via pasteurizing, store it under appropriate conditions, and distribute it when necessary (10-12). Human milk banks have been established in more than 60 countries around the world. As of 2021, there are 263 active human milk banks in Europe and their number is increasing (13). The world's largest human milk banking system is in Brazil, which boasts around 224 human milk banks and 214 breast milk collection points (14). There is still no breast milk bank in our country (Turkey) due to many reasons such as the fact that health personnel do not have enough information about breast milk donation due to religious sensitivities created by different opinions about the religion of Islam and that these personnel do not have enough information about breast milk donation. cannot direct mothers (15,16). However, breast milk banks support women who have problems in breastfeeding and provide quality control in the collection and processing of breast milk. Thanks to this support, the chance of survival of premature newborns increases. For this reason, premature babies hospitalized in the neonatal intensive care unit (NICU) need milk that they can obtain from these institutions, especially if they cannot receive breast milk for various reasons. In this context, breast milk banks can be a good option for premature babies in our country.

In studies on breast milk banks in Turkey and other countries, the sample group generally consists of mothers (16-19). Generally, doctors and mothers decide to feed babies who cannot breastfeed in the NICU. However, in this process, it is forgotten that fathers as well as mothers have the right to decide on the nutrition of their babies. This study was planned with the assumption that it would be important to determine the knowledge levels and opinions of mothers and fathers who have babies in NICU about breast milk bank together so that steps can be taken to establish a breast milk bank in Turkey. He also thought that the results of the research could guide the education given by nurses about the use and need of breast milk banks. Lit is noteworthy that there are a limited number of studies on human milk banking in the literature and only mothers' views on this subject are determined. However, in this process, it was thought that fathers as well as mothers should take part in the decision mechanisms on the feeding of the baby, and in this study, it was aimed to investigate the knowledge levels and opinions of both parents.

Material and Methods

The research was descriptive study conducted. Participants were parents who had a baby in the NICU at a university hospital in Turkey. The number of parents to be included in the sample of the study was calculated by power analysis based on correlation analyses used to determine relationships between the research variables (20). The

calculated sample size was based on power analyses by the G*Power 3.1.10 program.

At a power of 0.90, a medium effect size of 0.15 (R^2=0.15), and 0.05 alpha level of significance, the minimal sample size that was required was 188 parents (achieve a power of 80.276%). The inclusion criteria for parents were ability to speak Turkish as a native language, were older than 18 years of age, and agreed to participate in the study were included in the study.

Data Collection

The data of the study were collected with a questionnaire prepared as a result of the literature review in order to determine the socio-demographic characteristics of the parents, their knowledge, and opinions about wet nurses and breast milk banks (16-19,21,22). Parents' knowledge on human milk banking was collected using the "information form about the human milk bank", consisting of 21 items. The 21-item "information form about the human milk bank", which was form was created by the researchers using relevant literature and was sent by e-mail to five faculty members working in the field of obstetrics and gynaecology nursing to receive their evaluation ("3, appropriate", "2, appropriate but should be corrected/rephrased", and "1, should be removed"). The opinions of the experts were transferred to the computer program and the content validity indices and content validity ratio were calculated in line with the expert opinions. The content validity index of the test items ranged from 0.80 (Item 21) to 1.

The minimum value to be obtained for each item was determined as 0.99 (p=0.05) in the evaluation made by the experts using the Lawshe technique to decide on compliance in the literature (23). In the 1st and 5th items of the test, arrangements were made in terms of language and expression in line with expert suggestions. The 21st item in the information test, whose content validity index was determined as 0.80, was re-examined by the researchers and it was decided to keep it in the final form, as it was thought that the removal of this item could reduce the representation power of the content. The overall content validity of the 21 items was calculated as 0.99. This finding reveals that the test represents approximately 99% of the content to be measured and it can be considered proof of achieving excellent content validity. In the final form (after correction in line with expert opinion), correct answers were evaluated as "1" point, and incorrect and "do-not-know" answers were scored as "0" points. The highest score that could be obtained from the information form was 21 points, and the scores were converted to 100-point scoring.

In order to evaluate the applicability and comprehensibility of the finalized questionnaire, it was applied to 20 parents (10 mothers, 10 fathers) who met the inclusion criteria of the study. As a result of the pre-application, no changes were made to the survey questions. The data were collected at different times in order to prevent the couples from influencing each other in the mother's room or waiting room of the NICU, using a face-to-face interview method to determine their knowledge and opinions about the human milk bank. An appointment was made to reach the spouses of the mothers who agreed to participate in the study. The questionnaire was applied to the fathers who were given an appointment in the mother's room or waiting room of the NICU. The application of the questionnaire to the parents participating in the study took approximately 20 minutes.

Ethical Aspects

All procedures performed in this study involving human participants were conducted in accordance with the ethical standards and according to the principles of the Helsinki Declaration. Before collecting the research data, written approval from the Clinical Research Ethics Committee of the Mersin University (date: 7/11/2017, number: 32705888-903.99) and the necessary institutional permission from the university hospital where the study was conducted was obtained.

Statistical Analysis

To determine the relationship between the research variables, as a result of the power analysis made according to chi-square tests, the required sample size was determined to be at least 188 individuals (94 pairs) in total. Percentage, mean, standard deviation, and maximum and minimum values were calculated using a statistical package program (SPSS) to obtain descriptive values. The normality of distribution and homogeneity of variances in quantitative variables were evaluated using the Shapiro-Wilk and Levene's test, respectively. While analysing data, the chi-square test was used for categorical evaluations, Student's t-test for comparisons of two-group averages, and One-Way Analysis of Variance -with Tukey test- for comparisons of three or more groups. The significance level of the tests was accepted as $p<0.05$.

Results

It was found that all of the parents included in the study were married, 45.3% of the mothers and 46.3% of the fathers were between the ages of 27-35 years. Nearly half (49.5%) of the mothers were high school graduates and 25.3% of them were employed, while 53.7% of the fathers were high school graduates and 9.5% were unemployed. It was determined that 15.8% of the parents were living in an extended family structure and 41.1% of them had had their first child. It was found that the income of 21.1% of the mothers and 16.8% of the fathers were less than their expenses (see Table 1).

Regarding the babies (60% males and 40% females), 78.9% were hospitalized in the NICU with a diagnosis of prematurity, 5.3% with jaundice, 1.1% with pneumothorax, 3.1% with hypoglycaemia, 2.1% with pneumonia, 7.4% with low birth weight, and 2.1% with congenital heart disease.

In Table 2, the distribution of parents' views concerning the human milk bank is described. It was found that most

mothers supported the establishment of human milk banks (46.3%), whereas most of the fathers were undecisive concerning this matter (46.3%). It was determined that 31.6% of the mothers did not want to donate their own milk, and 23.2% of fathers did not want their wives to donate milk to human milk banks. In the study, 28.43% of the mothers and 34.7% of fathers stated that feeding their babies with milk obtained from the human milk bank was a sin according to their religious beliefs (see Table 2).

Table 1.
Socio-demographic Characteristics (n=190)

	Mother $\bar{X}$ **± SD**		**Father** $\bar{X}$ **± SD**	
Age	28.69±6.49		31.41±6.65	
	n	**%**	**n**	**%**
18-26 years	38	40.0	24	25.3
27-35 years	43	45.3	44	46.3
36 years and older	14	14.7	27	9.5
Level of education				
Illiterate	-	-	-	-
Literate	-	-	-	-
Primary school graduate	13	13.7	6	6.3
secondary school graduate	15	15.8	21	22.1
High school graduate	47	49.5	51	53.7
Graduated from a university	20	21.1	17	17.9
Working status				
Worker	24	25.3	86	90.5
Not working	71	74.7	9	9.5
Income status				
Income less than expenses	1	1.1	3	3.2
Income equals expense	74	77.9	76	80.0
Income more than expenses	20	21.1	16	16.8
Family type	**Parents**			
	n		**%**	
Nuclear family	80		84.2	
Extended family	15		15.8	
Number of living children				
1 child	39		41.1	
2 children	33		34.7	
3 children	23		24.2	
Longest living settlement	**Mother**		**Father**	
	n	**%**	**n**	**%**
Province	50	52.6	51	53.7
County	31	32.6	38	40.0
Village-town	14	14.7	6	6.3
Longest living region				
Northern Anatolia Region	12	12.6	7	7.4
Southern Anatolia Region	50	52.6	56	58.9
Western Anatolia Region	12	12.6	8	8.4
Eastern Anatolia Region	14	14.7	15	15.8
Central Anatolia Region	7	7.4	9	9.5

SD=standard deviation

The mean knowledge score of the mothers about the human milk bank was 32.93±19.69 points, while the mean score was 33.73±18.05 points among fathers (p>0.05). Overall, the total knowledge score of the parents was 33.33±18.84 points. The lowest score obtained from the human milk banking knowledge test was 0 and the highest score was 80.95 (see Table 3).

The distribution of the mean knowledge scores about human milk banking according to the views of the parents about wet nursing is given in Table 4. The mean knowledge score of the mothers who thought that wet nursing was beneficial for the baby was found to be significantly higher (p<0.05). The mean knowledge score of fathers who thought that wet nursing was beneficial for the baby was determined as 31.97±18.58 points. The mean knowledge score of fathers who did not want someone else to breastfeed their baby (52.38±13.46) was significantly higher than the mean knowledge score of fathers who thought otherwise (p<0.05). In further analysis, the significance stemmed from the knowledge score difference between fathers who thought that breast milk was healthier than formula and those who did not want someone else to breastfeed their baby (see Table 4).

Discussion

With the understanding of the value of breast milk, breast milk banks have become a matter of curiosity and extensive research has begun on breast milk. While mothers' knowledge and opinions about breast milk banks were recorded in studies, fathers' opinions were often excluded. The formation of a secure bond between the baby and the parents can only be possible by meeting the needs of the baby with the participation of the parents (24). With this emerging secure attachment, the physical, emotional and social development of babies is supported (25,26). However, when the domestic and foreign literature on breast milk banks was examined, no study was found that included the views of fathers on milk banks. Some studies conducted in our country show that mothers want breast milk banks to be established and they will support these banks (17,21), but fathers were not included in these studies. In our study, it was determined that approximately half of the mothers (46.3%) supported the establishment of a breast milk bank, and approximately half of the fathers (46.3%) were undecided on this issue. These results suggest that the reasons for parents to support or not support breast milk banks should be investigated. It is thought that these results are due to the differences in the religious and cultural beliefs of the sampled parents and the region where the study was conducted. It also suggests that the reasons for

Table 2.
Distribution of Parents' Opinions on Human Milk Banking (n=190)

Item	Parents	Disagree		Undecided		Agree		p+
		n	%	n	%	n	%	
Human milk banks must be established in our country.	Mother	20	21.1	25	6.3	50	52.6	0.760
	Father	17	17.9	29	30.5	49	51.6	
When my baby needs it, I get milk from the human milk bank.	Mother	21	22.1	34	35.8	40	2.1	0.987
	Father	21	22.1	35	36.8	39	41.1	
I would like to donate my milk/wife's milk to the human milk bank for babies in need.	Mother	30	31.6	28	29.5	37	38.9	0.427
	Father	22	23.2	31	32.6	42	44.2	
I recommend that mothers get human milk from the human milk bank when they need it.	Mother	23	24.2	41	43.2	31	32.6	0.682
	Father	19	20.0	40	42.1	36	37.9	
I support the establishment of a human milk bank in our country.	Mother	18	18.9	33	34.8	44	46.3	0.080
	Father	22	23.2	44	46.3	29	30.5	
It is a sin, according to my religious belief, to feed the baby with milk from the human milk bank.	Mother	35	36.9	33	34.7	27	28.4	0.599
	Father	34	35.8	28	29.5	33	34.7	
I believe there is a need for a human milk bank in our country.	Mother	21	22.1	35	36.8	39	41.1	0.387
	Father	23	24.2	42	44.2	30	31.6	
The human milk bank is a good opportunity for babies who cannot get enough human milk.	Mother	14	14.8	46	48.4	35	36.8	0.478
	Father	18	18.9	38	40.0	39	41.1	
Quality milk and formula replace the human milk bank.	Mother	39	41.1	29	30.5	27	28.4	0.485
	Father	31	32.6	33	34.7	31	32.6	

+Student's t-test

parents to support or not support breast milk banks should be investigated in depth.

In the literature on breast milk banks, it has been determined that mothers have different opinions about the milk taken from these banks. In our study, it was reported that approximately half of the mothers and fathers approved the use of milk from milk banks when necessary. In the study of Ekşioğlu et al. (17), it was determined that more than half of the mothers (52.5%) would buy breast milk from milk banks and would feed their babies with this milk when necessary. When the foreign literature is examined, we see that the rate of mothers who want to feed their babies with the milk they buy from breast milk banks is higher. Kimani-Murage et al. (27) in their study with 868 mothers with children under the age of 3, it was determined that 87% of the mothers stated that they could feed their babies/children with the milk they would buy from breast milk banks. In another study conducted in 2022, it was determined that 71% of mothers who have at least one child between the ages of 20-49, who are breastfeeding or who are breastfeeding their babies, can feed their babies with milk from breast milk banks (28). However, in addition to positive opinions, there are also opinions that mothers will not feed their babies with the milk they buy from milk banks (22,29). It is thought that the emergence of different opinions in the literature may be due to cultural and religious differences and the parents' lack of knowledge about breast milk banks.

Mothers who cannot breastfeed their babies for various reasons can provide great support to their breast milk banks by expressing their milk and contributing to the breastfeeding of another baby. In our study, it was determined that 38.9% of the mothers donated their milk to breast milk banks, and 44.2% of the fathers were willing to donate their spouse's milk. In studies on breast milk banks in our country, it was determined that the majority of mothers stated that they willing to to donate their milk to these banks if milk banks were opened (21,22,30,31). In researches conducted abroad, it has been determined that the vast majority of mothers are willing to donate their milk to breast milk banks (26,32,33). Our research results show that especially fathers, respond

Table 3.
Distribution of Parents' Mean Knowledge Scores About Human Milk Banking (n=190)

Mean knowledge scores about human milk bank	**n**	**M SD**	**Minimum score**	**Maximum score**
Mother	95	32.93 19.69	0	80.95
Father	95	33.73 18.05	0	80.95
Total	190	33.33 18.84	0	80.95
p[+]	0.770			

[+]Student's t-test, SD=standard deviation

Table 4.
Distribution of Mean Scores on Breast Milk Banking According to Mothers' and Fathers' Opinions (n=190)

p	**Mean knowledge scores of the mothers regarding human milk banking M SD**	**n**	**Opinions on wet nursing**	**n**	**Mean knowledge scores of the fathers regarding human milk banking M SD**	**p**
			Thinking that wet nursing is beneficial for baby[+]			
0.046	36.36 21.24	55	Beneficial	56	31.9 18.58	0.257
	28.21 16.43	40	Not beneficial	39	36.2 17.19	
			Opinions regarding wet nursing[++]			
0.547	29.32 13.95	19	No idea (a)	7	36.73 13.94	0.034 b-d[+++]
	35.12 20.55	61	Breastmilk from a wet nurse is healthier than formula (b)	65	31.8 18.07	
	28.17 23.36	12	Formula is healthier than breastmilk taken from wet nurse (c)	16	31.8 17.70	
	30.15 19.24	3	I don't want another woman to breastfeed my baby (d)	7	52.3 13.46	

[+]Student's t-test, [++] One-Way ANOVA, [+++]Tukey test

positively to breast milk donation. This may contribute to the establishment of breast milk banks and, accordingly, to the change in health policies.

Although breast milk banks have many benefits, it should not be forgotten that they may cause some concerns due to ethical problems. Therefore, the government should regularly and comprehensively monitor these mechanisms and institutions. The reason why both mothers and fathers stated that they were hesitant about breast milk banking in our study may be that breast milk banking has just emerged in our country and there is no continuity of government studies on these banks. There are some concerns, not only for ethical reasons, but also for religious reasons. Because in predominantly Muslim societies, babies who receive breast milk from the same donor are considered milk siblings. According to the religion of Islam, it is forbidden for these siblings to marry. There is no study in the literature confirming that milk siblings can marry. However, in our study, it is a remarkable finding that 34.7% of fathers approve that milk siblings can get married. This result may be related to the higher education level of the fathers.

No study has been found that investigates the level of knowledge of parents about feeding their babies with the milk obtained from breast milk banks, which is critical for the originality of our research, and evaluates the views of parents on breastfeeding and their level of knowledge about breast milk banks. This situation can be associated with the fact that there is no breast milk bank in our country and therefore there is no institution where parents can get information about these banks. It is thought that the mother and father's views on breastfeeding, as well as the health of the mother and baby, affect the knowledge scores of breast milk banks. In our study, the mean score of mothers who found breastfeeding beneficial from the breast milk bank information form was found to be significantly higher. This can be explained by the high level of education of mothers (47% high school, 20% university graduate) and increased awareness of the importance of breast milk. Since there is no study in the literature that included fathers in studies on breast milk banks, it is a remarkable finding that fathers who did not want someone else to breastfeed their baby have a higher level of knowledge about breast milk banks than other fathers ($p<0.05$). This result may be related to the fact that fathers do not find breastfeeding beneficial regardless of their religious beliefs. This result may be related to the fact that fathers do not find breastfeeding beneficial regardless of their religious beliefs.

According to our research findings, mothers and fathers' knowledge of breast milk banking was found to be quite low (mother score average 32±93, father score 33±73). It was observed that fathers who stated that religious belief affected their views on breastfeeding had a high mean of knowledge about breast milk banks, while fathers who stated that their milk siblings should not get married had a low average knowledge scores about breast milk banks. However, no study has been found in the literature on the effect of parents' religious beliefs on the mean knowledge of breast milk banks. According to these results in our research, it can be said that the religious beliefs of the parents affect the information seeking processes.

Conclusion

As a result, in our study, it was determined that although the education level of the parents was high, their level of knowledge about breast milk banks was low. This result is extremely important in terms of showing that parents need information about the purpose of human milk banks, how they work, their benefits and how human milk banks can be established and utilized in Islamic countries. Nurses should not forget that cultural values are important in meeting the information needs of individuals. Transcultural nursing care requires knowing how the serviced society perceives the situation in question and how they approach the fundamental features of the situation. These are critical points to be able to provide high-quality and efficient health care in different societies.

Ethics Committee Approval: Before collecting the research data, written approval from the Clinical Research Ethics Committee of the Mersin University (date: 7/11/2017, number: 32705888-903.99) and the necessary institutional permission from the university hospital where the study was conducted was obtained.

Informed Consent: Informed consent was obtained.

Peer-review: Externally peer-reviewed.

Author Contributions: Concept – Y.S., D.V.Y.; Design – Y.S., D.V.Y.; Supervision – D.V.Y.; Materials – Y.S.; Data Collection and/or Processing – Y.S.; Analysis and/or Interpretation – Y.S., D.V.Y.; Literature Search – Y.S., D.V.Y.; Writing – Y.S., D.V.Y.; Critical Review – Y.S., D.V.Y.

Declaration of Interests: The authors declare that they have no competing interest.

Funding: The authors declare that this study had received no financial support.

References

1. World Health Organization (2019). World Breastfeeding Week. Available from: https://www.who.int/news- room/events/detail/2019/08/01/default calendar/world-breastfeeding-week-2019 [Crossref]
2. United Nations International Children's Emergency Fund (2019). Why Family-Friendly Policies Are Critical To Increasing Breastfeeding Rates World Widem. Available from: https://www.unicef.org/turkiye/en/press-releases/why-family-friendly-policies-are-critical-increasing breastfeeding-rates-worldwide [Crossref]
3. World Health Organization and United Nations International Children's Emergency Fund. Baby-friendly hospital initiative: revised, updated and expanded for integrated care.

Section 3, Breastfeeding Promotion and Support in a Baby Friendly Hospital, 2009:58. [Crossref]
4. Panczuk JS, O'Connor D, Lee SK. Human donor milk for the vulnerable infant: a Canadian perspective. International Breastfeed Journal 2014;9:4. [Crossref]
5. Section on Breastfeeding. Breastfeeding and the use of human milk. Pediatrics 2012;129(3):e827-841. [Crossref]
6. Utku N. Wet nursing in antiquity and Middle Ages: the biological, economic and cultural codes of another's milk. Journal of Women's Studies 2020;6(1):51-112. [Crossref]
7. Güneş HN. A mezzanine floor in socially constructed maternety discourse: wet nursing. Electronic Journal of Social Sciences 2019;18(69):252-267. [Crossref]
8. Fouts HN, Hewlett BS, Lamb ME. A biocultural approach to breastdfeeding interactions in central Africa. American anthropologist, 2012;114(1):123-136. [Crossref]
9. Surmeli Y, Yilmaz-Vefikulucay D. Nursing and breast milk banks in Turkey and the world. International Refered Journal of Nursing Researches 2018;14:114-127. [Crossref]
10. Arslanoglu S. Establishment of human milk bank in Turkey. A new model suitable for beliefs and values: "Human Milk Center". In: Kılıc I, Ucar A. (editors), Milk kinship and milk bank. Isar Publications, 2016: 55-61. [Crossref]
11. Italian Association of Human Milk Banks Associazione Italiana Banche del Latte Umano Donato (AIBLUD: www.aiblud.org); Arslanoglu S, Bertino E, Tonetto P, De Nisi G, Ambruzzi AM, Biasini A, Profeti C, Spreghini MR, Moro GE. Guidelines for the establishment and operation of a donor human milk bank. J Matern Fetal Neonatal Med 2010;23(Suppl 2):1-20. [Crossref]
12. Ramli N, Ibrahim NR, Hans VR. Human milk banks- The benefits and issues in an Islamic setting. Eastern Journal of Medicine 2010;15(4):163-167. [Crossref]
13. European Milk Bank Association (EMBA). (2021). Milk Bank. Available from: https://europeanmilkbanking.com/map [Crossref]
14. FIOCRUZ (2021). Statistics. Available from: https://producao.redeblh.icict.fiocruz.br/portal_blh/blh_brasil.php [Crossref]
15. Kuluçtu A, Özerdoğan N. Human milk bank. MCBU SBED 2017;4(2):593-596. [Crossref]
16. Senturk Erenel A, Ünal Toprak F, Golbasi Z, Pelit Aksu S, Arslan Gürcüoğlu E, Ucar T, et al. A multicenter study for the determination of health care staffs' knowledge and views about human milk banks. Gazi Medical Journal 2017;28(2):107-111. [Crossref]
17. Ekşioğlu A, Yeşil Y, Çeber Turfan E. Mothers' views of milk banking: sample of İzmir. Turk Pediatri Ars 2015;50(2):83-89. [Crossref]
18. Katke RD, Saraogi MR. Socio-economic factors influencing milk donation in milk banks in India: an institutional study. International Journal of Reproduction, Contraception, Obstetrics and Gynecology 2014;3(2):389-393. [Crossref]
19. Perrin MT, Goodell LS, Allen JC, Fogleman A. A mixed-methods observational study of human milk sharing communities on Facebook. Breastfeeding Medicine 2014;9(3):128-134. [Crossref]
20. Cohen J. Statistical power anlysis for the behavioral sciences, Lawrence Erlbaum Associates, Hillsdale, New Jersey, 1988. [Crossref]
21. Gürol A, Özkan H, Çelebioğlu A. Turkish women's knowledge and views regarding mothers milk banking. Collegian Journal of the Royal College of Nursing Australia 2013;21(3):239-244. [Crossref]
22. Dorum A. A study on difficulties that mothers of newborn at risk have and milk banking. Master's thesis, Sifa University, 2015. [Crossref]
23. Yurdugül H, Bayrak F. Using Content Validity Indices for Content Validity in Scale Development Studies [Oral presentation]. 14th National Educational Sciences Congress, Denizli, Turkey:2005. [Crossref]
24. Newland LA, Coyl DD, Chen H. Fathering and attachment in the USA and Taiwan: contextual predictors and child outcomes. Early Child Development and Care 2010;180:173-191. [Crossref]
25. Ozkan H, Celebioglu A, Ust ZD, Kurudirek F. Investigation of the parenting behaviors of fathers in the postpartum period. İzmir Journal of Behcet Uz Children's Hospital, 2016;6(3):191-196. [Crossref]
26. Turemen M. Effects of skin-to-skin contact of fathers with newborn babies in neonatal intensive care unit to father-infant attachment and marital adjustment. Master's thesis, Manisa Celal Bayar University, 2019. [Crossref]
27. Kimani-Murage EW, Wanjohi MN, Kamande EW, Macharia TN, Mwaniki E, Zerfu T, et al. Perceptions on donated human milk and human milk banking in Nairobi, Kenya. Matern Child Nutr 2019;15(4):e12842. [Crossref]
28. Jahan Y, Rahman S, Shamsi T, Sm-Rahman A. Attitudes and views concerning human milk banking among mothers residing in a Rural Region of Bangladesh. J Hum Lact 2022;38(1):108-117. [Crossref]
29. Can Ş, Ünülü M. Knowledge of mother regarding wet nursery and breast milk banking. Ankara Med J 2019;(1):60-70. [Crossref]
30. Karadag A, Ozdemir R, Ak M, Ozer A, Dogan DG, Elkiran O. Human milk banking and milk kinship: Perspectives of mothers in a Muslim country. Journal of Tropical Pediatrics 2015;61(3):188-196. [Crossref]
31. Senol-Kaya D, Aslan E. Women's opinions on breast milk donation and human milk banking [Oral presentation]. 1st National Eastern Mediterranean Midwifery Congress: Adana, 2017. [Crossref]
32. Jackson F, Obeng C. Perceptions of human milk banks as a response to the us infant formula shortage: a mixed methods study of US mothers. Women 2022;2(3):218-230. [Crossref]
33. Velmurugan S, Prabakar V, Bethou A, Ramamoorthy L. Perceptions on human milk donation and banking: Maternal optimism. J Family Med Prim Care 2020;9(11):5820-5821. [Crossref]

Mediterranean Nursing and Midwifery

Mediterr Nurs Midwifery 2023; 3(1): 18-24 DOI:10.4274/MNM.2023.22126

ORIGINAL ARTICLE

The Effect of Different Lying Positions on Regional Pain and Comfort Levels in Intramuscular Drug Administration

İntramusküler İlaç Uygulamasında Farklı Yatış Pozisyonlarının Bölgesel Ağrı ve Konfor Düzeyi Üzerine Etkisi

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Abstract

Objective: This study was planned to evaluate the effect of different lying positions (prone and lateral) on regional pain and comfort level in intramuscular (IM) drug administration.

Method: This is a single-group, quasi-experimental study in the emergency department in İstanbul, Turkey in which 100 adults (200 injections). The first IM injection was performed according to the patient's preference of lying position (lateral or prone). For the second injection, the patient was rotated to the remaining position. After the IM injections, the patients' pain, and comfort levels were assessed by self-report. This study was created in accordance with TREND Statement Checklist.

Results: According to verbal reports by the patients, the mean pain intensity level was 4.12±1.67 and the mean comfort level was 6.09±1.86 after IM injections in the prone position. For the lateral position, the mean pain intensity level was 5.22±1.91, and the mean comfort level was 4.80±2.00.

Conclusion: Since it provides the least pain intensity and the highest comfort, the "prone lying position" appears to be the safest and most comfortable patient position during an IM injection.

Keywords: Drug administration, intramuscular injection, pain, comfort

Öz

Amaç: Bu çalışma intramusküler (IM) ilaç uygulamasında farklı yatış pozisyonlarının (prone ve lateral) bölgesel ağrı ve konfor düzeyine etkisini değerlendirmek amacıyla planlandı.

Yöntem: Araştırma, İstanbul, Türkiye'de acil serviste 100 erişkin (200 enjeksiyon) ile tek gruplu, yarı deneysel tasarım türünde gerçekleştirildi. İlk IM enjeksiyon hastanın tercihine göre (lateral veya prone) yapıldı. İkinci enjeksiyon ise, diğer pozsiyona uygulandı. IM enjeksiyonlardan hemen sonra hastaların ağrı ve konfor düzeyleri kendi bildirimleri ile değerlendirildi. Bu çalışma TREND Bildirimi Kontrol Listesi'ne uygun olarak oluşturuldu.

Bulgular: Prone pozisyonda yapılan IM enjeksiyonlardan sonra hastaların sözlü ifadelerine göre ortalama ağrı şiddet düzeyi 4,12±1,67 ve ortalama konfor düzeyi 6,09±1,86 olarak saptandı. Lateral pozisyon için ise, ağrı şiddeti düzeyi 5,22±1,91, ortalama konfor düzeyi 4,80±2,00 olarak belirlendi.

Sonuç: Elde edilen sonuçlara göre, IM enjeksiyon sırasında en az ağrı şiddeti ve en yüksek konforu sağladığı için, "prone yatış pozisyonu" en güvenli ve en rahat hasta pozisyonu olarak değerlendirilmektedir.

Anahtar Kelimeler: İlaç uygulaması, intramusküler enjeksiyon, ağrı, konfor

*This study was presented as master science thesis of Fundamentals of Nursing Department in İstanbul University-Cerrahpaşa Institue of Graduate Studies.

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Received: November 11, 2022
Accepted: January 05, 2023

Cite this article as: Sarıkaynak C, Büyükyılmaz F. The Effect of Different Lying Positions on Regional Pain and Comfort Levels in Intramuscular Drug Administration. Mediterr Nurs Midwifery 2023; 3(1): 18-24

Introduction

Intramuscular (IM) injection is the administration of large amounts of drugs into the deep muscle layer. Since muscle tissue contains a large amount of blood vessels, drug absorption is rapid here. The systemic effect begins within 20-30 mins. In the IM drug administration, the determination of the injection site is crucial. IM injection is often performed into the ventrogluteal (VG), dorsogluteal (DG), vastus lateralis, and deltoid muscles (1,2).

Apart from practices to reduce pain and increase comfort during IM injection or the individual characteristics of patients, many other factors also affect pain intensity and comfort levels. These include the patient preparation before the procedure, the suitability of the chosen site, the structure of the drug, the speed of drug administration, the position, and the fear of injection. Accurately identifying the injection site is essential for a safe IM injection (1,2). Coskun et al. (3) conducted on cadavers and found that, despite the large muscle tissue at the DG site, it contains large blood vessels and nerves and the subcutaneous tissue thickness is greater than the VG site. The authors recommended that the VG site should be the primary choice for IM injections (3). Similarly, Kara and Yapucu Güneş (4) reported that the DG site was risky, hence using the VG site was advantageous, and it should be the priority for IM administrations. Kaya et al. (5) investigated the reliability of the G and V methods for determining the injection site in the VG region. For both injection sites identified by the G and V methods, the gluteus medius muscle was located under the sites, but the subcutaneous tissue thickness was lower in the G method, with larger involvement of the gluteus minimus muscle. Therefore, the authors highlighted that drug injection risks were lower for the subcutaneous tissue compared to the V methods. They also suggested that the patient's sex and body mass index (BMI) should be considered when managing IM injections into the VG region (5). Similarly, Elgellaie et al. (6) examined the effect of muscle and subcutaneous tissue thickness on IM injection sites and reported that, despite the larger gluteus medius muscle at the DG site, the VG site was more reliable for the drug to reach the muscle tissue, particularly in overweight patients, due to the greater subcutaneous tissue thickness. Considering the muscle thickness at both sites identified by the G and V methods, the authors recommended the G method to determine the VG site for a successful IM injection (6). Moreover, Larkin et al. (7) showed that sex, BMI, and body shape directly affected the injection into the DG and VG regions, where the subcutaneous tissue was thicker in women, obese patients, and those with the endomorph body type. Apaydın and Öztürk (8) reported lower levels of pain, bleeding, and hematoma at the VG site compared to the DG site. Öçal (9) highlighted that no hematoma developed at the VG site, with lower pain and bleeding levels than the DG site. Kemaloğlu (10) observed more severe pain and bleeding in injections into the DG region compared to the VG region, with more frequent hematoma and ecchymosis.

If the needle tip is not of sufficient length for an IM injection, the drug can be injected into the subcutaneous tissue with more nerves, causing more pain (11). Masuda et al. (12) compared the distance from the epidermis to the under-fascia and the distance from the epidermis to the iliac bone at the DG and VG sites. There was no significant difference in terms of the distance from the epidermis to the under-fascia, however, the distance from the epidermis to the iliac bone was shorter at the VG site in both the right and left gluteal regions. Hence, the authors emphasized the importance of the patient's body shape, the subcutaneous tissue thickness, the foreseen injection sites, the angle-depth of the injection, and the patient's position for injections into the VG region (12). Dadaci et al. (13) demonstrated that using short needle tips and the posterior gluteal site for the IM administration of non-steroidal anti-inflammatory drugs caused Nicolau syndrome (local ischemic necrosis of the cutaneous and deep subcutaneous tissues at the injection site). To prevent this, the authors recommended using a long needle tip, the anterior gluteal site, and shifting the adipose tissue by the Z technique (13). Similarly, Shehata (14) recommended the Helfer Skin Tap and Z techniques for reducing pain during IM injections.

IM injections involve serious risks like administering the drug into the vein by accident, causing nerve damage, post-injection pain, ecchymosis, and swelling. To reduce such risks and undesirable effects, the literature highlights appropriate identification of the injection site and the needle size based on the amount of drug. Furthermore, research shows lower regional pain intensity after administration into the VG region compared to the DG region (10). Besides, numerous studies have found that using the Z technique, using a long needle tip, applying pressure on acupressure points, applying manual pressure before/after the injection, applying cold-vibration (Buzzy), using the 0.5 mL airlock method, and performing the injection for at least 10 seconds are some effective methods for reducing undesirable effects in injections at the VG site (15-20). Another consideration to reduce injection-related fear and position-related muscle tension in VG injections is using different lying positions (21,22).

Main Points

- In the literature, there is sufficient information about safe drug administration via intramuscular (IM) route. However, there is insufficient evidence to provide patient comfort during the IM injections.
- The research provides evidence for identifying the safest and most comfortable patients' position during an IM injection in the emergency department.
- Key implications for nursing practice from this research are as follows: Since it provides the least pain intensity and the highest comfort, the "prone lying position" appears to be the safest and most comfortable patient position during an IM injection.

Purpose of the Study

This study was planned to evaluate the effect of different lying positions (prone and lateral) on regional pain and comfort level in IM drug administration. It is considered that

this research will provide evidence for identifying the most comfortable patient position during IM injections.

The two research hypotheses were as follows:

H_1. Patients will report lower regional pain intensity and higher comfort level after IM drug administration in the lateral position.

H_2. Patients will report lower regional pain intensity and higher comfort level after IM drug administration in the prone position.

Material and Methods

Type
This was a single-group, single-blind, quasi-experimental, pre-test and post-test study. This single-group procedure was preferred by performing the injection on the same anatomical structure to avoid differences arising from the individual characteristics of the patients.

Place and Time
This study included inpatients from the emergency department of a state hospital in İstanbul, Turkey between January 2021 and April 2021.

Research Population and Sample
The patients were required to meet the following inclusion criteria: (a) Being aged 18 years or over, (b) having no cognitive-perceptive problem, (c) having a physician's prescription for only diclofenac sodium by the IM route, (d) being at the beginning of treatment, (e) having no inconvenience for applying different lying positions (lateral and prone), (f) having a BMI of normal weight to obesity based on the World Health Organization classification, (g) having had no IM injection at the DG or VG site in the last 6 months, (h) and having no scar, scar tissue, etc. at the VG site (5,8,22-24).

Power analysis was performed based on previous research with a large cohort to estimate the sample size (5,8,15,22-24). Assuming a power of 80% and an α risk of 0.05, a sample size of 100 (200 injections) was found to be appropriate. After obtaining the necessary permission from the ethics committee and the relevant institution, the data collection process began. Before IM administration, we explained to the patients the purpose, content, scope, and data collection tools of the research and obtained their written and verbal consent for voluntary participation. This study was created in accordance with TREND Statement Checklist.

Data Collection Instruments
The data collection tools consisted of a patient information form, developed by the researcher, inquiring about patients' individual and disease characteristics (age, sex, height-weight, chronic disease, vital signs, etc.). Regional pain intensity and comfort level after IM injection were determined using the visual analog scale (VAS). Patient information forms and VAS forms were filled in by the researcher nurse (with 5 years of clinical experience and have master's degree in fundamentals of nursing science) in the injection room.

- VAS: The VAS was used immediately after the IM injection to evaluate the patient's pain intensity and positional comfort level during the injection. The 10 cm vertical line includes subjective descriptive statements at both ends (0 cm: Lowest pain/comfort level and 10 cm: Highest pain/comfort level). The patient was instructed to place a mark on this line, corresponding to their pain intensity and comfort level. The distance from the lowest level on the scale to the patient's mark was measured with a ruler, obtaining a numerical value for the patient's pain intensity and comfort level in cm or mm.

Data Collection
The first IM injection was performed according to the patient's preference of lying position (lateral or prone). For the second injection, the patient was rotated to the remaining position. Accordingly, if a patient preferred the lateral position for their first IM injection, the second injection was performed in the prone position. If they preferred the prone position for the first IM injection, the second injection was performed in the lateral position. All IM injections were performed on a patient stretcher in the injection room. According to the literature, using the Z technique, using the 0.5 mL airlock method, and performing the injection for at least 10 seconds per 1 cc/mL of the drug are some effective methods to reduce undesirable effects during injection (5,22,24). Hence, the Z technique and the airlock method were implemented during the injection (14). To perform the Z technique effectively, we preferred to first practice these two lying positions (prone and lateral) on the patients before the injection.

The researcher nurse ensured that the patient was in a suitable position for IM injection, the administration site was open, and the necessary safety precautions were taken. In the lateral position, we requested slight flexion of the upper leg over the lower leg. In the prone position, we passed the patient's arms through a thin pillow under the head, and asked to turn their head sideways and their feet inward with their big toes facing each other (2,5,24). To ensure patient confidentiality, the practice was limited to one patient at a time, keeping the door of the injection room closed.

The IM injections were performed by a nurse (practitioner) working in the emergency department, with a bachelor's degree in nursing and 5 years of clinical experience. The same practitioner nurse prepared all the drugs and performed and recorded all IM injections for the whole sample. Accordingly, the nurse prepared the drugs at the nurse's counter, drew air into the syringe using the 0.5 mL airlock method, and followed the steps below for the IM injection (5,14,18,24).

- Washed hands and wore gloves,
- Put the patient into position (lateral or prone),
- Opened the injection site, ensuring patient confidentiality,
- Checked skin/tissue integrity when determining the injection site,
- Palpated the VG injection site as identified by the G method, checked for any stiffness, mass, or lesion, and determined the injection site,
- Cleaned the administration site from inside to outside using a sterile, cotton pad, impregnated with the appropriate antiseptic solution,
- Tucked cotton between the 3rd and 4th fingers of the free hand,
- Removed the cap of the injector needle,
- Shifted the cutaneous and subcutaneous tissue to the outer edge by 2.5 cm using the outside of the free hand, in accordance with the Z technique,
- Quickly penetrated the site at a 90° angle,
- After inserting the needle, pulled the plunger and checked for blood using the passive hand. If there was no blood, administered the drug was slowly (30 seconds) and performed the 0.5 mL airlock method,
- Pressed the sterile, cotton pad impregnated with antiseptic solution on the injection site, removed the needle rapidly, and released the stretched tissue,
- Applied gentle pressure to the site for 10 seconds,
- Helped the patient take a comfortable position,
- Disposed of the syringe and needle in their appropriate waste bins,
- Removed the gloves and washed the hands. Recorded the procedure.

After the procedure, the patients' pain, and comfort levels were assessed by self-report.

Statistical Analysis

Data were analyzed using the Statistical Package for the Social Sciences (SPSS) for Windows version 21.0 (IBM Corp, Armonk, New York). Demographic and outcome variables are described using frequency distributions for categorical variables, and means and standard deviations for continuous variables. Chi-square was used to examine differences in categorical variables. Outcomes data such as the intensity of pain and comfort levels in patients were compared using independent t-test, and Wilcoxon signed-rank test. The level of significance was set at $p \leq 0.05$.

Ethics

Approval for this study was received from the Okmeydanı Training and Research Hospital's Ethics Committee and Institution (number: 48670771-514.10). Prior to the study, patients were informed of the purpose of the research and were assured of their right to refuse to participate in the study or withdraw their consent at any stage.

Results

The sample had a mean age of 48.49±20.73 years, 59% of the patients were male, the mean BMI was 25.64±3.07 kg/m^2 (normal weight), 43% of the patients applied to the emergency department for IM injection as requested by their physician for the diagnosis of upper respiratory tract infection, and 77% had a chronic disease (Table 1).

Pain Intensity and Comfort Level

According to verbal reports by the patients, the mean pain intensity level was 4.12±1.67 and the mean comfort level was 6.09±1.86 after IM injections in the prone position. For the lateral position, the mean pain intensity level was 5.22±1.91, and the mean comfort level was 4.80±2.00 (Table 2). The mean pain intensity level was lower after IM injection in the

Table 1.
Patients Characteristic (N=100)

Patients characteristic		**n (%)**
Age	Mean ± SD	48.49±20.73
	Median (min-max)	44 (18-97)
Gender	Women	41 (41)
	Men	59 (59)
Body mass index	Mean ± SD	25.64±3.07
	Median (min-max)	25.61 (18.96-36.20)
Medical diagnosis	Acute gastroenteritis	28 (28)
	Dental abscess	12 (12)
	Upper respiratory tract nfection	43 (43)
	Low back pain	17 (17)
Chronic disease*	Yes	77 (77)
	No	43 (43)

** More than one option has been ticked, SD=standard deviation*

prone position compared to the lateral position (1.1±0.24 units of difference), with very high significance (p=0.001; p<0.01) (Table 2, Figure 1). Moreover, the mean comfort level was higher after IM injection in the prone position compared to the lateral position (1.29±0.14 units of difference), again with very high significance (p=0.001; p<0.01) (Table 2, Figure 2).

Discussion

Parenteral drug administration covers a significant part of nurses' daily schedule. This research explores the comfortable of two different lying positions (prone and lateral) on regional pain and comfort level in IM drug administration. This research provides evidence for identifying the safest and most comfortable position for patients during an IM injection.

The mean pain intensity after IM injection in the prone position was lower than the lateral position (4.12±1.67 vs. 5.22±1.91, 1.1±0.24 units of difference), with very high significance (p<0.01) (Table 2, Figure 1). In this regard, the mean pain intensity levels after IM injection are "mild" for the prone position and "moderate" for the lateral position. Also, the mean comfort level after IM injection in the prone position was higher than the lateral position (6.09±1.86 vs. 4.80±20, 1.29±0.14 units of difference), again with very high significance (p<0.01) (Table 2, Figure 2). Accordingly, the mean comfort levels after IM injection are "high/very satisfied" for the prone position and "moderate/satisfied" for the lateral position. With these findings, the prone position appears to be the safest and most comfortable patient position to ensure minimum pain and maximum comfort during an IM injection. In line with these results, the H_2 hypothesis was confirmed.

Research on adult patients reports lower regional pain intensity after drug administration to the VG site compared to the DG site (24). Similarly, Apaydın and Öztürk (8) compared findings for bleeding, pain, and hematoma after IM injection among the VG and DG sites and found lower mean scores for pain intensity and hematoma at the 48th and 72nd hours in the VG region. Kara and Yapucu Güneş (4) evaluated three different methods for pain intensity after IM injection in the prone position and reported that the internal rotation of the extremities, turning the toes toward each other, and using the Z technique caused the least pain. Another research compared pain intensity levels among the standard IM injection and IM injection with the Z technique, finding lower pain intensity for IM injection with the Z technique (25). However, Yilmaz et al. (18) performed IM injections of diclofenac sodium with the Z technique and highlighted

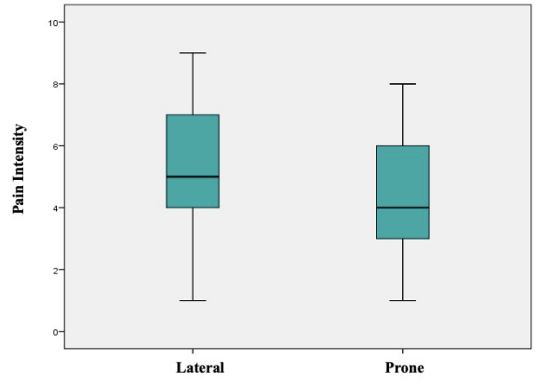

Figure 1.
Pain Intensity (immediately after IM injections)
IM=intramuscular

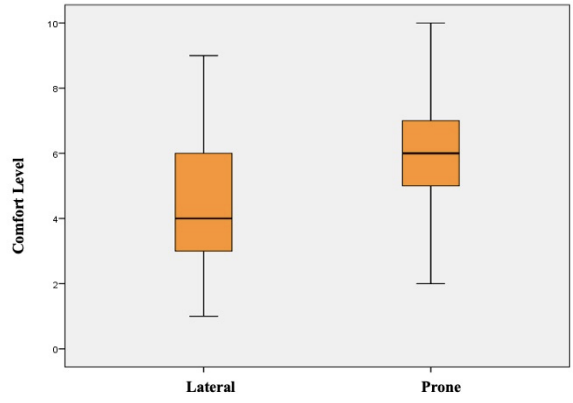

Figure 2.
Comfort Level (immediately after IM injections)
IM=intramuscular

Table 2.
Pain Intensity and Comfort Level

			Lying positions		***Statistical analysis***
Measurements			**Prone (n=100)**	**Lateral (n=100)**	
Pain intensity	**Immediately after IM injection**	Mean ± SD	4.12±1.67	5.22±1.91	t=4.533
		Median (min-max)	4 (1-8)	5 (1-9)	**p=0.001[a]**
Comfort level	**Immediately after IM injection**	Mean ± SD	6.09±1.86	4.80±2.00	t=-4.729
		Median (min-max)	6 (2-10)	4 (1-9)	**p=0.001[a]**

[a]Paired samples test, p<0.01, SD=standard deviation, IM=intramuscular

that the technique prevented the drug from leaking out, but had no effect on reducing pain. The authors, also found that the airlock method reduced pain intensity in IM injection of diclofenac sodium at the DG and VG sites (18). Summarizing from the literature, using the Z technique, using a long needle tip, applying pressure on acupressure points, applying manual pressure before/after injection, using the 0.5 mL airlock method, and performing the injection for at least 10 seconds per 1 cc/mL of the drug are some effective methods for reducing undesirable effects during IM injection at the VG site in adult patients (14,18,22,23). Another consideration to reduce injection-related fear and position-related muscle tension in VG injections is using different lying positions (18,21,26). As stated in the materials and methods section, we adhered to the current evidence and used a long needle tip (size 1-2, 2.54-3.75 cm) and applied both the Z and airlock techniques for safe IM injection into the VG region. Besides, during IM injection in the prone position, we asked the patients to internally rotate their legs and to turn their feet inward, big toes facing each other.

There are also numerous studies on the effectiveness of non-pharmacological interventions and tools in the biomedical market on IM injections. In this context, Kant and Akpinar (27) observed that listening to music during an IM injection reduced injection-induced pain intensity. However, the authors found no difference between the standard injection and applying pressure to the injection site in terms of pain (27). Çelik and Khorshid (28) highlighted that the Shotblocker method reduced pain intensity but increased anxiety during IM injection. Aydin and Avşar (29), on the other hand, reported that the Shotblocker method was effective in reducing pain during IM injection. Şahin and Eşer (20) found that the cold-vibration (Buzzy) method reduced injection-induced pain intensity and increased satisfaction levels during IM injection.

Study Limitations

The first limitation of the current research is that pain intensity and comfort levels during IM injection were evaluated based on verbal reports from the patients. Second, pain intensity and comfort levels were determined immediately after IM injection. Moreover, we only included adult patients who were given IM injections of diclofenac sodium. Thus, the results obtained here cannot be generalized to all age groups and all drug administrations. The third limitation was the preference for a single group design. More than one group design can be tested by controlling the anatomical and individual characteristics of different groups.

Conclusion

Position changing that reduced IM injection pain and increased comfort in emergency units is a safe, easy-to-use, economic, and potentially comfortable non-pharmacological method in adults. This intervention can be used in combination with other evidence based non-pharmacologic pain management strategies for added benefit. It is also recommended to examine the effect of position change in different age and drug groups on pain intensity and comfort level. In addition, a repeated measures analysis is recommended, including patient responses (pain intensity, comfort level, hematoma, ecchymosis, etc.) after injection.

Since it provides the least pain intensity and the highest comfort, the "prone lying position" appears to be the safest and most comfortable patient position during an IM injection. We suggest that nurses who are responsible for IM injections put patients in the prone position for minimum pain intensity and maximum comfort.

Ethics Committee Approval: Approval for this study was received from the Okmeydanı Training and Research Hospital's Ethics Committee and Institution (number: 48670771-514.10).

Informed Consent: Prior to the study, patients were informed of the purpose of the research and were assured of their right to refuse to participate in the study or withdraw their consent at any stage.

Peer-review: Externally peer-reviewed.

Author Contributions: Concept – F.B.; Design – F.B.; Supervision – F.B.; Fundings – F.B.; Materials – C.S.; Data Collection and/or Processing – C.S.; Analysis and/or Interpretation – C.S., F.B.; Literature Search – C.S., F.B.; Writing – C.S., F.B.; Critical Review – F.B.

Declaration of Interests: The authors declare that they have no competing interest.

Funding: The authors declare that this study had received no financial support.

References

1. Walsh L, Brophy K. Staff nurses' sites of choice for administering intramuscular injections to adult patients in the acute care setting. JAN 2011;67(5):1034-1040. [Crossref]
2. Kaya N, Palloş A. Parenteral İlaç Uygulamaları. İçinde: Hemşirelik Esasları Hemşirelik Bilimi ve Sanatı. Atabek TA, Karadağ A (Editörler). İstanbul: Akademi Basın ve Yayıncılık, 2012:68-851. [Crossref]
3. Coskun H, Kilic C, Senture C. The evaluation of dorsogluteal and ventrogluteal injection sites: a cadaver study. J Clin Nurs 2016;25(7-8):1112-1119. [Crossref]
4. Kara D, Yapucu Güneş Ü. The effect on pain of three different methods of intramuscular injection: A randomized controlled trial. Int J Nurs Stud 2016;22(2):152-159. [Crossref]
5. Kaya N, Salmaslıoğlu A, Terzi B, Turan N, Acunaş B. The reliability of site determination methods in ventrogluteal area injection: a cross-sectional study. Int J Nurs Stud 2015;52(1):355-360. [Crossref]
6. Elgellaie A, Ashcroft E, Larkin TA. Effects of thickness of muscle and subcutaneous fat on efficacy of gluteal intramuscular injection sites. Br J N 2018;27(6):300-305. [Crossref]

7. Larkin TA, Ashcroft E, Elgellaie A, Hickey BA. Ventrogluteal versus dorsogluteal site selection: A cross-sectional study of muscle and subcutaneous fat thicknesses and an algorithm incorporating demographic and anthropometric data to predict injection outcome. Int J Nurs Stud 2017;71:1-7. [Crossref]
8. Apaydın E, Öztürk H. Ventrogluteal ve dorsogluteal bölgeye uygulanan intramüsküler enjeksiyonların kanama, ağrı ve hematom açısından karşılaştırılması. GUJHNS 2021;10(1):105-113. [Crossref]
9. Öçal H. Kas içi enjeksiyonlarda ağrı, kanama ve hematom gelişimi açısından dorsogluteal ve ventrogluteal bölgelerin karşılaştırılması. Master Thesis. Marmara University Institute of Health Sciences: İstanbul, Turkey, 2012. [Crossref]
10. Kemaloğlu Y. İntramüsküler enjeksiyon uygulamasında dorsogluteal ve ventrogluteal bölgelerin ağrı, kanama, hematom riski açısından karşılaştırılması. Master Thesis. Haliç University Institute of Health Sciences: Istanbul, Turkey, 2013. [Crossref]
11. Karabacak BG. Parenteral İlaç Uygulamaları. İçinde: Klinik Beceriler Sağlığın Değerlendirilmesi, Hasta Bakım ve Takibi. Sabuncu N, Ay FA (Editörler). İstanbul: Nobel Tıp Kitabevleri, 2010:250-300. [Crossref]
12. Masuda S, Yasuhara Y, Tanioka T, Atsuta A, Motoki K, Takase K, et al. Comparison of gluteal muscle intramuscular injection sites of Japanese healthy subjects: considerations for optimal insertion of injection needle length. Open J Psychiatr 2016;6(2):203-212. [Crossref]
13. Dadaci M, Altuntas Z, Ince B, Bilgen F, Tufekci O, Poyraz N. Nicolau syndrome after intramuscular injection of non-steroidal anti-inflammatory drugs (NSAID). Bosn J Basic Med Sci 2015;15(1):57-60. [Crossref]
14. Shehata OS. Effects of helfer skin tapping and z–track techniques on pain intensity among hospitalized adult patients who receiving intramuscular injection. IJNRHN 2016;3(3):77-94. [Crossref]
15. Zaybak A, Güneş UY, Tamsel S, Khorshid L, Eşer I. Does obesity prevent the needle from reaching muscle in intramuscular injections?. J Adv Nurs 2007;58(6):552-556. [Crossref]
16. Cocoman A, Murray J. Recognisign the evidence and changing practice on injection sites. Br J Nurs 2010;19(18):1170-1174. [Crossref]
17. Derya EY, Ukke K, Taner Y, Izzet AY. Applying Manual Pressure before Benzathine Penicillin Injection for Rheumatic Fever Prophylaxis Reduces Pain in Children. Pain Manag Nur 2015;16(3):328-335. [Crossref]
18. Yilmaz DK, Dikmen Y, Köktürk F, Dedeoğlu Y. The effect of air-lock technique on pain at the site of intramuscular injection. Saudi Med J 2016;37(3):304-308. [Crossref]
19. Raddadi Y, Adib-Hajbaghery M, Ghadirzadeh Z, Kheirkhah D. Comparing the effects of acupressure at LI4 and BL32 points on intramuscular injection pain. European Journal of Integrative Medicine 2017;11:63-68. [Crossref]
20. Şahin M, Eşer İ. Effect of the buzzy application on pain and injection satisfaction in adult patients receiving intramuscular injections. Pain Manag Nurs 2018;19(6):645-651. [Crossref]
21. Malkin B. Are techniques used for intramuscular injection based on research evidence?. Nurs Times 2008;104(50-51):48-51. [Crossref]
22. 22. Tanioka T, Takase K, Yasuhara Y, Zhao Y, Noda C, Hisashige S, et al. Efficacy and safety in intramuscular ınjection techniques using ultrasonographic data. Health 2018;10(3):334-350. [Crossref]
23. 23. Çetinkaya Uslusoy EÇ, Taşçı Duran E, Korkmaz M. Güvenli enjeksiyon uygulamaları. Hacettepe Üniversitesi Hemşirelik Fakültesi Dergisi 2016;3(2):50-57. [Crossref]
24. Güneş YÜ, Zaybak A, Tamsel S. Ventrogluteal bölgenin tespitinde kullanılan yöntemin güvenirliğinin incelenmesi. C.Ü. Hemşirelik Yüksekokulu Dergisi 2008;12(2):14-25. [Crossref]
25. Erdal E, Ulufer F, Eşer İ. İntramüsküler enjeksiyon yerinde ağrı ve lezyonları azaltmak için Z enjeksiyon ve standart enjeksiyon tekniklerinin karşılaştırılması. Ege Üniversitesi Hemşirelik Yüksek Okulu Dergisi 1989;5(2):22-32. [Crossref]
26. Tuğrul E, Khorshıd L. Effect on pain intensity of injection sites and speed of injection associated with intramuscular penicillin. Int J Nurs Pract 2014;20(5):468-474. [Crossref]
27. Kant E, Akpinar RB. The effect of music and the pressure applied on pain induced by intramuscular injection. International Journal of Caring Sciences 2017;10(3):1313-1318. [Crossref]
28. Çelik N, Khorshid L. The use of ShotBlocker for reducing the pain and anxiety associated with intramuscular injection. Holist Nurs Pract 2015;29(5):261-271. [Crossref]
29. Aydin E, Avşar G. Examining the effect of "Shotblocker" in relieving pain associated with intramuscular injection. Complement Ther Med 2019;47:102192. [Crossref]

Mediterranean Nursing and Midwifery

Mediterr Nurs Midwifery 2023; 3(1): 25-33 DOI:10.4274/MNM.2023.22123

ORIGINAL ARTICLE

The Mental Status of Nursing Students in COVID-19 Pandemic: A Cross-sectional Study

COVID-19 Pandemisinde Hemşirelik Öğrencilerinin Ruhsal Durumları: Kesitsel Bir Çalışma

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Abstract

Objective: The Coronavirus disease-2019 (COVID-19) pandemic has negatively affected the mental health of individuals as well as their physical health. The mental health of nurse candidates is also important in this process. Therefore, it was aimed to evaluate the anxiety and mental states of nursing students during the COVID-19 pandemic in this study.

Method: This descriptive and cross-sectional study was conducted with 323 students in the nursing department of a university. Research data were collected by using "state anxiety inventory" and "mental health continuity scale-short form".

Results: It was found that 78.9% of the nursing students were anxious in this period and there was a moderate inverse correlation between the state anxiety inventory and mental health continuity Scale scores of nursing students (r=-0.564; p<0.05).

Conclusion: It was determined that, as the anxiety levels of nursing students who switched from formal education to online education during the COVID-19 pandemic increased, their mental well-being worsened. In line with these results, it is recommended to organize programs and establish guidance to strengthen students' anxiety management and coping mechanisms in educational institutions.

Keywords: COVID-19, mental health, anxiety, nursing student

Öz

Amaç: Koronavirüs hastalığı-2019 (COVID-19) pandemisi bireylerin fiziksel sağlıklarının yanı sıra ruh sağlıklarını da olumsuz etkilemiştir. Hemşire adaylarının ruh sağlığı da bu süreçte önemlidir. Bu nedenle bu çalışmada hemşirelik öğrencilerinin COVID-19 pandemisi sürecindeki kaygı ve ruhsal durumlarının değerlendirilmesi amaçlanmıştır.

Yöntem: Tanımlayıcı ve kesitsel tipte olan bu araştırma, bir üniversitenin hemşirelik bölümünde öğrenim gören 323 öğrenci ile yapılmıştır. Araştırma verileri "durumluk kaygı envanteri" ve "ruh sağlığı sürekliliği ölçeği-kısa formu" kullanılarak toplanmıştır.

Bulgular: Hemşirelik öğrencilerinin %78,9'unun bu dönemde kaygılı olduğu ve hemşirelik öğrencilerinin durumluk kaygı envanteri ile ruh sağlığı süreklilik ölçeği puanları arasında orta düzeyde ters korelasyon olduğu saptandı (r=-0,564; p<0,05).

Sonuç: COVID-19 pandemisi sürecinde örgün eğitimden online eğitime geçiş yapan hemşirelik öğrencilerinin kaygı düzeyleri arttıkça ruhsal durumlarının kötüleştiği belirlendi. Bu sonuçlar doğrultusunda eğitim kurumlarında öğrencilerin kaygı yönetimi ve baş etme mekanizmalarını güçlendirmeye yönelik programların düzenlenmesi ve rehberlik oluşturulması önerilmektedir.

Anahtar Kelimeler: COVID-19, ruh sağlığı, kaygı, hemşirelik öğrencisi

* The results of this study were presented at the "3rd International Clinical Nursing Research Congress", December 8-10th, 2021 in Australia & Turkey.

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Received: November 11, 2022
Accepted: January 05, 2023

Cite this article as: Değirmenci F, Aksoy Can A, Çelebi A, Vefikuluçay Yılmaz D. The Mental Status of Nursing Students in COVID-19 Pandemic: A Cross-sectional Study. Mediterr Nurs Midwifery 2023; 3(1): 25-33

Introduction

The novel Coronavirus disease-2019 (COVID-19) is a global public health emergency caused by the severe acute respiratory syndrome-coronavirus (1). Spreading from China, COVID-19 was declared as a pandemic by the World Health Organization on March 11, 2020, after being recognized as a virus-caused epidemic in December 2019 (2). In addition to threatening physical health, COVID-19 has been a major source of stress for humans and has impacted their mental health, in relation with its very high spread rate (3-5). Similarly, many previous studies have revealed that individuals create strong stress responses and experience psychological changes during similar epidemics and other crises (6-8).

However, the policies that countries follow to prevent contagion during the pandemic process may also cause mental problems by restricting social life. In Turkey, preventive measures such as international travel bans, "stay at home" campaigns, and restrictions on social activities, gatherings and transportation were quickly put into practice (9). One of these measures was the transition to online education which has caused more stress, fear and anxiety, especially among students (1,10). In a study, it was determined that the anxiety levels of university students were correlated with daily life restrictions and the delays in commencement of education in schools, colleges and universities across the country (11). In addition, it has been stated that students who loss access to campus life and friends in this process could face mental and behavioral problems, including anxiety, stress, depression, substance addiction, sleeping difficulties, eating disorders and even suicide (12,13). Nursing students will have an important role in combating outbreaks such as COVID-19 that we will encounter in the future.

Considering that professional awareness begins to develop during the university years, there is a need for evidence-based practices to protect and maintain the mental health of nursing students and to develop stress coping mechanisms during the COVID-19 pandemic. In order to develop these measures, data concerning the current situation are needed. Therefore, this study was carried out to determine the possible relationship between nursing students' anxiety levels and mental health in the COVID-19 pandemic.

Main Points

- 78.9% of the nursing students were anxious in Coronavirus disease-2019 pandemic.
- Economic status and respondents' term in nursing school was only associated with anxiety.
- Problems concerning online education, and the type of device used to access online education were associated with both anxiety and mental status.
- There was a moderate inverse correlation between the state anxiety inventory and the mental health continuity scale scores of nursing students.

Material and Methods

Design

The type of this study is descriptive and cross-sectional.

Sample and Setting

The population of the research consisted of students in the nursing department in the spring semester of the 2019-2020 academic year (n=692). All students voluntarily and anonymously participated in this study. Students who did not accept to participate in the study and filled the questionnaire incompletely were not included in the study. Participants were selected by non-probability sampling and the study was completed with a total of 323 students.

Data Collection Procedures

The web-based questionnaire was sent to the academicians in the nursing faculty after ethical approvals were obtained. These faculty members were requested to send the questionnaire to the students they mentored in social media groups. Consent form was added to the first entry page of the questionnaire. In addition, students were informed about the research. Personal information was not included in the questionnaire on the basis of confidentiality. The questionnaire, which the students who signed the volunteer form had to fill, took an approximately 10 minutes. Research data were collected between 5 July-15 July 2020.

Study Variables and Measures

The research data were collected with an online questionnaire consisting of three parts: "Personal information form", "state anxiety inventory (SAI)" and "mental health continuity scale-short form (MHCS)" prepared by the researchers.

Personal Information Form

There were 12 questions regarding the descriptive information of the students: Age, gender, marital status, grade, income status, place of residence, presence of cohabiting persons (if any), presence of a person diagnosed with COVID-19 in their immediate vicinity, whether they were having problems with online education, and the problem(s) experienced in online education and tools used to combat these problems. These items were created with respect to the conclusions of various studies on this topic (10-12,14,15).

SAI

In order to determine the state anxiety level of the students, the SAI developed by Spielberger et al. in 1964 was used. The Turkish validity and reliability studies of the inventory were carried out by Öner and Le Compte (16). The inventory consists of 20 items that determine how the individual feels at a particular moment. Each items in the inventory is answered in a four-point Likert type fashion, and scores vary between 1-4 points ("do not agree/none" to "completely agree", respectively) according to the intensity of the emotions expressed. Ten items (1, 2, 5, 8, 10, 11, 15, 16, 19, and 20) are scored inversely. The lowest score that can be obtained from the inventory is "20" and the highest score is "80". When calculating the total score of the scale, 50 points are

added to the difference between the scores obtained from direct statements and reverse statements. In the evaluation of the inventory, the cut-off score was determined as 40. Accordingly, it was accepted that those who scored below 40 do not experience anxiety, and those who scored above 40 were experiencing anxiety. Test-retest coefficients of the inventory were 0.16-0.54. The coefficients reflecting the internal consistency and test homogeneity, calculated with alpha correlations, were found to be 0.83-0.92 (16).

MHCS

In the study, the short form of the MHCS was used to determine the emotional, mental and social well-being of the students. This scale was developed by Keyes in 2002, and its Turkish validity and reliability study was conducted by Demirci and Akın (17). The MHCS is organized in three dimensions with 14 items which are responded to in a six-point Likert-type scale. The "How often have you felt the following emotions over the past month?" question was evaluated as follows: "Never (0), Once or twice (1), About once a week (2), About 2-3 times a week (3), Almost every day (4), Every day (5)". There is no distracting or inversely-scored items in the scale. The scale has three sub-dimensions: "Emotional Well-being", "Psychological Well-being", "Social Well-being", and the scores for these sections as well as total mental health continuity are quantified the scores obtained. High scores in each sub-dimension of the scale (and the total score) indicate well-being. The Cronbach's alpha internal consistency reliability coefficients of the mental health continuity scale were found to be 0.84 for the emotional well-being subscale, 0.78 for the social well-being subscale, 0.85 for the psychological well-being subscale, and 0.90 for the whole scale (17).

Statistical Analysis

SPSS (Statistical Package for Social Science) version 20.0 software was used in the analysis of the data. Normality and homogeneity assumptions (Shapiro Wilk and Levene test) were checked before the variables were evaluated. While analyzing the data, parametric tests were used. That is, the independent samples t-test (Student's t-test) was used for the comparison of two groups, the One-Way Analysis of Variance test was used for the comparison of the means of more than two groups and the Pearson Correlation Coefficient was calculated for the evaluation of the directional relationship between two continuous variables. Number, percentage, mean and standard deviation values are given as descriptive statistics. A value of <0.05 was accepted as significance level in all tests.

Ethical Consideration

All permissions were obtained from the Republic of Turkey Ministry of Health Directorate General of Health Services on 10/05/2020 and from the Social and Human Sciences Ethics Committee of Mersin University on 03/07/2020 before the data collecting.

Results

The students' mean age is 21.23±1.85 (range 18-34) years and the average number of cohabiting individuals in students' residence is 5.62±2.51 (range 1-17). It was determined that 67.8% of the participants were female, almost all (98.1%) were single, 31% were in the third year of nursing school, 62.2% reported having equal income and expense, 47.7% resided in a provincial center (urban) and 93.8% lived with their family.

It was determined that 16.4% of the participants had an individual diagnosed with COVID-19 in their immediate surroundings, and 43% were experiencing problems with the online education system. It was determined that 54.7% of the participants who stated that they had problems in online education did not find it to be sufficient and/or efficient. It was found that 69.3% of the participants also used smartphones for distance education. Additionally, 78.9% of the participants were anxious.

When the scores of the participants from the scales is examined, it is seen that the total score obtained from the SAI is 49.04±11.09; the score obtained from the MHCS is 26.09±16.41; the score obtained from the emotional well-being sub-dimension was 5.69±3.63; the score obtained from the social well-being sub-dimension is 7.78±6.02 and the score obtained from the psychological well-being sub-dimension is 12.60±8.07 (Table 1).

The distribution of the scores of the SAI, MHCS and sub-dimensions according to some socio-demographic characteristics of the students is presented in Table 2.

Table 1.
Participants' Age, Cohabiting Status, and SAI and MHCS Total and Subdimension Scores

Parameters	Number of items	Minimum	Maximum	$\bar{X}$ ± SD	Cronbach α
SAI score	20	20[a]-21[b]	80[a]-80[b]	49.04±11.09	0.932
MHCS total	14	0[a]-0[b]	70[a]-66[b]	26.09±16.41	0.959
MHCS emotional well-being	3	0[a]-0[b]	15[a]-15[b]	5.69±3.63	0.910
MHCS social well-being	5	0[a]-0[b]	25[a]-25[b]	7.78±6.02	0.892
MHCS psychological well-being	6	0[a]-0[b]	30[a]-30[b]	12.60±8.07	0.942

[a] Theoretical range, [b] Observed range, SD=standard deviation, SAI=state anxiety inventory, MHCS=mental health continuity scale-short form

Table 2.
The Distribution of SAI Scores and MHCS Total and Subdimension Scores with Respect to Various Characteristics of Patients

		SAI Total score		**MHCS Emotional well-being**	
Characteristics	**n**	**$\bar{X}$ ± SD**	**t-test/p**	**$\bar{X}$ (±SD)**	**t-test/p**
Sex[c]					
Female	219	49.30±10.93	0.617/0.538	26.72±16.24	0.999/0.319
Male	104	48.49±11.45		24.76±16.76	
Marital status[c]					
Married	6	48.33±18.09	0.158/0.875	22.50±19.21	0.541/0.589
Single	317	49.05±10.96		26.16±16.38	
Year in nursing school[d]					
1st year	76	46.96±10.20	**5.544/0.001***	28.03±17.37	1.500/0.214
2nd year	75	48.42±10.33		27.80±16.79	
3rd year	100	52.62±10.80		23.4±15.96	
4th year	72	46.91±12.09		25.93±15.40	
Economic status[d]					
Income less than expense	101	50.99±11.79	**4.124/0.017***	24.58±17.41	0.640/0.528
Eqaul income and expense	201	48.61±10.61		26.70±15.60	
Income more than expense	21	43.80±10.35		27.47±19.20	
Place of residence[d]					
Rural	62	50.85±10.48	1.106/0.332	23.72±17.14	0.798/0.451
Provincial district	107	48.28±12.45		26.58±16.54	
Provincial center	154	48.84±10.28		26.70±16.04	
Cohabiting individuals[d]					
Alone	8	50.75±14.00	1.049/0.351	22.25±17.96	2.475/0.086
Friend(s)	12	44.66±9.97		36.81±18.56	
Family	303	49.17±11.05		25.80±16.21	
Individual with COVID-19 diagnosis in immediate surroundings[c]					
Yes	53	50.18±11.28	0.822/0.412	27.71±16.51	0.787/0.432
No	270	48.81±11.06		25.77±16.40	
Experience of problems pertaining to online education					
Yes, previously or currently	139	52.44±11.25	**-4.965/<0.001***	23.29±14.89	**2.743/0.006***
No, neither now nor previously	184	46.47±10.27		28.20±17.21	
Problem experienced concerning online education (n=139)[d]					
Insufficient and/or inefficient	76	52.15±11.74	0.784/0.458	24.72±15.86	0.836/0.436
Connection-related problems	41	51.53±10.68		22.07±14.38	
Lack of device or internet	22	55.13±10.63		20.63±12.15	
Device used to access online education[d]					
Smart phone	224	50.50±10.77	**11.617/<0.001***	24.30±15.70	**7.422/0.001***
Personal computer	92	44.81±10.61		31.21±17.37	
Someone elses device, or internet cafe	7	58.00±11.53		16.00±8.40	
Anxiety status[c]					
Anxiety absent (BCS <40)	68	33.77±10.77	**-0.25.002/<0.001***	40.54±14.14	**9.163/<0.001***
Anxiety present (BCS ≥40)	255	53.11±10.61		22.23±14.76	

*[c] Independent t-test, [d] One-Way Variance Analysis *p<0.05, BCS=birth comfort service, COVID-19=Coronavirus disease-2019, SD=standard deviation, SAI=state anxiety inventory, MHCS=mental health continuity scale-short form*

	Social well-being		Psychological well-being			
	$\bar{X}$ (±SD)	t-test/p	(±SD)	t-test/p	$\bar{X}$ (±SD)	t-test/p
	5.84±3.53	1.062/0.289	7.72±5.86	-0.294/0.769	13.15±8.20	1.777/*0.076
	5.38±3.85		7.93±6.37		11.45±7.71	
	5.16±4.07	0.360/0.719	6.33±7.17	0.597/0.551	11.00±8.43	0.491/0.623
	5.70±3.63		7.81±6.01		12.63±8.07	
	6.28±3.63	**3.876/0.010***	8.51±6.41	2.037/0.109	13.23±8.67	0.348/0.791
	6.34±3.89		8.54±6:19		12.90±7.71	
	4.74±3.36		6.6±5.85		12.09±8.15	
	5.72±3.52		7.86±5.51		12.34±7.77	
	5.27 (±3.85)	0.976/0.378	7.33±6.34	0.420/0.657	11.97±8.46	0.505/0.604
	5.88 (±3.47)		7.98±5.86		12.84±7.67	
	5.90 (±4.08)		8.14±6.23		13.42±9.91	
	4.88 (±3.90)	1.998/0.137	7.19±6.21	0.549/0.578	11.64±8.10	0.609/0.554
	5.77 (±3.51)		8.19±6.14		12.61±8.14	
	5.96 (±3.58)		7.74±5.88		12.98±8.02	
	4.37 (±3.73)		6.37±7.85		11.50±7.42	
	7.83 (±3.78)	2.651/0.072	12.50±7.07	**4.052/0.018***	15.66±8.73	0.956/0.385
	5.64 (±3.61)		7.64±5.87		12.51±8.06	
	5.69 (±3.59)	0.003/0.997	8.35±6.57	0.751/0.453	13.66±8.10	1.039/0.300
	5.69 (±3.65)		7:67±5.92		12.40±8.06	
	4.96 (±3.31)	**3.247/0.001***	6.65±5.53	**3.027/0.003***	11.67±7.65	1.828/0.069
	6.25 (±3.77)		8.64±6.25		13.30±8.32	
	5.32 (±3.45)	1.079/0.343	6.98 (±5.74)	0.541/0.583	12.40±8.32	0.765/0.467
	4.63 (±3.22)		6.60 (±5.48)		10.82±7.26	
	4.31 (±2.98)		5.59 (±4.92)		10.72±5.73	
	5.25 (±3.59)	**10.638/<0.001***	7.43 (±5.86)	**4.755/0.009***	11.61±7.53	6.873/0.001*
	7.01 (±3.46)		9.02 (±6.36)		15.18±8.88	
	2.71 (±1.49)		2.85 (±1.86)		10.42±6.97	
	9.07±2.99	**9.801/<0.001***	12.41±5.92	**7.740/<0.001***	19.05±7.26	8.132/<0.001*
	4.79±3.24		6.55±5.43		10.88±7.39	

Table 3.
The Relationships Between Age, Number of Cohabiting Individuals and Scores Obtained from the SAI and MHCS (n=323)

	SAI	MHCS total	MHCS emotional well-being	MHCS social well-being	MHCS psychological well-being
	r	r	r	r	r
SAI	1	-	-	-	-
MHCS total	**-0.564***	1	-	-	-
MHCS emotional well-being	**-0.632***	**0.870***	1	-	-
MHCS social well-being	**-0.501***	**0.925***	**0.753***	1	-
MHCS psychological well-being	**-0.487***	**0.951***	**0.755***	**0.794***	1

*r=Pearson correlation coefficient, *p<0.05, SAI=state anxiety inventory, MHCS=mental health continuity scale-short form*

In the study, it was found that the SAI score and the emotional well-being sub-dimension score of the MHCS demonstrated significant relationships with the respondents' term in nursing school. Third grade students' state anxiety levels were higher and their emotional well-being levels were lower (p<0.05). The difference between the SAI score averages according to income levels of the participants also showed statistically significant relationships. Accordingly, the state anxiety levels of the participants whose income was lesser than their expense was found to be significantly higher (p<0.05). In addition, the difference was found to be statistically significant between the MHCS social well-being sub-dimension scores of the participants with cohabiting any individuals and participants living with their friends had better mental well-being (p<0.05).

Table 2 shows the distribution of the scores of the nursing students in the SAI and MHCS and its sub-dimensions according to the COVID-19 pandemic (with respect to the online education system utilized in this period). A statistically significant difference was found between the SAI, MHCS total, emotional and social well-being mental health scores of the students with and without problems concerning online education. Accordingly, while the state anxiety levels of students experiencing problems in online education were found to be high, their general mental health and their mental health levels related to emotional and social well-being were found to be lower (p<0.05). When the type of device used to access online education was examined, the distribution of scores obtained from SAI, MHCS and all sub-dimensions of MHCS demonstrated statistically significant differences among the groups. In the study, the state anxiety scores were higher among students who used someone else's device or went to an internet cafe to access online education, and these students also had significantly worse general mental health (<0.05).

We determined that there was a statistically significant difference between MHCS and all sub-dimension scores of MHCS according to the anxiety status of the participants. The MHCS total score and all sub-dimension scores of the MHCS were lower among subjects with anxiety (p<0.05) (Table 2).

In our study, it was determined that there was a significant moderate inverse correlation between the SAI and MHCS scores of the participants; the higher the score from the SAI, the lower the MHCS score (r=-0.564; p<0.05). Similarly, there was a significant strong inverse correlation between SAI and emotional well-being score (r=-0.632), while there was a significant moderate inverse relationship between SAI and social well-being (-0.501) and psychological well-being (-0.487). It was found that the higher the score obtained from the SAI, the lower the scores obtained from the sub-dimensions of MHCS (all p<0.05) (Table 3).

Discussion

In this study, the anxiety levels, mental states and socio-demographic characteristics of nursing students, the effects of the COVID-19 epidemic and online education on these parameters, and the relationships between anxiety levels and mental well-being were investigated in the light of literature. The COVID-19 pandemic is a public health problem that has a significant mental, social and economic impact, as well as its undebatable effects on physical health (18). The determinants of these affected areas can be listed as insecurity, uncertainty, emotional isolation, stigma, economic loss, loss of employment, loss of school access and the lack of sufficient resources for medical health. These situations experienced during the pandemic can turn into a series of emotional reactions and unhealthy behaviors, including stress, anxiety, depression, fear and post-traumatic stress disorder in individuals (19). The pandemic, which has had unprecedented affects on students, has caused many universities worldwide to close and switch to long-distance education through online platforms, thus causing more anxiety among students. In studies conducted with university students in China, it has been reported that COVID-19 and lockdown negatively influenced students' psychological well-being and

increased their anxiety levels (1,10). In a study conducted in Malaysia, it was determined that the COVID-19 epidemic reduced socio-psychological well-being and increased anxiety levels among Malaysian university students (20). Similarly, Gao et al. (21) found that the frequency of depression (48.3%), anxiety (22.6%) and comorbidity of depression and anxiety (19.4%) in the Chinese population was much higher than in previous studies. In our study, the mean score from the MHCS was found to be 26.09±16.41. Considering that the maximum score that can be obtained from the scale is 70, it can be said that the mental status of the students is rather poor. The prevalence of anxiety, one of the important determinants of mental health, has long been in an increasing trend in the youth (22,23). Many factors can affect anxiety such as age, gender, economic status and medical problems (22,24,25). Especially situations such as epidemics and infectious diseases have been shown to increase the anxiety levels of individuals even more (26). In this study, it was determined that 78.9% of the nursing students experienced anxiety according to the cut-off score of the inventory [40 p] and the overall mean score of these students was 49.04±11.09. Sögüt et al. (27), in their study with midwifery students, reported that only 5% of students had moderate or high anxiety levels. Islam et al. (28) found that 18.1% of university students experienced severe anxiety in a study they conducted. An alarming result pertaining to the mental health status of the youth was reported in a decade-old study which had found that approximately one third of young individuals met the DSM-IV anxiety criteria and the frequency of anxiety increased toward the age of 18 (22). As can be seen from such data, young people may have high anxiety levels at any given time, and it is evident that further stress can only worsen the long-standing trend shown in previous and current studies. In parallel with the result of our study, it is expected that nursing students have high anxiety levels in an extraordinary period such as a pandemic. This finding can be explained by the fact that the data collection process of the study took place in the later stages of the pandemic, and therefore, the time spent under pandemic-related restrictions and problems were at an all-time high. It is evident that such stress can cause fear and anxiety about the future, could affect students' prospects, and ultimately lead to uncertainty regarding educational life.

During the COVID-19 pandemic, there has been a general shift from traditional face-to-face teaching to online teaching. Two main estimates of the potential impact of the COVID-19 outbreak on online education have been made. The first is that the education of students will be inefficient, and the second is that patients' financial status will be negatively affected (29).

In our study, anxiety levels were higher in students who had low economic status, those who experienced problems in online education and individuals who had to use someone else's device or needed to go to an internet cafe to access online education. In a review written by Fetzer et al. (30) about coronavirus perception and economic anxiety during the pandemic process (based on two data sets in the USA), the authors emphasized that economic anxiety had increased among individuals since the beginning of COVID-19 and that one of the most important determinants of anxiety was indeed financial status. Cao et al. (11) found that worries about the economic and academic impacts of the COVID-19 pandemic were positively associated with the anxiety levels of university students. Islam et al. (28) found that students attending supplementary classes before the quarantine period and students who were concerned about their academic success were respectively 1.4 and 1.8 times more likely to show moderate or severe anxiety symptoms compared to other students. In a study conducted with medical faculty members in Iran, 62.5% of the participants stated that they preferred to use online and face-to-face education together. In the same study, it was determined that the problems experienced in online medical education during the COVID-19 pandemic were related to communication (59%), the use of technological tools (56.5%), online experience (55%), and anxiety or stress associated with the pandemic (48%) (31). According to a report prepared by Temple University, it was emphasized that university students became financially vulnerable and some students were worried that, after the pandemic, they could no longer afford university education (32).

As it can be clearly understood from both our findings and other studies, the transition from formal education to online education during the pandemic process has had negative effects on both the daily life and mental health of students. In addition, social isolation caused by COVID-19 measures has led to economic crises all over the world. Accordingly, it is an expected result that individuals with lower socio-economic status will be more severely affected by this crisis, both physically and psychologically. Since students with insufficient income may have difficulty in obtaining online education materials and accessing the internet, their anxiety levels may increase and their mental health may be negatively affected to a greater degree.

It was determined that there was a moderately significant negative correlation between the SAI and MHCS scores of the participants, and as the scores they got from the SAI increased, the scores they got from the MHCS decreased. Anxiety is a very important criterion in the assessment of mental health and is considered under the category of emotional disorders (33). The COVID-19 pandemic has also affected students' mental health in many ways, including their anxiety. In this context, the finding obtained in our study is an expected result.

Study Limitations

The first limitation of this study is that the scales used are generally measurement tools used in a clinic. Another limitation is the measurement of anxiety and other mental well-being at a certain time. The last limitation of the study is related to the fact that not all of the students have access to a smart phone or computer, hence online access.

Conclusion

In our study, it was determined that the mean SAI score was 49.04±11.09 in nursing students and 78.9% of them experienced anxiety according to the cut-off score of the inventory. Additionally, the mean total score from the MHCS was 26.09±16.41, indicating poor mental well-being. It was found that students with a low socio-economic status had significantly greater levels of anxiety, while students living alone had worse mental well-being. In addition, it has been determined that students who experienced problems in online education and those who needed to use someone else's device or went to internet cafes to access online education had higher anxiety and worse mental health. Finally, it was determined that there was a moderate inverse relationship between SAI and MHCS scores; that is, as the score obtained from SAI increased (indicating worse anxiety), the score obtained from MHCS decreased (indicating worse mental well-being).

Recommendations and Implications

The COVID-19 pandemic, which has had a profound impact throughout world, affected university students in many ways, which can be listed as follows: Having to switch from the formal education they were accustomed to, getting used to online education which they had never experienced before, unexpectedly and suddenly leaving their social life in the campus environment and friends, and the need for electronic devices to continue their education (causing excess financial burden). These factors appear to have negatively affected the mental state of the students, and therefore, the following recommendations should be evaluated to maintain and protect the mental health of nursing students:

- Establishing the necessary technical infrastructure throughout the country to provide uninterrupted online education,

- Creating online platforms for practice, especially in nursing faculties where applied education is crucial,

- Developing projects and opportunities in order to mitigate the financial problems of students and to support them in providing the necessary tools for online education,

- Organizing public service announcements and large-scale events that will raise awareness on this matter in order to increase the quantity and individual sum of scholarships provided to university students,

- Organizing programs that will enable students to cope with anxiety and mental problems and creating guidance in educational institutions.

Ethics Committee Approval: All permissions were obtained from the Republic of Turkey Ministry of Health Directorate General of Health Services on 10/05/2020 and from the Social and Human Sciences Ethics Committee of Mersin University on 03/07/2020 before the data collecting.

Informed Consent: Informed consent was obtained.

Peer-review: Externally peer-reviewed.

Author Contributions: Concept – F.D., A.A.C., A.Ç., D.V.Y.; Design – F.D., A.A.C., A.Ç., D.V.Y.; Analysis and/or Interpretation – F.D., A.A.C., D.V.Y.; Writing Manuscript – F.D., A.A.C., A.Ç., D.V.Y.; Revision – F.D., D.V.Y.; Final Work – A.A.C., A.Ç., D.V.Y.

Declaration of Interests: The authors declare that they have no competing interest.

Funding: The authors declare that this study had received no financial support.

References

1. Bao Y, Sun Y, Meng S, Shi J, Lu L. 2019-nCoV epidemic: address mental health care to empower society. Lancet 2020;395(10224):e37-e38. [Crossref]
2. World Health Organization (WHO), Director-General's remarks at the media briefing on 2019- nCoV on 11 February 2020. Available from: https://www.who.int/dg/speeches/detail/who-director-general-s-remarks-at-the-media-briefing-on-2019-ncov-on-11-february-2020. Accessed August 19, 2020. [Crossref]
3. Zolotov Y, Reznik A, Bender S, Isralowitz R. COVID-19 fear, mental health, and substance use among Israeli university students. Int J Ment Health Addict 2020;20(1):230-236. [Crossref]
4. Wu W, Zhang Y, Wang P, Zhang L, Wang G, Lei G, et al. Psychological stress of medical staffs during outbreak of COVID‐19 and adjustment strategy. J Med Virol 2020;92(10):1962-1970. [Crossref]
5. Wang G, Zhang Y, Zhao J, Zhang J, Jiang F. Mitigate the effects of home confinement on children during the COVID-19 outbreak. Lancet 2020;395(10228)945-947. [Crossref]
6. Mak IWC, Chu CM, Pan PC, Yiu GC, Lee VL. Long-term psychiatric morbidities among SARS survivors. Gen Hosp Psychiatry 2009;31(4)318-326. [Crossref]
7. Lee AM, Wong JG, McAlonan GM, Cheung V, Cheung C, Sham PC, et al. Stress and psychological distress among SARS survivors 1 year after the outbreak. Can J Psychiatry 2007;52(4):233-240. [Crossref]
8. Kwek SK, Chew WM, Ong KC, Ng AWK, Lee LSU, Kaw G, et al. Quality of life and psychological status in survivors of severe acute respiratory syndrome at 3 months postdischarge. J Psychosom Res 2006;60(5):513-519. [Crossref]
9. Sağlık Bakanlığı, Halk Sağlığı Genel Müdürlüğü (2020), Yeni Koronavirüs Hastalığı, Türkiye COVID-19 Durum Raporu [Ministry of Health, General Directorate of Public Health (2020) New Coronavirus Disease, Turkey COVID-19 Situation Report]. Available from: https://COVID19bilgi.saglik.gov.tr/tr/ Accessed August 19, 2020. [Crossref]
10. Wang C, Pan R, Wan X, Tan Y, Xu L, Ho CS, et al. Immediate psychological responses and associated factors during the initial stage of the 2019 coronavirus disease (COVID-19) epidemic among the general population in China. Int J Environ Res Public Health 2020;17(5):1729. [Crossref]

11. Cao W, Fang Z, Hou G, Han M, Xu X, Dong J, et al. The psychological impact of the COVID-19 epidemic on college students in China. Psychiatry Res 2020;287:112934. [Crossref]
12. Zhai Y, Du X. Addressing collegiate mental health amid COVID-19 pandemic. Psychiatry Research 2020;288:113003. [Crossref]
13. Sahu P. Closure of universities due to coronavirus disease 2019 (COVID-19): Impact on education and mental health of students and academic staff. Cureus 2020;12(4):e7541. [Crossref]
14. Li S, Wang Y, Xue J, Zhao N, Zhu T. The impact of COVID-19 epidemic declaration on psychological consequences: a study on active Weibo users. Int J Environ Res Public Health 2020;17(6):2032. [Crossref]
15. Liang L, Ren H, Cao R, Hu Y, Qin Z, Li C, et al. The effect of COVID-19 on youth mental health. Psychiatric Q 2020;91(3):841-852. [Crossref]
16. Öner N, Le Compte A. Süreksiz Durumluk/Sürekli Kaygı Envanteri El Kitabı, 1st Ed., İstanbul, Boğaziçi Üniversitesi Yayınları, 1983:1-26. [Crossref]
17. Demirci I, Akın A. The validity and reliability of the mental health continuum short form. Ankara University, Journal of Faculty of Educational Sciences 2015;48(1):49-64. [Crossref]
18. Nicola M, Alsafi Z, Sohrabi C, Kerwan A, Al-Jabir A, Iosifidis C, et al. The socio-economic implications of the coronavirus and COVID-19 pandemic: a review. Int J Surgery 2020;75:185-193. [Crossref]
19. Pfefferbaum B, North CS. Mental health and the COVID-19 pandemic. N Engl J Med 2020;383(6):510-512. [Crossref]
20. Sundarasen S, Chinna K, Kamaludin K, Nurunnabi M, Baloch GM, Khoshaim HB, et al. Psychological impact of COVID-19 and lockdown among university students in Malaysia: Implications and policy recommendations. Int J Environ Res Public Health 2020;17(17):6206. [Crossref]
21. Gao J, Zheng P, Jia Y, Chen H, Mao Y, Chen S, et al. Mental health problems and social media exposure during COVID-19 outbreak. PLoS One 2020;15(4):e0231924. [Crossref]
22. Merikangas KR, He JP, Burstein M, Swanson SA, Avenevoli S, Cui L, et al. Lifetime prevalence of mental disorders in US adolescents: results from the National Comorbidity Survey Replication–Adolescent Supplement (NCS-A). J Am Acad Child Adolesc Psychiatry 2010;49(10):980-989. [Crossref]
23. Siegel RS, Dickstein, D.P. Anxiety in adolescents: update on its diagnosis and treatment for primary care providers. Adolesc Health Med 2011;3:1-16. [Crossref]
24. Moghanibashi-Mansourieh A. Assessing the anxiety level of Iranian general population during COVID-19 outbreak. Asian J Psychiatr 2020;51:102076. [Crossref]
25. Priego-Parra BA, Triana-Romero A, Pinto-Gálvez SM, Ramos CD, Salas-Nolasco O, Reyes MM, et al. Anxiety, depression, attitudes, and internet addiction during the initial phase of the 2019 coronavirus disease (COVID-19) epidemic: A cross-sectional study in México. MedRxiv 2020. [Crossref]
26. Pappas G, Kiriaze IJ, Giannakis P, Falagas ME. Psychosocial consequences of infectious diseases. Clin Microbiol Infect 2009;15(8):743-747. [Crossref]
27. Sögüt S, Dolu İ, Cangöl E. The relationship between COVID-19 knowledge levels and anxiety states of midwifery students during the outbreak: A cross-sectional web-based survey. Perspect Psychiatr Care 2021;57(1):246-252. [Crossref]
28. Islam MS, Ferdous MZ, Potenza MN. Panic and generalized anxiety during the COVID-19 pandemic among Bangladeshi people: An online pilot survey early in the outbreak. J Affect Disord 2020;276:30-37. [Crossref]
29. Kamenetz A. 'Panic-gogy': teaching online classes during the coronavirus pandemic. (2020). Available from: https://www.npr.org/2020/03/19/817885991/panic-gogy-teaching-onlineclasses-during-the-coronavirus-pandemic Accessed November 03, 2020. [Crossref]
30. Fetzer T, Hensel L, Hermle J, Roth C. Coronavirus perceptions and economic anxiety. Review of Economics and Statistics 2021;103(5):968-978. [Crossref]
31. Rajab MH, Gazal AM, Alkattan K. Challenges to online medical education during the COVID-19 pandemic. Cureus 2020;12(7):e8966. [Crossref]
32. How Does the Pandemic Affect U.S. College Students? Temple university, philadelphia. Available from: https://www.pbs.org/wnet/amanpour-and-company/video/how-does-the-pandemic-affect-u-s-college-students/) Accessed November 03, 2020. [Crossref]
33. Shackman AJ, Tromp DPM, Stockbridge MD, Kaplan CM, Tillman RM, Fox AS. Dispositional negativity: An integrative psycho-logical and neurobiological perspective. Psychol Bull 2016;142(12):1275-1314. [Crossref]

Mediterranean Nursing and Midwifery

Mediterr Nurs Midwifery 2023; 3(1): 34-37 DOI:10.4274/MNM.2022.2293

CASE REPORT

Management and Nursing Care of Monoparesis After Thoracoabdominal Aortic Aneurysm Surgery: A Case Report

Torakoabdominal Aort Anevrizması Cerrahisi Sonrası Monoparezi Yönetimi ve Hemşirelik Bakımı: Olgu Sunumu

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Abstract

Paresis/paraplegia is a serious complication that develops after open repair of thoracoabdominal aortic aneurysm (TAAA) and has high morbidity/mortality rates. To deal with paresis/paraplegia Cerebro Spinal Fluid drainage is recommended. Various approaches exist in this regard, such as the "clamp and fix" technique, the use of distal perfusion via partial (left heart) or total cardiopulmonary bypass. These approaches can reduce the complications of paresis/paraplegia by preventing spinal cord ischemic injury. In this study, we aimed to present a monoparesis management case diagnosed after TAAAA surgery.

Keywords: Cardiac surgery, monoparesis, paresis/paraplegia, spinal cord injury, thoracoabdominal aortic aneurysm repair

Öz

Torakoabdominal aort anevrizmasının (TAAA) açık onarımı sonrası gelişen parezi/parapleji ciddi bir komplikasyondur ve yüksek morbidite/mortalite oranlarına sahiptir. Buna bağlı olarak TAAA'sı açık onarımında spinal kord korunması önerilmektedir. Bu bağlamda çeşitli yaklaşımlar mevcuttur, "klemple ve onar" tekniği, kısmi (sol kalp) veya total kardiyopulmoner bypass aracılığı ile distal perfüzyonun kullanımı gibi. Bu yaklaşımlar, omuriliğin iskemik yaralanmasını önleyerek parezi/parapleji komplikasyonlarını azaltabilir. Bu çalışmada, torakoabdominal aort anevrizması cerrahisi sonrası teşhis edilen monoparezi yönetimi olgusunu sunmayı amaçladık.

Anahtar Kelimeler: Kalp cerrahisi, monoparezi, parezi/parapleji, omurilik yaralanması, torakoabdomoninal anevrizma onarımı

Introduction

Thoraco abdominal aortic aneurysm (TAAA) is a progressive disease and its incidence increases with age. Aortic aneurysm by needing rapid diagnosis and surgical repair maintains importance in terms of high mortality and morbidity. Paraplegia/paresis related to spinal cord injury (SCI) has been one of the most feared and devastating complications of TAAA surgeries since they were first performed (1). Nowadays, as just recently published by Coselli et al. (1) the pooled rate of spinal cord (SC) ischemia -although noticeably lower compared to older reports-

*This study was presented as a Poster Presentation at the 4th International & 12th National Congress of the Turkish Society of Surgery and Operating Room Nurses, held between 13-16 January 2022.

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Received: June 13, 2022
Accepted: August 07, 2022

Cite this article as: Kajti E, Dürüst Sakallı G, Gökmen V, Toköz H. Management and Nursing Care of Monoparesis After Thoracoabdominal Aortic Aneurysm Surgery: A Case Report. Mediterr Nurs Midwifery 2023; 3(1): 34-37

remains high with 13.6%, even in experienced centers. Known risk factors for SCI after repair of the TAAA include a wide range of factors related to aneurysm types, surgical techniques, or patient characteristics. How to best protect the SC is one of the dominant concerns today. Continued and improved collaboration across the spectrum of patients is required to solve these problems (1). The operative strategies developed by surgeons to reduce the risk for SCI like moderate hypothermia, hemodynamic parameters, left heart bypass for distal aortic perfusion to maintain the SC's collateral vascular network motor and somatosensory evoked potential monitoring and cerebrospinal fluid (CSF) drainage have been shown to be effective and safe in major series to reduce postoperative SCI (2-4). These techniques are also recommended in the American Heart Association/ American College of Cardiology Foundation Guidelines (2010) also recommends CSF drainage TAAA open and endovascular repair (5).

SCI is considered to be the result of a temporary or permanent interruption of SC blood supply. It has been demonstrated that the maintenance of distal aortic flow protects against SC ischemia.

The aim of this article is to evaluate the treatment strategies of monoparesis after surgical intervention for TAAA despite to the recent developments and to share our experience.

Case Presentation

Fifty-six years old male patient underwent zone 3 thoracic endovascular aortic replacement procedure for type B dissection 5 years ago. In the follow-up, the patient developed type III TAAA and became symptomatic so thoraco-abdominal aortic surgery was performed. The patient had no other feature or concomitant disease other than hypertension. The cases whose coagulation parameters were within normal limits was categorized as ASA V (American Society of Anaesthesiology III) risk class. In addition to type III TAAA, it was observed that the aneurysm extended to the right internal iliac artery orifice (Picture 1).

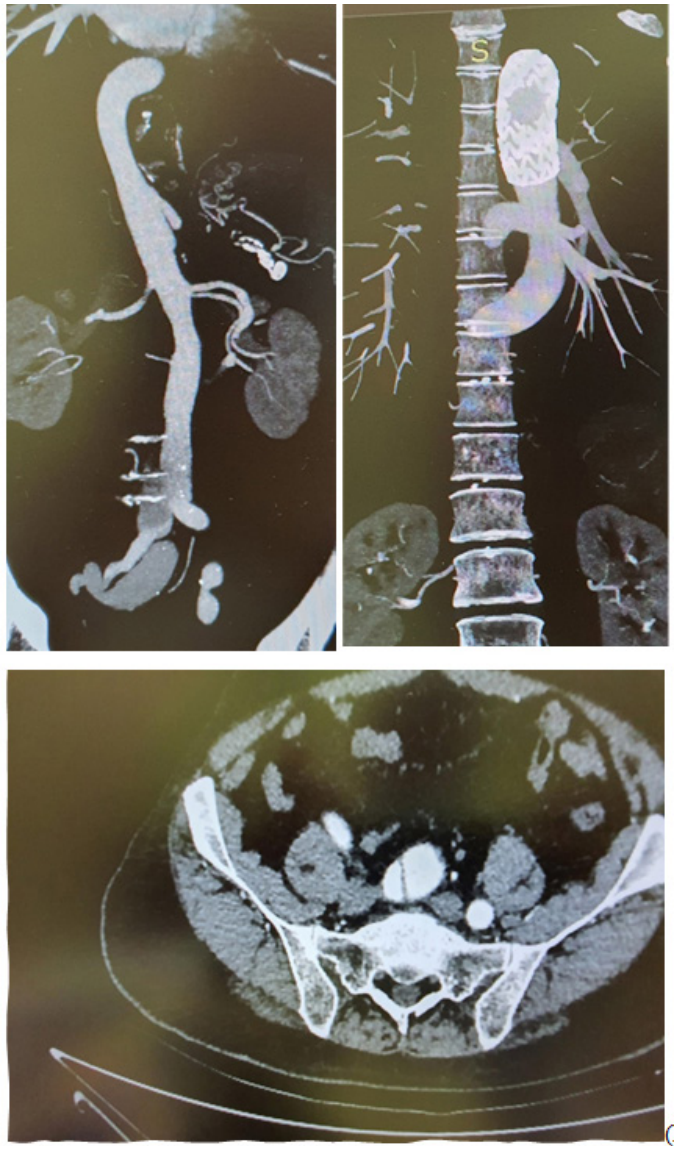
After written consent and completing the necessary preparations, due to the difficulty of accessing the right internal iliac region with a thoracoabdominal incision, 3 days before the operation, the proximal femoral artery was ligated by performing a cross-femoral (femoro-femoral) bypass with an 8 no PTFE graft under general anesthesia.

Main Points

- Spinal cord injury (SCI) remains one of the most feared and devastating complications in thoraco abdominal aortic aneurysm surgery even after more than seventy years of continuous development.
- Current operative strategies developed by surgeons to reduce the risk for SCI are effective and recommended during and after surgery.
- Management and close monitoring of SCI symptoms is effective in reversing the negative outcomes.

The newly performed femoro-femoral bypass was followed up for pulse control for 3 days and it was active, after 3 days open surgical repair was performed.

As it increases surgical field visibility, reduces the risk of lung injury and allows the lungs to deflate the patient was intubated with a double lumen (Carlens) endotracheal tube under anesthesia but was not curarized. Afterwards, a CSF catheter was placed through the midline approach to the L3-4 intervertebral space. By using the Seldinger and the loss of resistance method, the intrathecal distance was reached with a 14G needle and the silicone probe was sent through the guide. After detecting CSF flow, the guide was withdrawn and the cathether left 4 cm inside the CS area and fixed to the skin with adhesive tape. After skin detection CSF flow was checked again. Regular and necessary drainage was provided by CSF pressure monitoring. During

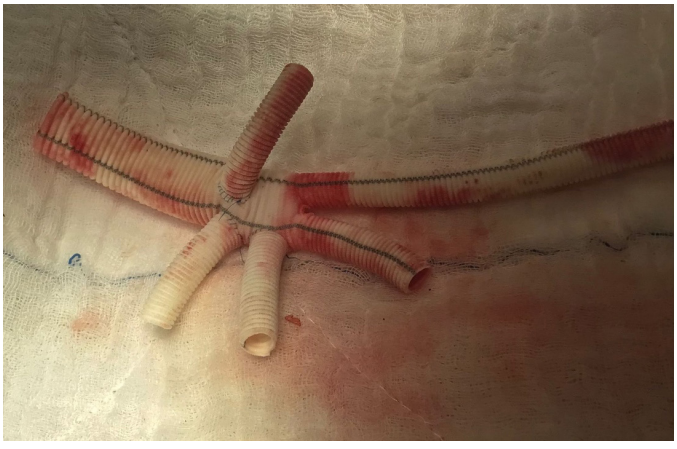


Picture 1.
Computed tomography showing the preoperative situation of the aneurysm

the operation, the patient was monitored with Motor evoked potential-movement (MEP) by the neurologist and her team. Intraoperative somatosensory-evoked potentials (SSEPs) and motor-evoked potentials (MEPs) have been commonly used since the early 2000s to monitor SC function. Both methods are helpful in guiding the conduct of operation, especially the timing of the intercostal artery reconstruction. Many aortic surgery centers use only MEPs (6-10).

The patient laying on the left lateral position, an incision was made starting from the 6th intercostal space up to the umbilicus. The aneurysm tissue was seen by opening the diaphragm circumferentially. After heparinization, midthoracic aorta and left femoral artery were cannulated and connected to cardiopulmonary bypass (CPB) (heart lung machine) device for distal circulation. 20/10 dacron bifurcation graft was prepared accordingly with the patient anatomy by adding 3 more branches (Picture 2).

By placing sequential cross clamps on the aorta, an aortotomy was performed and the bleeding intercostal arteries were ligated. Proximal aorta anastomosis was performed in the first place. In order to increase the proximal blood pressure, the patient, who had MEP signal loss especially in the right leg, was intervened medically and the distal circulation was continuously provided so MEP signal normalization was achieved. After visceral and left iliac anastomosis right iliac artery orifice was closed. The patient, who was stable and had no problems, was separated from the CPB device and after bleeding control, thoracic and abdominal drains were placed and the layers were closed in accordance with the anatomical method. The patient was transferred to the cardiovascular surgery intensive care unit without the endotracheal tube being replaced. The patient started to wake up after approximately 3 hours and was extubated after 10 hours. No problems were observed during the neurological examination. It was noticed that the CSF catheter was not working properly and it was withdrawn. A total of 45 mL of CSF was drained intraoperatively and 25 mL postoperatively. Monoparasia/monoplegia, especially in the right leg, was observed in the patient who had mild hypotension at the 16th hour and was not treated in the first place. The team =anesthetist tried to place a CSF catheter, hypertension was created medically (norepinephrine infusion) to avoid medulla spinalis ischemia, and it was observed that the monoparesis picture improved dynamically. The CSF catheter was reinserted under sterile conditions and active drainage was started. In the following hours, it was observed that the table was completely corrected. A total of 180 mL of CSF was drained from the patient.



Picture 2.
A dacron graft was prepared accordingly with the patient's anatomy

Hemodynamic stability, mild hypothermia (31º-33 ºC), CSF drainage, distal perfusion and MEP monitoring are performed in order to prevent paraplegia in the operation. Despite all the precautions in our case, temporary paraplegia was observed in the postoperative period and it was possible to recover with interventions.

Nursing Care

The high frequency of neurological complications, even in late series, due to SC ischemia in aortic surgery has increased the interest toward the subject these recent years. Paraplegia or paresis is seen as a result of ischemia due to intraoperative and postoperative or even preoperative SC edema and reperfusion disorder. Neurological problems in patients can be seen right after the effect of anesthesia passes or late after surgery, usually 1-5 days later. It needs to be emphasized that nurses should evaluate the presence of preoperative paraplegia and paresthesia due to compression in thoracoabdominal aneurysms by a proper neurological examination. Likewise, in the postoperative period, the neurological examination begins with the patient's arrival in the intensive care unit, continues at regular intervals and is recorded in special forms that might change from an institution to another. Neurological examination is performed regularly for at least 24 hours depending on patients' clinical conditions and multidisciplinary team decisions. Nurses should focus and know in details SCI prevention methods and their care. SC is fed through the intercostal and lumbar arteries supplied by descending and abdominal aorta. SC perfusion pressure is equal to the difference between the arterial pressure provided by these branches and the CSF pressure. Therefore, the continuation of SC perfusion theoretically depends on avoiding hypotension and increased CSF pressure. Prevention of SCI by CSF drainage during temporary thoracic aorta clamping was first suggested by Miyamoto et al. (11). Related to this prevention, a spinal catheter is inserted pre or perioperatively. Normal CSF pressure values varies between 5-10 mmHg. When CSF pressure is over 10 mmHg, drainage is performed through the special closed drainage system to lower the pressure (7). While using this special drainage system, nurses need to pay maximum attention to hygiene and sterility and use it correctly.

Hypothermia is another important preventive measure as it reduces metabolic requirements up to 50%. To cause hypothermia before cross-clamping, two methods can be

applied; whole body cooling with cold perfusion or regional cooling (8). Hypothermia is usually applied and followed by anesthesia and perfusion team. Nurses monitor temperature and other vital signs. In the postoperative period it's vital to apply appropriate heating method as soon as the patient is transferred to the cardiovascular intensive care unit. In order to prevent the undesirable hyperthermia, the warming process is stopped when patient's temperature reaches 36.0 °C. This practice may show clinical differences. Nurses should be aware of the risks of both situations, hypothermia and hyperthermia.

Motor evoked potential (MEP) monitoring: In many centers dealing with spinal correction surgery, intraoperative neurologic monitoring is used as a standard to detect neurological changes (9). MEP is the recording of motor potentials from the distal SC or related muscle groups. It gives quick feedback to the surgeon and provides great convenience to respond quickly to the warning. This is the reason why it's used largely in TAAA. Although since it's mostly applied only during surgery, the responsibilities of nurses in this regard are limited. They may collaborate, organize and assist the neurological team when needed.

As in our case, despite all precautions if paraplegia or paresis occur nurses should provide the necessary support and care for the patient and his/her family until the problem is resolved.

Otherwise, if paraplegia/paresis is permanent, nurses should provide support for the patient/family in different topics such as rehabilitation, immobile patient care, caregivers roles etc.

Discussion

As a result of very intensive studies, great advances have been made in the surgical treatment of the TAAA nowadays. The risk of paraparesis/paraplegia, which is reported to be 5-10% on average in the surgical treatment of thoracoabdominal aortic lesions, and the use of methods such as monitoring of evoked potentials in the brain and SC and CSF drainage has reduced the frequency of SCI due to surgery. However, in recent years, there are studies showing that the rate of paraplegia after TAAA surgery is still around 10% (10).

TAAA affects multiple organ systems detailed attention from a multidisciplinary team (surgical, critical care, nursing, pharmacy, nutrition and physical therapy) is required to ensure optimal perioperative management (1).

Achieving successful outcomes requires attention to detail across the perioperative, intraoperative and postoperative phases of treatment (3).

Informed Consent: Informed consent was obtained.

Peer-review: Externally peer-reviewed.

Author Contributions: Conception – E.K., G.D.S.; Design – E.K., G.D.S., V.G.; Supervision – E.K., H.T.; Fundings – E.K., H.T.; Materials – E.K., G.D.S., H.T.; Data Collection and/or Processing – E.K., G.D.S., V.G., H.T.; Analysis and/or Interpretation – E.K., H.T.; Literature Review – E.K., G.D.S., V.G.; Writing – E.K., G.D.S., V.G.; Critical Review – E.K., G.D.S., V.G., H.T.

Declaration of Interests: No conflict of interest was declared by the authors.

Funding: The authors declared that this study received no financial support.

References

1. Coselli JS, Estrera AL, Bashir M. Thoracoabdominal aortic aneurysm surgery: Houston, we have a problem! J Cardiovasc Surg (Torino) 2021;62(3):189-190. [Crossref]
2. David N, Roux N, Clavier E, Godier S, Brossard F, Bessou JP, et al. Open repair of extensive thoracoabdominal and thoracic aneurysm: a preliminary single-center experience with femorofemoral distal aortic perfusion with oxygenator and without cerebrospinal fluid drainage. Ann Vasc Surg 2011;25(5):583-589. [Crossref]
3. Chatterjee S, Preventza O, Orozco-Sevilla V, Coselli JS. Critical care management after open thoracoabdominal aortic aneurysm repair. J Cardiovasc Surg (Torino) 2021;62(3):220-229. [Crossref]
4. Haunschild J, VON Aspern K, Misfeld M, Davierwala P, Borger MA, Etz CD. Spinal cord protection in thoracoabdominal aortic aneurysm surgery: a multimodal approach. J Cardiovasc Surg (Torino) 2021;62(4):316-325. [Crossref]
5. Awad H, Ramadan ME, Sayed HF, Tolpin DA, Tili E, Collard CD. Spinal cord injury after thoracic endovascular aortic aneurysm repair. Can J Anesth 2017;64(12):1218-1235. [Crossref]
6. Tanaka A, Estrera AL, Safi HJ. Open thoracoabdominal aortic aneurysm surgery technique: how we do it. J Cardiovasc Surg (Torino) 2021;62(4):295-301. [Crossref]
7. Topal AE, Pamukçu Ö, Ölmez G. Aort Cerrahisinde Allopurinol ile Spinal Kord Korunması. Dicle Tıp Dergisi 2004;31(3):42-49. [Crossref]
8. Musluman AM, Ozdemir B, Altas K, Mirkhasilova M, Can SM, Kilic M, et al. The value of intraoperative neurophysiological monitoring in neurosurgery operations. The Medical Bulletin of Sisli Etfal Hospital 2017;51(1):1-7. [Crossref]
9. Özgencil S, Can Ö, Çakar Turhan K, Kazak Z, Bermede AO, Kalem, M, ve ark. Spinal kord nörolojik monitorizasyon yöntemleri. Türk Anest Rean Der Dergisi 2009;36(3):187-193. [Crossref]
10. Aydin A. Mechanisms and prevention of anterior spinal artery syndrome following abdominal aortic surgery. Angiol Sosud Khir 2015;21(1):155-164. [Crossref]
11. Miyamoto K, Ueno A, Wada T, Kimoto S. A new and simple method of preventing spinal cord damage following temporary occlusion of the thoracic aorta by draining the cerebrospinal fluid. J Cardiovasc Surg (Torino) 1960;1:188-197. [Crossref]

Mediterranean Nursing and Midwifery

Mediterr Nurs Midwifery 2023; 3(1): 38-42 DOI:10.4274/MNM.2022.2292

REVIEW

History of Nursing Education and Its Development in the Turkish Republic of Northern Cyprus

Kuzey Kıbrıs Türk Cumhuriyeti'nde Hemşirelik Eğitiminin Tarihçesi ve Gelişimi

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Abstract

This study aims to record the struggle of nursing to survive during the times of survival in Cyprus, explain the history of nursing education and contribute to the relavant literature. This research, which was conducted with the compilation method, reflects the phases in nursing education between the years of 1800 until now. Descriptive and documentary analysis methods were used in the study. In 1927, Dr. Horn sent a report to England where he highlighted the need for courses to improve the profession of nurses. However, the records showed that there hadn't been many efforts towards the elimination of such problems until 1940. A nursing school was opened at the Nicosia Hospital in the same year. By the 1960s, Turkish Cypriot students started to study on scholarship at the schools of nursing in Turkey. In the 1990, the two-year education for secondary and high school graduates had become a three-year education provided at "the school of nursing and midwifery" under its new name. In 1994, he started his associate degree education. After taking a long time to reach the undergraduate level as an education, undergraduate education was started at the Near East University in 2007. In 2018, she continues her education in the faculty of nursing. In addition to graduate and doctorate education, it also contributes to the recognition of our profession and our country with the graduation of students coming from outside of Cyprus.

Keywords: Nursing history, nursing, nursing education, professionalization

Öz

Bu çalışma, Kıbrıs'ta hayatta kalma mücadelesi yaşanırken aynı zamanda hemşireliğin var olma mücadelesinin zorluklarını kayıt altına almak ve hemşirelik eğitiminin tarihsel sürecini açıklamak ve bu konuda kaynak zenginliğine katkı sağlamak amacı ile hazırlanmıştır. Derleme yöntemi kullanılan araştırmada, 1800-1960 yılına kadar Kıbrıs'ta birlikte yaşayan Türk ve Rum toplumunun hemşirelik eğitiminin geçirdiği aşamalar ele alınmıştır. İki toplum arasında yaşanan çatışmalar sonucunda Türk ve Rumlar ayrı bölgelerde yaşamaya başlamasıyla Kıbrıs Türk halkının hemşire ihtiyacını karşılamak için 1970-2021 yılları arasında izlediği yol ve hemşire yetiştirme çabaları sürdürülmüştür. Çalışmada betimleme ve belgesel analiz yöntemi kullanılmıştır. 1927'de Dr. Horn, İngiltere'ye bir rapor göndererek hemşirelik mesleğini geliştirmek için kurslara ihtiyaç duyulduğunu vurguladı. Ancak kayıtlar 1940 yılına kadar bu tür sorunların ortadan kaldırılmasına yönelik pek bir çabanın olmadığını göstermektedir. Aynı yıl Lefkoşa Hastanesi'nde bir hemşirelik okulu açılmıştır. 1960'lı yıllara gelindiğinde Kıbrıslı Türk öğrenciler Türkiye'deki hemşirelik okullarında burslu olarak okumaya başladılar. 1990'lı yıllarda ortaokul ve lise mezunları için iki yıllık eğitim, yeni adıyla "Hemşirelik ve Ebelik Yüksekokulu"nda üç yıllık eğitime dönüştürülmüştür. 1994 yılında ön lisans eğitimine başladı. Eğitim olarak lisans düzeyine gelmesi uzun zaman aldıktan sonra 2007 yılında Yakın Doğu Üniversitesi'nde lisans eğitimine başlamıştır. 2018 yılında hemşirelik fakültesinde eğitimine devam etmektedir. Yüksek lisans ve doktora eğitiminin yanı sıra Kıbrıs dışından gelen öğrencilerin mezuniyetleri ile mesleğimizin ve ülkemizin tanınmasına da katkı sağlamaktadır.

Anahtar Kelimeler: Hemşirelik tarihi, hemşirelik, hemşirelik eğitimi, profesyonelleşme

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Received: May 18, 2022
Accepted: July 22, 2022

Cite this article as: Nurluöz Ö, Esmaeilzadeh S. History of Nursing Education and Its Development in the Turkish Republic of Northern Cyprus. Mediterr Nurs Midwifery 2023; 3(1): 38-42

Introduction

A long-term and well-qualified education level of professionals is one of the accepted and acknowledged criteria in considering work as a profession. Education process and associated knowledge is one of the main features that distinguish professions from work. After a long training process, professions include a systematic knowledge on the related skill as well as the completion of a minimum undergraduate degree. More advanced knowledge, experience and qualified education are also vital in professionalism (1,2).

Nursing education is comprised of the delivery and provision of related scientific information that guide the nursing practises. When used together with theory, practice and research, nursing turns into a mental activity that correlates with information whereas nursing is defined as an art that requires skills in implementation and a field of science that means an occupation (3). The development of nursing science had reached to a milestone in history when nursing education and practise that were an approach followed by hospitals in a doctor-oriented method become an independent domain at universities where students are trained by professional academicians (4,5).

Problem: The literature on the history of nursing education in Cyprus is not sufficient. The possibility that future generations would not learn the background of nursing education is considered to be the research problem. Therefore, it has been decided to conduct a scientific study with the awareness that the nurses, who experienced the transformation in nursing education, has the duty to tell the developments of nursing education in Cyprus and then Turkish Republic of Northern Cyprus.

Developments

Nursing Education Between 1800-1935

The authorities in 1800s organised training courses to meet the huge need for healthcare professionals. At that time, Turkish and Greek Cypriots communities used to live together and use the same hospitals. When Ottomans ceded the administration of Cyprus to Britain in 1878 as a colony, many hospital administrators, including doctors and nurses needed at the hospitals were brought to Cyprus from Britain. Moreover, there were some training offered at the Department of Health and Nicosia General Hospital in the areas of nursing, midwifery, health inspector, pharmacist and chemist, which would improve the competences of related people (6).

In 1896, "The Colonial Nursing Association" was established in Britain to eliminate the problem of personnel insufficiency and solve the healthcare problems encountered by the community. This association also aimed to provide assistance, when requested, to British people that were assigned to foreign countries and British colonies. It also helped fulfill the need for nurses in Cyprus through the association itself and its Cyprus branch.

The actions to train caregivers and nurses in Cyprus was initiated by 7 British nurses, who came to Cyprus in 1927 (7). In that time, people that served as nurses were called caregivers. The lack of nursing schools and university graduated nurses were both obstacles in training nurses. In 1927 Dr. Horn, a professional from Britain, wrote a report called "Healthcare Service Reforms in Cyprus" proposing that nurses, who were then called as caregivers, had insufficient knowledge, and should be trained for three years; their food and accommodation should be covered as well as to be paid with a low fee. The report also indicated that "male nurses" or "dressers" might also participate to the three-year training program.

People with nursing education were mainly British while Turkish and Greek Cypriots were trained to be caregivers as they had almost no chance to be provided with nursing education.

Until 1930s, courses were considered enough for nurse education, yet there were problems. Then a nursing school was opened in Nicosia Hospital to enhance the healthcare service standards and meet the need for nurses.

Nursing Education Between 1935-1960

Between the years of 1930-1940, students with increasing numbers went to Beirut-one of the developed cities in the world and Britain, which was an attractive destination, to study at nursing schools. Within the framework of reform in 1935, 3 Cypriot females (2 Greek Cypriots and 1 Turkish Cypriot) were sent to study at Beirut American University Nursing School with scholarship. "Türkan Aziz" was the only Turkish Cypriot granted this scholarship. Known as the first Turkish Cypriot nurse graduated from a nursing school, she completed her university education in 1938 and worked at the Limassol State Hospital (7).

The education duration of the nursing school was two years. Primary school graduates were also accepted to study there, however; the secondary school graduates were started to be accepted in order to enhance the education quality. Turkish Cypriots were unsuccessful at the school as the education language was Greek. In order to tackle this issue, Dr. Fikret Rasim launched Turkish courses in 1948 for Turkish Cypriot midwives and nurses. With an increased interest to the profession, a three-year English education was also provided after high school education where people were called sister and they started to work as supervisors when they graduated (8).

With the termination of British colonial administration in 1960, the nurses had the opportunity to apply to the Nursing Schools in the United Kingdom and get the Midwife Nurse Diploma through a document issued by "Cyprus Nursing and Midwifery Council" stating that they worked at the state hospitals for nine months. It was possible since Britain had still bases on the 3% of the island as a guarantor country.

Bi-zonal Status of Cyprus in 1963-1974 and Nursing Education

After Turkish and Greek Cypriots had conflict in 1963 and were divided into two zones on the islands, the great need for nurses on the Turkish Cypriot side reached to another level. In order to meet this greater need, individuals that were not graduated yet were provided with a certificate following an accelerated training. In 1971, nurses and midwifery schools at the secondary school level were established and this school continued its activities until 1974 (8). Since 1960s, very few female students completed their education at the nursing school in Turkey with scholarship and then started to work at the hospital and nurse and midwifery school. Such people were Senior Nurses. This number elevated in years as students were sent to Hacettepe University, Gülhane Medical Academy and Florence Nightingale Nursing School with full scholarship.

Nursing Education Between 1974-1994

After 1974, secondary school graduates were trained for two years at the nursing and midwifery school on the Turkish side. There had been many challenges at the delivery of the courses. While university graduate nurses had the biggest responsibility, a number of doctors and other personnel from the hospitals of the Ministry of Health and Social Welfare were assigned as part-time lecturers. Certain courses and examinations were provided by the doctors for many years. (9).

In 1984, the related challenges and discussions on the status of profession led the pursuit of new ways that would bring the profession up to modern levels. Post-high school nursing education was launched as a result of the Ministry of Health in the same year, yet the department was closed in 1988 due to some legal barriers. Nurses that graduated were assigned to the positions covering the former graduates.

In 1990, the applicable nursing education after secondary school became three years to minimize the variances in nursing education and make nursing education above high school education. The name of school was changed to "the school of nursing and midwifery". However, the graduates were recruited from the same salary levels since there were still political and legal barriers, and it was not possible to make any political amendments. The only difference was that graduates were named as "nurse" rather than "caretakers", which removed the latter from the organisational scheme.

By the years of 1992-1993, nurses, who graduated from the high school and nursing department, were given the opportunity to study the associate's degree at the Anadolu University Open Education Faculty provided that they passed the first level of ÖSYS (Student Selection and Placement Examination).

In 1994, the law on the nursing vocational school with regarded to the 2-year education for the citizens of the Turkish Republic of Northern Cyprus after high school education was adopted. With the adoption of law, the high school graduated could only enrol to the associate's degree with an examination. With significant developments in the profession, the number of students had also increased without any increase in the number of trainer nurses, which caused a major burden on the trainers (10).

Nursing Education Between 1994-2006

While an associate's degree was still available in 1994, the efforts to increase the education duration to four years gained momentum. In November 2004, a protocol regarding a better provision of nursing education was signed between the Near East University and Ministry of Health, and the school was moved to the university campus. Upon the adoption of YÖDAK (Higher Education Planning, Evaluation, Accreditation and Coordination Council) law in 2006, students were accepted to the universities and nursing vocational school through an examination held by YÖDAK.

Modern Nursing Education Between 2007-2021

In 2007, Near East University initiated its action to establish a health sciences faculty, which was opened in the same year following the authorization of YÖK (Council of Higher Education). The faculty of nursing was then opened under the faculty and nursing education was provided as an undergraduate degree.

The last students graduated from the nursing vocational school in the academic year of 2007-2008. It is considered very crucial for the development of nursing education that nurses with an associate's degree working at the hospitals completed their education and the associate's degree programs were terminated in the TRNC. The traditional education was delivered by the lecturers of the Ministry of Health and lecturers from Turkey. In 2010, the protocol with the Ministry of Health was terminated, but the protocol on the practical work stayed valid (11,12). In addition to the undergraduate programs, the university also started to offer master's degree programs in nursing in 2007 in order to enhance the quality in nursing education and train lecturers. The master's degree program was approved by YÖDAK. YÖDAK approved PhD program was launched in 2009 without any graduates until now. With the commencement of postgraduate degree programs, the number of significant scientific, professional researches and publications on nursing have increased in our country.

In addition to the Near East University Nursing School at the Girne American University opened in 2009 while the nursing programs have been introduced at the Faculty of Health Sciences, Eastern Mediterranean University in 2010 and Faculty of Health Sciences, European University of Lefke in 2013.

As the Near East University Faculty of Health Sciences is the pioneer in the field, the nursing department in English was also opened in the academic year of 2013-2014.

Transition from Nursing to Modern Education-opening of the Faculty of Nursing in 2018

Until 2018, nursing department was under the Faculty of Health Sciences at the Near East University but then it has become completely independent as the faculty of nursing providing quality education with its experienced and qualified staff.

Since there are nursing departments at various universities in TRNC, some problems emerged about the internships of students. Due to the insufficient clinical practice opportunities, some universities started to send its students to the hospitals in Turkey either for compulsory internship or summer internship.

Students that come from Turkey for their university education are accepted under the supervision of YÖK based on their university admission exam scores within the framework of system in Turkey. On the other hand, the students with TRNC citizenship are admitted to the nursing department based on the examination held by the university under the supervision of YÖDAK.

The nursing education is executed in a traditional, face-to-face approach. However, online education method was introduced to the Coronavirus disease-2019 pandemic that surrounded the world in 2020.

Conclusion

In addition to the problems as an island, the nursing profession in Cyprus has experienced many significant problems from past to present due to the religious, nationality and population structure on the island, with two different communities living together, and lack of development in the educational dimension.

The interest towards nursing was emerged when a Turkish Cypriot girl sent to the nursing school in 1935. Since Türkan Aziz's father Mehmet Aziz was a respectable health inspector, Turkish Cypriot families were more willing to send their daughters to the nursing schools. However, nurses continued to their education under challenging circumstances and showed too much effort to improve themselves starting from the colonial times to the Republic of Cyprus (Greek and Turkish Cypriot) when both communities used to live together until post-1974 Turkish Republic of Northern Cyprus.

The initiative led by Near East University- with the idea of considering nursing as an important profession evolved nursing education to the undergraduate level where many more peers benefited from their professional field. The Faculty of Nursing reached its highest number of students in 2021 bearing the pride of raising successful students with its full-time lecturers.

The opening of new hospitals and COVID-19 pandemic have increase the need for intensive care unit staff, which have reiterated the need for nurses and significance of our profession. We showed a great progress in TRNC as nursing education stretched from the undergraduate level to being a specialty.

Recommendations

In addition to the problems arising from the structure of Cyprus, its being an island, and its religion, race and population structure and the fact that two different peoples live on the island, the nursing profession has been the most important profession that has experienced the difficulties of not being able to develop in terms of education from the past to present.

Healthcare authorities should revise the legal regulations in the field of nursing. The continuous improvement of the quality in healthcare services should be considered by all health disciplines through performing the necessary adjustments where nurses should be a part of decision-making mechanisms. In order to introduce standards in the duties of nurses, universities and active nurses should cooperate accordingly.

Peer-review: Externally peer-reviewed.

Author Contributions: Conception – Ö.N., S.E.; Design – Ö.N., S.E.; Supervision – Ö.N., S.E.; Fundings – Ö.N., S.E.; Materials – Ö.N., S.E.; Data Collection and/or Processing – Ö.N., S.E.; Analysis and/or Interpretation – Ö.N., S.E.; Literature Review – Ö.N., S.E.; Writing – Ö.N., S.E.; Critical Review – Ö.N., S.E.

Declaration of Interests: No conflict of interest was declared by the authors.

Funding: The authors declared that this study received no financial support.

References

1. Wynd A. Current factors contributing to professionalism in nursing. J Prof Nurs 2003;19(5):251-261. [Crossref]
2. Korkmaz F. Profesionalizm and Nursing in Turkey. Hacettepe University Faculty of Health Sciences Nursing Journal 2011;59-67. [Crossref]
3. Karagözlü Ş. Bilimsel Bir Disiplin Olarak Hemşirelik. C.Ü. Hemşirelik Yüksek Okulu Dergisi, 2005;9(1):6-14. [Crossref]
4. Bradshaw A. Charting some challenges in the art and science of nursing. Lancet 1998;351(9100):438-440. [Crossref]
5. Warms CA, Schroeder CA. Bridging the gulf between science and action, the "new fuzzies" of nepra gmatism. ANS Adv Nurs Sci 199;22(2):1-10. [Crossref]
6. Dedeçay S. Kıbrıs'ta Hastaneler (1878-1963) Cilt I, Lefkoşa Özel Türk Üniversitesi Yayınları, 2003:175-211. [Crossref]
7. Horn AE. Scheme of Reorganization of The Medical Services in Cyprus, 1927:20. [Crossref]

8. Aziz T. The Death of Friendship, Near East Publishing 73 Bedrettin Demirel Ave. Nicosia- Mersin 10- Turkey. 2000:87-89. [Crossref]
9. Rassim F. Biyografik Anılar ve Bunları Belgeleyen Fotoğraflar. PAN Basın Yayın Ajansı, Lefkoşa, 1998:37-38. [Crossref]
10. TRNC Nursing Vocational School Law Kuzey Kıbrıs Hemşirelik Meslek Yüksek Okulu Yasası 1994 (63/94). [Crossref]
11. Nurluöz Ö, Demiray T. "Kuzey Kıbrıs Türk Cumhuriyetinde Hemşirelik Eğitiminin 136 Yıllık Tarihsel Süreci" I. Ulusal Hemşirelik Tarihi Kongresi. Ege Üniversitesi, 19-21 Haziran 2014, Sözel Bildiri. [Crossref]
12. Nurluöz Ö, Sarpkaya D. "Kuzey Kıbrıs Türk Cumhuriyetinde Hemşirelik Eğitiminin Tarihsel Süreci". II. Hemşirelikte Güncel Sorunlar ve Yaklaşımlar Sempozyumu. Çanakkale Onsekiz Mart Üniversitesi Sağlık Yüksek Okulu 10-12 Nisan 2014, Poster Bildiri. [Crossref]

Mediterranean Nursing and Midwifery

Mediterr Nurs Midwifery 2023; 3(1): 43-47 DOI:10.4274/MNM.2022.22124

REVIEW

A Hematologic Disease in the Turkish Republic of Northern Cyprus: Thalassemia Major

Kuzey Kıbrıs Türk Cumhuriyeti'nde Bir Hematolojik Hastalık: Talasemi Majör

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Abstract

Thalassemia is an inherited hematologic disease in which the body makes an abnormal form of hemoglobin. Patients are diagnosed with thalassemia major due to severe anemia and clinical symptoms. Thalassemia major is a common disease in the Turkish Republic of Northern Cyprus (TRNC) and other Mediterranean countries. Thalassemia major is a chronic and severe health problem. Thalassemia major damages organs due to intense iron accumulation and deep anemia. It negatively affects the quality of life and shortens life. Also, due to chronic disease, patients experience psychological and social problems. In this review, we present thalassemia major in the TRNC. The rate of patients has decreased with prevention programs and no sick baby has been born after 2001 in the TRNC. However, existing thalassemia patients have many physical and psychosocial problems and the treatment processes the patients are challenging. Since TRNC is an island that receives immigration, it has a sociological texture that includes different cultures, which can increase the dimensions of this problem. Therefore, this review focuses on the thalassemia process and the psychosocial problems caused by the disease in the TRNC.

Keywords: Cyprus, thalassemia major, hematologic disease, patient, psychosocial care

Öz

Talasemi, vücudun anormal bir hemoglobin formu oluşturduğu kalıtsal bir hematolojik hastalıktır. Hastalara şiddetli anemi ve klinik semptomlar nedeniyle talasemi majör tanısı konur. Talasemi majör, Kuzey Kıbrıs Türk Cumhuriyeti (KKTC) ve diğer Akdeniz ülkelerinde yaygın olarak görülen bir hastalıktır. Talasemi majör, kronik ve ciddi bir sağlık sorunudur. Talasemi majör, yoğun demir birikimi ve derin anemi nedeniyle organlara zarar verir. Yaşam kalitesini olumsuz etkiler ve ömrü kısaltır. Ayrıca kronik hastalık nedeniyle hastalar psikolojik ve sosyal sorunlar yaşamaktadır. Bu derlemede KKTC'deki talasemi majörü sunuyoruz. Önleme programları ile hasta oranı düşmüş ve 2001 yılından sonra KKTC'de hasta bebek dünyaya gelmemiştir. Ancak mevcut talasemi hastalarının birçok fiziksel ve psikososyal sorunu bulunmakta ve tedavi süreçleri hastaları zorlamaktadır. KKTC göç alan bir ada olması nedeniyle farklı kültürleri içinde barındıran sosyolojik bir dokuya sahip olması bu sorunun boyutlarını artırabilmektedir. Bu nedenle bu derleme, KKTC'de talasemi sürecine ve hastalığın yol açtığı psikososyal sorunlara odaklanmaktadır.

Anahtar Kelimeler: Kıbrıs, talasemi majör, hematolojik hastalık, hasta, psikososyal bakım

Introduction

Thalassemia is a group of disorders that prevent the body from producing a sufficient quantity of quality blood. In thalassemia, patients with very little or no anemia despite having abnormal erythrocyte structure are classified as thalassemia minor, patients whose anemia does not require regular transfusion are classified as thalassemia intermedia, patients with major clinical symptoms and anemia are classified as thalassemia major (1).

According to a report published by the World Health Organization (2006), 5.2% of individuals in the world are carriers of thalassemia. In the Turkish Republic of Northern

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Received: November 02, 2022
Accepted: November 16, 2022

Cite this article as: Şahin Tarım H, Öz F. A Hematologic Disease in the Turkish Republic of Northern Cyprus: Thalassemia Major. Mediterr Nurs Midwifery 2023; 3(1): 43-47

Cyprus, the rate of thalassemia carrier is 17% (2). Thalassemia major is one of the common causes of anemia in the Turkish Republic of Northern Cyprus (TRNC). Thalassemia major is a hematologic problem that is inherited from parents to children, can be prevented by genetic screening programs, progresses severely when not treated (3,4). The diagnosis of thalassemia major is made between the ages of 6 months and 2 years with clinical symptoms. Damage occurs in the liver, lungs, heart and endocrine organs due to anemia and iron overload (5). Patients experience growth retardation, shape changes in the face, jaundice, head and teeth due to bone deformities, diabetes mellitus, cardiac and hepatic complications, delayed puberty, infection, osteoporosis, hypothyroidism and hypoparathyroidism. The treatment of thalassemia major includes blood transfusion, iron chelation therapy, splenectomy, psychological care, and stem cell transplantation (4,6).

Mediterranean countries include "thalassemia prevention and treatment programs" in their health policies. In this context, the TRNC conducted screening tests for couples who wanted to get married and received positive results and were successful in combating this disease. The purpose of the scan is to identify risky couples and to enable them to have healthy children by providing genetic counseling. Published reports have shown that genetic screening is effective in preventing birth of children with thalassemia major (7). TRNC started programs to fight against thalassemia in the 1980s and their practices still actively continue. It was reported that the last birth of a baby with thalassemia occurred in 2001 (8). This is important in terms of demonstrating how useful and valuable these preventive programs implemented on a country basis, are in reducing and preventing thalassemia.

Chronic diseases create compelling effects on patients' lives. Thalassemia major, is a chronic disease, affects the lives of patients and causes physical, social and psychological problems (9,10). There are physical deformations, jaundice, growth retardation, hepatosplenomegaly and characteristic facial appearance with prominent lines in the symptoms of the disease. These symptoms, body image, negatively affects the self-esteem and self-confidence of individuals. Therefore, patient's quality of life and psychosocial states are negatively affected (4,11-13). The individual's physical health, psychological condition, social relations, personal beliefs and the quality of life, including relationships with the people, are negatively affected by the chronicity of thalassemia, the need for blood transfusion at regular intervals throughout life, and the related complications (10,13,14). Frequent hospitalization due to transfusion, staying away from the family, activity limitations and pain, side effects of iron chelation therapy, and fear of death can also lead to anxiety, stress, hopelessness and depression (15,16). The studies conducted stated that the prevalence of psychosocial problem was 80% in patients with thalassemia major. Patients may experience many emotional problems, anxiety, and behavioral problems in various periods of their life. These are somatization, grief, hopelessness, anxiety, inability to cope with anxiety, frustration, hostility, fear of death, lack of confidence, decreased self-esteem, loneliness, isolation, irritability, helplessness, lack of self-respect and feeling of lovelessness (15-17).

TRNC is a Mediterranean island that receives a large number of immigrants from other Mediterranean countries (18). Thalassemia is an important hematologic disease for the TRNC. Although no baby was born with Thalassemia on the island after 2001, the number of patient's present is substantially high. According to the data obtained from the Cyprus Thalassemia Association (2020), there are 87 patients with thalassemia major in TRNC. These individuals have many problems due to the reasons mentioned above. Since TRNC is an island that receives immigration, it has a sociological texture that includes different cultures, which can increase the dimension of this problem. For this reason, this review intends to examine the process and psychosocial aspects of major thalassemia, which is such an important disease for the TRNC.

Thalassemia in TRNC

The historical process of thalassemia in the TRNC includes prevention programs, education and awareness studies, screenings and genetic counseling and early diagnosis studies.

Thalassemia Prevention Program

It was first brought up in 1976 that thalassemia poses a serious public health problem in the TRNC. Studies toward the solution of this problem have been initiated throughout the country and the "Thalassemia Prevention Program" has been created and put into practice. Educational and social awareness studies have started since 1978 within the framework of this program. Risky families have been screened since 1979, and pre-marital screening tests and genetic counseling services have been provided to carriers since 1980. Prenatal early diagnosis studies were started in 1984 with fetal blood sampling, and chorionic villus biopsy and DNA studies have been continued since 1991. The conventional treatment methods recommended in the treatment of patients with thalassemia were applied and the life expectancy and quality of the patients were tried to be improved (19).

TRNC started first studies regarding thalassemia in different departments of Dr. Burhan Nalbantoğlu State Hospital, and gathered all services under the same roof with the establishment of Thalassemia Center in 1988. Thalassemia center consisted of clinical departments where daily follow-up and treatment were performed on patients with thalassemia, laboratories where screenings and early diagnosis studies were performed, and a blood bank. The Thalassemia Society office is also located in this center. The day care and treatment services are carried out by a hematologist, an internal medicine specialist and nurses trained in transfusion in the thalassemia center. In addition, treatments are planned and applied in cooperation with specialist physicians for the complications that develop in patients with thalassemia as the age increases (8).

Education and Social Awareness Studies

Public awareness and education are very important in fighting against this disease. In this framework, when the Thalassemia Prevention Program was initiated, effective training studies have been initiated in order to raise social awareness since 1978. Programs related to thalassemia were announced to the public through the press and broadcasting, conferences were held in schools, military units and universities, brochures and booklets on the subject were distributed to the public. Gynecology and pediatric specialists, general practitioners, midwives and nurses also participated in the training activities (19).

The most important country policy was to prevent births of sick children in the fight against thalassemia in the TRNC, especially by screening people of marriage and reproductive age and providing genetic counseling to those detected as carriers. In this context, before the start of the studies, circulars were sent to all obstetricians about the routine thalassemia screening of pregnant women who got married before 1980, so this group was also taken under control. Despite all these controls, it was thought that training and screening only risky groups would not be sufficient to prevent births of sick babies due to the high incidence of thalassemia on the island. For this purpose, pre-marital screenings were made legally mandatory in 1980 and it was decided that all couples to be married would be screened free of charge under state control. These practices were widely accepted by the public as well as supported by the State, and no baby with thalassemia was born after 2001 (8,19). In this context, considering that the prevention of a disease, the follow-up, and rehabilitation of the patients are very important in preventive health services, TRNC has taken an important problem under control successfully and continues its services.

Screenings and Genetic Counseling

The screenings were first started in Nicosia in 1978, and then continued in the Thalassemia Center for those who had a child with thalassemia in their family. Around 4500-5000 people were screened annually with the legal requirement to have a pre-marital thalassemia test since 1980, and these practices still continue in the country. Following the screening tests, genetic counseling is provided to couples diagnosed as carrier, and it is recommended to have an early prenatal diagnosis in case of a pregnancy. Some couples, who were both identified as carriers of thalassemia, refused to marry because they could not risk having a sick child in the first years of the program. People have become more conscious with the advancement of prenatal early diagnosis techniques, protection and awareness trainings, and such behaviors are no longer observed in the following years (19).

Prenatal Early Diagnosis Studies

One of the most important issues aimed was to prevent the birth of newborns with thalassemia within the framework of the program to fight against thalassemia in the TRNC. In this context, it was aimed to provide genetic counseling and prenatal early diagnosis services to all and to explain the risks of having a baby with thalassemia at a rate of 25% at each birth to couples who were both carriers. Prenatal early diagnosis studies have been conducted in line with these goals in the Thalassemia Center since 1984. During early diagnoses made by taking blood from the baby's umbilical cord with cordocentesis method, when the fetus was diagnosed with major thalassemia, these pregnancies were terminated with the consent of the family. With the introduction of DNA methods in 1991, earlier method was abandoned. Thus, early diagnosis studies were initiated and continued by examining the DNA of tissues obtained by chorionic villus biopsy at the 10-12th day of pregnancy (19).

Before the prenatal diagnosis studies, the number of new-born patients with thalassemia major was expected to be around 18-20 per year in TRNC. This number has decreased by approximately 50% with the initiation of prenatal diagnosis studies in 1984. Thus, the births of 600 new patients with thalassemia were prevented through screening, genetic counseling and prenatal early diagnosis studies in the last 30 years (20). These efforts to prevent thalassemia were first approached to raise awareness in the society, and no social resistance was encountered in the TRNC. The right health policy of the state has successfully reached the public, including the risky families. People approached these suggestions positively, and there were not many couples who did not accept early prenatal diagnosis. Around 10 babies with thalassemia were born for various reasons between 1984 and 2001, but no babies with thalassemia were born since 2001 (19). However, existing patients and carrier individuals who want to have children should be handled and followed very well in terms of psychosocial aspects.

Results of Thalassemia Treatments

It was aimed to fight against thalassemia, prevent the birth of sick children, and improve the life expectancy and quality of existing individuals with thalassemia by treating them in better conditions in our country. These studies started toward the end of the 1970s and continued intensely in the 1980s. Since it is a hereditary chronic disease, it is not possible to cure thalassemia by conventional methods. For this reason, treatments for the complete cure of the disease are performed with hematopoietic stem cell transplants in major centers around the world. It is essential to find stem cells compatible with one of the siblings in a large family for stem cell transplantation. Compatible stem cell supply between siblings is only successful at a rate of 30%. Studies have shown that conventional treatments have reached a quite good point on making the large patient masses survive longer and live better (21). In order to completely cure a patient's thalassemia in the TRNC, hematopoietic stem cells were taken from their sibling and transplanted to the patient, and the result was a successful. The patient who has reached adult age is currently living a healthy life (19).

Thalassemia treatment is carried out within the framework of the protocols below in TRNC (19).

• Adequate, effective and safe blood transfusions,

• Effective iron chelation, protection against infections, and regular vaccination,

• Follow-up and treatment for cardiological and hepatic complications,

• Tests and replacement therapies for growth and developmental retardation and other endocrinological complications,

• Tests and treatments for osteoporosis and bone metabolism,

• Screening against infectious diseases that can be transmitted by blood transfusion,

• Filtering the blood from leukocytes in order to prevent blood transfusion reactions,

• Detection of alloimmune antibodies that develop in patients against immunological transfusion reactions, and transfusion with appropriate blood,

• Psychological care and treatment for psychosocial problems.

Psychosocial Problems of Patients with Thalassemia Major

Patients with thalassemia major, experience physical and psychological problems. Patients experience many problems and mood disorders, including despair, sadness, hostility, depression, grief, anxiety, fear of death, hopelessness, social isolation, and helplessness (12,16).

Thalassemia disease also affects the hope of patients, as it is a disease that mostly affects the emotional state of the individual, changes the individual's perspective about the future and the world, affects life-related expectations, and autonomy. The scope of psychosocial care includes supporting and increasing hope and eliminating hopelessness in sick individuals. Hope is an important resource that helps people with thalassemia adapt to treatment and feel good. Health professionals should help the desperate individual to solve problems, develop their desires and make decisions easier, and instill hope in patients (9).

Professional healthcare team members have responsibilities such as education, care, counseling and organizing studies for individuals with chronic diseases. Individuals with thalassemia who are mental problems need professional help to cope with their problems. In such cases, it will increase the abilities of problem solving and decision-making, the development of wishes and desires of individuals, the development of positive patient-health professional relationship, the participation of the patient in treatment-related procedures, and the cooperation while solving problems (22).

There is an association of thalassemia patients in the TRNC. Patients and their families share their problems in social, psychological and therapeutic issues under the umbrella of the Northern Cyprus Thalassemia Association. As problems are shared, they become lighter and current shortcomings can be expressed in a stronger voice. The association also enlightens patients by raising awareness about the disease, following up-to-date treatments and innovations in this field. In addition, individuals with thalassemia take part in the management of the association personally and look after their problems (19). However, psychological support and treatment for psychosocial problems, which are also included in the thalassemia medical protocol, was given by a psychologist in the Thalassemia Center in the past years, but today there is no psychiatrist, psychologist, or psychiatric nurse in the treatment center in the TRNC. This situation is seen as a major deficiency by the patients (8). Therefore, a holistic approach should be adopted in the treatment protocol of patients with thalassemia, and the psychosocial problems of patients should not be ignored.

Conclusion

Services to redound the psychosocial care of patients with thalassemia are limited in the TRNC, and their treatment is carried out with blood transfusion and iron chelation. When the thalassemia process in the TRNC is examined, it is seen that thalassemia patients partly adapt to living with a chronic hematologic disease, but the psychological and social problems and treatment burdens they experience are at a level that should be taken into account. Therefore, healthcare professionals should pay attention to treatment and care for psychosocial problems as well as physical problems. Psychosocial care and support should be included in the treatment and care protocol of patients. In particular, nurses should support patients by providing psychosocial care.

Peer-review: Externally peer-reviewed.

Author Contributions: Conception – H.Ş.T., F.Ö., Design – H.Ş.T., F.Ö., Supervision – F.Ö., Fundings – H.Ş.T., Materials – H.Ş.T., Data Collection and/or Processing – H.Ş.T., Analysis and/or Interpretation – H.Ş.T., F.Ö., Literature Review – H.Ş.T., Writing – H.Ş.T., F.Ö., Critical Review – H.Ş.T., F.Ö.

Declaration of Interests: No conflict of interest was declared by the authors.

Funding: The authors declared that this study received no financial support.

References

1. Origa R. β-Thalassemia. Genetics in Medicine 2017;19(6):609-619. [Crossref]
2. WHO (2006). Thalassemia and other haemoglobinapathies: report by the secretariat. World Health Organization. Available from: https://apps.who.int [Crossref]

3. Yeşilipek MA. Hematopoetic stem cell transplantation in patients with beta thalassemia major. Archive and Survey Journal 2014;23(1):49-59. [Crossref]
4. Yesilipek MA. Hematopoietic stem cell transplantation in patients with hemoglobinopathies. Hemoglobin 2020;44(6):377-384. [Crossref]
5. Taher AT, Weatherall DJ, Cappellini MD. Thalassaemia. Lancet 2018;391(10116):155-167. [Crossref]
6. Sharma R, Seth A, Chandra J, Gohain S, Kapoor S. Endocrinopathies in adolescents with thalassaemia major receiving oral iron chelation therapy. Paediatrics and International Child Health 2016;36:22-27. [Crossref]
7. Canatan D. Status of thalassemia and hemoglobinopathies in world and Turkey. Turkey Journal of Clinical Hematology, Oncology Special Topics 2014;3(1):1-4. [Crossref]
8. Cyprus Thalassemia Association. (2020). Turkish Republic of Northern Cyprus. [Crossref]
9. Öz F. Psychosocial nursing in cancer. Turkiye Klinikleri J Intern Med Nurs-Special Topics 2015;1(2):46-52. [Crossref]
10. Şahin Tarım H, Öz F. Thalassemia major and associated psychosocial problems: A narrative review. Iranian Journal of Public Health 2022;51(1):12-18. [Crossref]
11. Punriddum J, Sanasuttipun W, Sangperm P. Factors related to body image of adolescents with thalassemia. Nursing Science Journal of Thailand 2018;36(1):57-72. [Crossref]
12. Patel P, Beamish P, da Silva TL, Kaushalya D, Premawardhena A, Williams S, et al. Examining depression and quality of life in patients with thalassemia in Sri Lanka. Int J Non-Commun Dis 2019;4:27-33. [Crossref]
13. Arslan Maden A, Örsdemir Hortu H, Üzüm Ö, Eliaçık K, Kanık A, Malbora B, et al. Evaluation of anxiety and depression levels of adolescents with thalassemia trait. İzmir Kâtip Çelebi Üniversitesi Sağlık Bilimleri Fakültesi Dergisi 2020;5(3):277-280. [Crossref]
14. Ishfaq K, Diah NM, Ali J, Fayyaz B. Psychosocial problems faced by thalassemia major patients of district multan. Pak Pediatr J 2018;42(1):22-26. [Crossref]
15. Elzaree FA, Shehata MA, El Wakeel MA, El-Alameey IR, AbuShady MM, Helal SI. Adaptive functioning and psychosocial problems in children with beta thalassemia major. Open Access Maced J Med Sci 2018;6(12):2337-2341. [Crossref]
16. Vosper J, Evangeli M, Porter JB, Shah F. Psychological factors associated with episodic chelation adherence in Thalassemia. Hemoglobin 2018;42(1):30-36. [Crossref]
17. Anwar K, Waqar S. Psychopathological tendencies and quality of life among patients with thalassemia major. Rawal Medical Journal 2019;43(1):32-38. [Crossref]
18. Kocakusak AS. Distribution of gender according to the age groups in Turkish Republic of Northern Cyprus. Journal of Cyprus Studies 2019;20(44):67-82. [Crossref]
19. Bozkurt G, Baysal E. Thalassemia syndromes: Thalassemia prevention program in Cyprus and its results. Ateş Yayınevi, 2019. [Crossref]
20. Kountouris P, Kousiappa I, Papasavva T, Christopoulos G, Pavlou E, Petrou M, et al. The molecular spectrum and distribution of haemoglobinopathies in Cyprus: a 20-year retrospective study. Sci Rep 2016;6:26371. [Crossref]
21. Ceylan SS, Çetinkaya B, Karabudak SS, Becit N, Kahraman S. Examining the factors affecting quality of life of children and adolescents with beta-thalassemia. J Dr Behcet Uz Child Hosp 2018;8(1):15-22. [Crossref]
22. Kuosmanen K, Rovio S, Kivipelto M, Tuomilehto J, Nissinen A, Kulmala J. Determinants of self-rated health and self-rated physical fitness in middle and old age. Semmelweis University Institute of Mental Health 2016;(11):128-143. [Crossref]